

Raport de Activitate - 2011

Colectivul IMAR

December 6, 2011

1 Lucrari publicate la finele lui 2010 si necontinute in Raportul pe 2010

1.1 In reviste straine cotate ISI

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2. M. Colțoiu, C. Joița: *The Levi problem in the blow-up*, **Osaka Journal of Mathematics** **47** (2010), pag. 943–947
3. Ionescu-Kruse D.: *Peakons arising as particle paths beneath small-amplitude water waves in constant vorticity flows*, **Journal of Nonlinear Mathematical Physics** **17** (2010), pag. 415 – 422.
4. Cornean H. D.; Nenciu G.: *Faraday effect revisited: sum rules and convergence issues*, **JOURNAL OF PHYSICS A-MATHEMATICAL AND THEORETICAL** **43** (2010), Article Number: 474012
5. F. Panaite, F. Van Oystaeyen: *L-R-smash biproducts, double biproducts and a braided category of Yetter-Drinfeld-Long bimodules*, **Rocky Mountain Journal of Mathematics** **40(6)** (2010), pag. 2013 – 2024
6. A. Kristály, M. Mihailescu, V. Rădulescu, S. Tersian: *Spectral estimates for a nonhomogeneous difference problem*, **Communications in Contemporary Mathematics** **12** (2010), pag. 1015–1029.
7. Grigory Panasenko, Ruxandra Stavre: *Asymptotic analysis of the Stokes flow with variable viscosity in a thin elastic channel*, **Networks and Heterogeneous Media**, **5**, (2010), pag. 783 – 812.
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2. C. Cobeli, M. Vâjăitu, A. Zaharescu : *A density theorem on even Farey fractions*, **Rev. Roumaine Math. Pures Appl., Tome LV, No.6** (2010), pag. 447 – 482.
3. C. Cobeli, M. Vâjăitu, A. Zaharescu: *A density theorem on even Farey fractions*, **Rev. Roumaine Math. Pures Appl.** **55** (2010), pag. 447 – 481.
4. T. Zamfirescu: *Pushing convex and other bodies through rings and holes*, **An. Univ. Vest Timişoara, Ser. Mat. -Inf.** **48, 1-2** (2010) 299-306.

1.4 In alte reviste

1. F. P. Boca: *The distribution of the linear flow length in a honeycomb in the small-scatterer limit*, **New York J. Math.** **16** (2010), pag. 651–735.
2. V. Rădulescu: *Combined effects and degenerate phenomena in nonlinear stationary problems*, **Le Matematiche** **LXV** (2010), pag. 169–191.
3. Juergen Sprekels, DanTiba: *Extensions of the control variational method*, **Preprint Weierstrass Institut, Berlin, no. 1572** (2010), pag. 1 – 9
4. A. Zaharescu, M. Zaki: *An ABC analog for arithmetical functions*, **J. Ramanujan Math. Soc.** **25** (2010), pag. 345 – 354.
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1.5 In volume de conferinte

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1. Florin Felix Nichita: *Colocvii Neprogramate, Meetings with Solomon Marcus*, editori: L. Spandonide and G. Paun, Spandugino Publishing House (2010), pag. 895–896 ISBN: 978-606-92456-1-3

2. Benhida, Chafiq; Timotin, Dan: *Automorphism invariance properties for certain families of multioperators*, **Operator theory live**, International Conference on Operator Theory, Timișoara, iulie 2008, editori: Hari Bercovici, Dumitru Gașpar, Dan Timotin, Florian-Horia Vasilescu, Theta Foundation (2010), pag. 5–15, ISBN: 978-973-87899-6-8.

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7. I. Belțiță, D. Belțiță: *Modulation spaces of symbols for representations of nilpotent Lie groups*, **Journal of Fourier Analysis and Applications** **17** (2011), 290–319.
8. I. Belțiță, D. Belțiță: *Continuity of magnetic Weyl calculus*, **Journal of Functional Analysis** **260** (2011), pag. 1944–1968.
9. D. Belțiță, J.E. Galé: *Universal objects in categories of reproducing kernels*, **Revista Matemática Iberoamericana** **27** (2011), pag. 123–179.
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11. L. Beznea, A. Oprina: *Nonlinear PDEs and measure-valued branching type processes*, **J. Math. Anal. Appl.** **384** (2011), pag. 16-32 (scor relativ de influenta: 1,078).
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18. N.C. Bonciocat, A. Zaharescu: *Irreducible multivariate polynomials obtained from polynomials in fewer variables, II*, **Proc. Indian Acad. Sci. Math. Sci.** **121** (2011) no. 2, pag. 133 – 141.
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7 Activitate de cercetare

7.1 Scurta descriere

Achimescu Sever - 1) Forme modulare p-adice. 2) Functii rigid analitice echivariante.

Albu Toma - In anul 2011 m-am ocupat de urmatoarele subiecte:

1. Introducerea si studiul conceptului de latice CC (sau latice extending) care generalizeaza pe cel de CS modul (sau modul extending).
2. Demonstrarea extinderii Teoremei Osofsky-Smith de la module la latici modulare superior continue, cu aplicatii la categoriile Grothendieck si categoriile de module echipate cu teorii de torsiune ereditare.
3. Introducerea si studiul conceptului de clasa de latici $\sigma[L]$ subgenerata de o latice modulara superior continua L , care extinde pe cel de clasa de module $\sigma[M_R]$ subgenerata de un R -modul drept M_R .
4. Introducerea si studiul conceptului de latice injectiva.
5. Dezvoltarea Teoriei tip pentru laticile modulare, care extinde Teoria tip din categoriile de module, cu aplicatii la categoriile Grothendieck si categoriile de module echipate cu teorii de torsiune ereditare.
6. Introducerea si studiul conceptului de pereche Baer de latici modulare, cu aplicatii la categoriile Grothendieck si categoriile de module echipate cu teorii de torsiune ereditare.

Ambro Florin - În anul 2011 am lucrat la doua proiecte de cercetare:

1. *Teoreme de anulare pentru divizori adjuncti.* Teorema de anulare a lui Kodaira rezulta dintr-un rezultat mai general, teorema de injectivitate a lui Esnault-Viehweg. Am extins teorema de injectivitate la cazul log canonic, inclusiv cel relativ. Am obtinut aplicatii la proprietati de conectivitate pentru centrul log canonic ai unei varietati logaritmice de tip Calabi-Yau. Urmeaza sa extind teorema de injectivitate pentru ideale de tip multiplicativ, si la cazul cand ambientul nu este ireductibil (pentru studiul degenerarilor in spatiul de moduli de varietati logaritmice).
2. *Finit generarea inelului log canonic.* Am studiat lucrarile aparute recent pe aceasta tema (Birkar-Cascini-Hacon-McKernan, Cascini-Lazic). Din acest studiu s-a desprins un program de stabilire a finit generarii, printr-o noua metoda, teoria divizibilitatii in inele multi-graduate. Metoda mea este algebrica, si sper sa duca la rezultate efective asupra generatorilor inelelor log canonice. Pana acum am pus la punct acest program, si am studiat invariantii divizibilitatii pe multe exemple de inele multigraduate pe varietati torice.

Anghel Cristian - În anul 2011 am studiat noi exemple de fibrati care nu satisfac inegalitatea tare a lui Bogomolov conjecturata de Douglas, Reinbacher si Yau.

Anton Marian - În anul 2011 am efectuat cercetari in domeniul topologiei algebrice aplicate la retele de sensori si am scris un articol despre o metoda care determina cand o retea de sensori

acopera un domeniu marginit. De asemenea am investigat o serie de conjecturi în omologia grupurilor aritmetice care predict anularea unor clase de omologie provenite din aproximatii etale. Aceste investigatii duc la construirea unor algoritmi de detectare a elementelor transgresive în sirurile spectrale.

Aprodu Marian - În anul 2011 m-am ocupat de trei direcții principale de cercetare.

În primul rând, am continuat, împreună cu Gavril Farkas, studiul curbelor cu geometrie specială în relație cu syzygy-urile scufundărilor lor canonice. În această direcție, am arătat valabilitatea conjecturii Green pentru acoperiri duble general ale curbelor plane și acoperiri triple generale ale curbelor eliptice. Acest rezultat răspunde pozitiv unei întrebări a lui F. Schreyer și a fost acceptat spre publicare.

În al doilea rând, am continuat, împreună cu M. Toma și R. Moraru, studiul fibratelor de rang 2 pe suprafețe Kodaira primare. Arătăm că, în intervalul ne-filtrabil, spațiile de moduli 2-dimensionale sunt la rândul lor suprafețe Kodaira primare. Demonstrația se bazează pe un articol în colaborare cu V. Brînzănescu și M. Toma, precum și pe o serie de articole ale lui V. Brînzănescu și R. Moraru, unde fibratele de rang 2 sunt legate de curbele spectrale.

În al treilea rând, am găsit, împreună cu M. Marchitan, o legătură naturală între două metode clasice de construcție a fibratelor de rang 2 pe suprafețe Hirzebruch.

Arsu Gruia - În anul 2011

În studiul L^2 -mărginiri și a proprietăților Schatten-von Neumann ale operatorilor pseudo-diferențiali, clasele de simboluri folosite sunt spații de funcții (având o structură de algebră respectiv ideal într-o algebră cu înmulțirea obișnuită) care sunt cazuri particulare fie de spații de modulație fie de spații Sobolev uniform locale.

În anul 2011 am continuat studiul spațiilor Sobolev uniform locale cunoscute și ca spații Kato-Sobolev. Spațiile Kato-Sobolev au fost introduse de către Tosio Kato în lucrarea

- The Cauchy problem for quasi-linear symmetric hyperbolic systems, *Arch. Rational Mech. Anal.* **58** (1975), 3, 181–205,

și pot fi privite ca o clasă convenabilă de funcții care local sunt Sobolev și care satisfac un anumit tip de mărginire la infinit. Menționăm că ele au fost definite pentru cazul în care ordinele sunt numere naturale.

În studiul făcut am urmărit câteva direcții pe care le voi menționa acum:

- Renunțarea la restricția privind ordinele spațiilor;
- Stabilirea unor rezultate de scufundare (în spiritul celor ale lui Kato), care exprimă proprietățile de multiplicare ale spațiilor Kato-Sobolev;
- Dezvoltarea unui calcul funcțional analitic pentru algebrele Kato-Sobolev care are la bază o teoremă Wiener-Lévy pentru algebrele Kato-Sobolev;
- Introducerea unei familii crescătoare de spații $\{\mathcal{K}_p^s\}_{1 \leq p \leq \infty}$ pentru care $\mathcal{K}_\infty^s = \mathcal{H}_{ul}^s$ și analiza modului în care ele interpolatează.
- Relația acestor spații cu alte spații folosite ca spații de simboluri pentru operatori pseudo-diferențiali. Mai exact am demonstrat o teoremă de scufundare de forma $\mathcal{K}_{p,v}^s(\mathbb{R}^n) \hookrightarrow S_w^p(\mathbb{R}^n)$, dacă $1 \leq p \leq \infty$, $\mathbb{R}^n = V_1 \oplus \dots \oplus V_j$, $s_1 > \dim V_1$, ..., $s_j > \dim V_j$. Aici $\{S_w^p(\mathbb{R}^n)\}_{1 \leq p \leq \infty}$ sunt o familie de spații de modulație folosite în mod uzual ca spații de simboluri.
- Folosind teorema de scufundare menționată mai sus și proprietățile de interpolare ale spațiilor $\{\mathcal{K}_p^s\}_{1 \leq p \leq \infty}$, am demonstrat rezultate privind proprietățile Schatten-von Neumann ale operatorilor pseudo-diferențiali cu simboluri elemente ale idealelor \mathcal{K}_p^s .

Modul de abordare și tehnicile folosite permit extinderea majorității rezultatelor de la cazul

spațiilor Sobolev la spațiile $\mathcal{B}_k \equiv B_{2,k}$ introduse de Hörmander. În prezent lucrez în această direcție.

Rezultatele fac obiectul lucrării: *On Kato-Sobolev spaces*. Aceasta lucrare a fost postată pe arxiv.org având adresa: <http://arxiv.org/abs/1110.6337>

Badea Lori - În anul 2011 activitatea de cercetare a privit, în principal, studiul metodelor multi-nivel de descompunerea domeniilor aplicate la probleme neliniare provenite din mecanica mediilor continue. Am avut în vedere problemele de plasticitate și problemele de contact cu frecare. Am trimis spre publicare articolul L. Badea, Multigrid methods for some quasi-variational inequalities, **Discrete & Continuous Dynamical Systems - Series S**, submitted, 2011 am în faza finală de redactare lucrarea L. Badea, Global convergence rate of a standard multigrid method for variational inequalities și mi-a fost acceptat spre publicare un articol. De asemenea, am participat la contractul CNCSIS ID-PCE nr. 566/2009 și la subcontractul nr. 1/2010 al contractului CNCSIS, PCCE nr. 6/2010. În sfârșit, am ținut o expunere în cadrul unei conferințe internaționale. Toate aceste activități sunt legate de tematica mai sus menționată.

Baran Andrei - În anul 2011 m-am ocupat de demonstrarea unor rezultate de coerență a imaginilor directe prin aplicații proprii pentru D_X -module coerente (unde D_X este inelul operatorilor diferențiali pe o varietate complexă). Rezultatul poate fi văzut ca o generalizare a teoremei de imagine directă a lui Grauert pentru fascicule coerente pe spații analitice complexe. Dificultatea problemei constă în faptul că un D_X -modul nu admite, în general, o filtrare globală "bună".

O problemă similară, dar mai dificilă, se pune pentru E_X -module (unde E_X este inelul operatorilor pseudodiferențiali definiți pe fibratul cotangent al unei varietăți complexe). Am reușit demonstrarea unor rezultate parțiale - demonstrarea teoremei de coerență a imaginilor directe pentru $E_X(0)$ -module coerente (unde $E_X(0)$ este inelul operatorilor pseudodiferențiali de ordin ≤ 0).

Barcau Alexandru Mugurel - În anul 2011 activitatea mea de cercetare s-a îndreptat către studiul δ -funcțiilor $f : X(\mathbb{Z}_p) \rightarrow \mathbb{Z}_p$, unde X/\mathbb{Z}_p este o schemă netedă. Acest studiu a fost generat de către următorul rezultat al lui A. Buium: o funcție $f : \mathbb{Z}_p \rightarrow \mathbb{Z}_p$ este analitică dacă și numai dacă este o δ -funcție, i.e. există m a.î. f se poate reprezenta sub forma $f(x) = F(x, \delta x, \dots, \delta^m x)$, unde F este o serie de puteri restricționată cu coeficienți din \mathbb{Z}_p . Acest rezultat poate fi văzut ca o "interpolare diferențială"; într-adevăr dacă f este dată de seriile de puteri $G_i(x)$ ce converg pe bilele ce acoperă \mathbb{Z}_p , atunci rezultatul lui Buium spune că se poate găsi o singură serie $F(x, \delta x, \dots, \delta^m x)$ care este egală cu $G_i(x)$ pe B_i pentru fiecare i . Problema pe care o investigăm este generalizarea rezultatului lui Buium: care funcții analitice $f : X(\mathbb{Z}_p) \rightarrow \mathbb{Z}_p$, unde X/\mathbb{Z}_p este o schemă netedă, vin din δ -funcții?

Baditoiu Gabriel - În anul 2011 activitatea de cercetare a privit următoarele probleme:

- (i) a clasificării submersiilor pseudo-Riemann de la diferite spații omogene,
- (ii) a clasificării unor metricilor Einstein omogene și
- (iii) studiul integrabilității ecuației de tip Lax asociată unui algebre Hopf graduată, conexă, și comutativă și extinderea unor rezultate obținute în lucrarea G. Baditoiu and S. Rosenberg, Lax pair equations and Connes-Kreimer renormalization, *Comm. Math. Physics*, 296 (2010), no. 3, 655-680, DOI: 10.1007/s00220-010-1034-7. Am ținut o expunere în cadrul unei conferințe internaționale pe această temă.

Barcanescu Serban - In 2011 am continuat studiul metricilor planului absolut , descrise de anumite configuratii de drepte si puncte, in particular de configuratia Titeica-Johnson . Impreuna cu W.Boskoff si A.Bobe am elaborat o lucrare ce continua la cazul non generic studiul anterior al cazului configuratiei generice.

In contextul preocuparilor Seminarului de Algebra Combinatoriala am aprofundat studiul algebrei McMullen a valuarilor complexelor poliedrale reale , pe linia McMullen-Morelli-Ewald-Brion, care este directionata pe de o parte spre geometria convexa si combinatorica acestor complexe si, pe de alta parte, spre geometria algebrica (prin aparitia naturala a varietatilor torice asociate structurilor poliedrale).

Astfel, via teorema Hirzebruch-Riemann-Roch , se stabileste o legatura directa intre invarianti combinatoriali ai unor politoape (de pilda numarul de puncte laticiale contigue) si invarianti geometrici (de pilda caracteristica Euler) asociati fasciculelor inversabile (definite de politoape) pe anumite varietati torice ale unor evantaie bineprecizate. Clasele Todd ale varietatilor torice apar natural in calculul caracteristicii euleriene. Astfel de legaturi sunt cunoscute pentru varietati torice convenabile (netede, proiective), dar domeniul este intens cercetat deoarece ramane deschis cazul aparitiei singularitatilor precum si exploatarea numerica a datelor in sprijinul unor conjecturi naturale.

(Exista posibilitatea ca sistemul de programe pentru calcule poliedrale, elaborat de prof. W. Bruns(Osnabruck) si dr. Bogdan Ichim(IMAR) sa fie util in directia verificarii numerice a cojecturilor din teoria poliedrelor).

In acelasi context, am studiat posibilitatea aplicarii unei inversiuni Mobius pe o structura ce urmeaza a fi definita (cercetarea diversilor candidati pentru acesta structura este in curs -articolul lui R.Morelli din Advances nr.100(1993) propune un candidat, dar, acesta fiind dat in termeni de geometrie convexa, identificare lui combinatoriala si algebrica nu reiese usor), in vederea algebrizarii teoremei Pick-Reeve-Macdonald, ce leaga calculul volumelor de anumite polinoame laticiale.

Belinschi T. Serban - În anul 2011 am lucrat în două direcții: studiul distribuțiilor cu valori operatori si al transformărilor analitice asociate lor, și studiul valorilor proprii ale matricilor aleatoare unitar invariante. Prima directie de studiu a produs deja un articol (mentionat în sectiunea 7.3). În clipa de față plănuiesc sa dezvolt acest subiect in doua sub-directii: prima este o dezvoltare a unei teorii H^p necomutative în spiritul teoriei H^∞ dezvoltate deja de Voiculescu. Lucrez la acest proiect în colaborare cu mai multi co-autori, în special cu Mihai Popa și Victor Vinnikov. A doua directie se referă la identificarea noțiunilor necomutative analoge teoriei polinoamelor ortogonale din analiza clasică. Acest proiect se desfașoara in colaborare cu M. Anshelevich, F. Boca și R. Speicher. Al doilea subiect de studiu urmărește in principal o mai bună înțelegere a comportamentului asimptotic al sumelor de tipul $UAU^* + VB V^*$, unde U, V sunt matrici unitare $N \times N$ aleatoare Haar-distribuite si A, B sunt matrici deterministe. Am inceput acest proiect în timpul vizitei mele la Insitulul de Matematica din Toulouse, impreuna cu Mireille Capitaine.

Beltita Daniel - În anul 2011, Daniel Beltiță efectuat o activitate de cercetare în următoarele direcții:

- (i) În colaborare cu Ingrid Beltiță (IMAR) a rezolvat o problemă de liniaritate pentru vectorii diferențiabili în raport cu unele reprezentări de grupuri Lie infinit dimensionale pe spații local convexe. Această problemă este similară cu fenomenul legat de faptul că liniaritatea diferențialei unei funcții de mai multe variabile nu este asigurată de simpla existență a

derivatelor parțiale ale acelei funcții. În acest sens s-a obținut de fapt un rezultat general valabil pentru grupurile topologice pentru care multimea subgrupurilor cu un parametru are o structura de spațiu vectorial cu adunarea definită printr-o formulă Trotter în care convergența este uniformă pe intervalele compacte. În acest cadru s-a demonstrat liniaritatea diferențialei pentru orice funcție care este local uniform continuu diferențiable pe grup. Rezultat este valabil pentru clase largi de grupuri topologice: grupuri Lie local exponențiale (în particular grupuri Lie-Banach), grupuri de bucle, grupuri de difeomorfisme ale varietăților compacte, grupuri conexe local compacte, grupuri unitare ale algebrelor von Neumann cu urme finite, limite directe de grupuri Lie finit dimensionale, grupuri topologice nilpotente. Aceste rezultate au fost deja publicate în articolul de I. Belțiță și D. Belțiță: *On differentiability of vectors in Lie group representations*, Journal of Lie Theory 21 (2011), 771–785.

- (ii) Tot în colaborare cu Ingrid Belțiță (IMAR) a demonstrat că orice algebră Lie local convexă nilpotentă are o reprezentare fidelă prin operatori liniari nilpotenți pe un spațiu local convex. În cazul unei algebre Lie-Banach nilpotente se obține o reprezentare mărginită prin operatori mărginiți nilpotenți pe un spațiu Banach. Aceste rezultate rezolvă o problemă ridicată de K.-H. Neeb (*Towards a Lie theory of locally convex groups* Japanese J. Math. 1 (2006), no. 2, 291-468) și sunt incluse într-o lucrare ce a fost trimisă spre publicare și este accesibilă sub forma preprintului arXiv:1108.5563v1 [math.RT].

Beltita Ingrid - În anul 2011, Ingrid Belțiță efectuat o activitate de cercetare în următoarele direcții:

- (i) În colaborare cu Daniel Belțiță (IMAR) a rezolvat o problemă de liniaritate pentru vectorii diferențiable în raport cu unele reprezentări de grupuri Lie (infiniț dimensionale) pe spații local convexe, problemă legată de faptul că, în general, liniaritatea diferențialei unei funcții de mai multe variabile nu este asigurată de simpla existență a derivatelor parțiale ale acelei funcții. S-a demonstrat liniaritatea diferențialei pentru orice funcție local uniform continuu diferențiable pe un grup topologic pentru care multimea subgrupurilor cu un parametru are o structură de spațiu vectorial cu adunarea definită printr-o formulă Trotter în care convergența este uniformă pe intervalele compacte. Rezultatul este valabil pentru clase importante de grupuri topologice: grupuri Lie local exponențiale (în particular grupuri Lie-Banach), grupuri de bucle, grupuri de difeomorfisme ale varietăților compacte, grupuri conexe local compacte, grupuri unitare ale algebrelor von Neumann cu urme finite, limite directe de grupuri Lie finit dimensionale, grupuri topologice nilpotente. Aceste rezultate au fost deja publicate în articolul de I. Belțiță și D. Belțiță: *On differentiability of vectors in Lie group representations*, Journal of Lie Theory 21 (2011), 771–785.
- (ii) În colaborare cu Daniel Belțiță (IMAR) a demonstrat o variană de teoremă Birkhoff de scufundare pentru algebre Lie convexe nilpotente. Astfel, a demonstrat că orice algebră Lie local convexă nilpotentă are o reprezentare fidelă prin operatori liniari nilpotenți pe un spațiu local convex. Pentru algebre Lie-Banach nilpotente se obține astfel o reprezentare mărginită prin operatori mărginiți nilpotenți pe un spațiu Banach. Aceste rezultate rezolvă o problemă ridicată de K.-H. Neeb (*Towards a Lie theory of locally convex groups* Japanese J. Math. 1 (2006), no. 2, 291-468) și sunt incluse într-o lucrare ce a fost trimisă spre publicare și este accesibilă sub forma preprintului arXiv:1108.5563v1 [math.RT].

Berceanu Barbu - În anul 2011 am reluat studiul spațiilor de configurații ale varietatilor proiective complexe, folosind modelul Fulton-MacPherson-Kriz și teoria reprezentărilor grupului simetric. În paralel am studiat asimptotica nodurilor prime.

Beznea Lucian - În anul 2011 am continuat aplicarea de metode analitice și probabiliste de teoria potențialului în situații infinit dimensionale. În particular, am continuat studiul regularității traiectoriilor proceselor Markov, având un spațiu general de stări, cu aplicații la ecuații diferențiale stocastice pe spații Hilbert, continuând colaborarea cu Michael Röckner (Univ. Bielefeld). Am studiat (în colaborare cu O. Lupașcu) existența și regularitatea proceselor de ramificare discretă cu valori măsurate.

Boca Florin-Petre - În anul 2011 am continuat studiul distribuției punctelor laticiale hiperbolice. Grupul modular $\Gamma = PSL_2(\mathbb{Z})$ acționează pe semiplanul superior $\mathbb{H} = \{\Im z > 0\}$ prin transformări fracționare liniare. Fie $R > 0$ și $Q = e^{R/2}$. Considerăm toate punctele laticiale hiperbolice γi , $\gamma \in \Gamma$, din interiorul discului hiperbolic de centru i și rază R . Să notăm cu $\theta_\gamma \in [-\pi, \pi]$ unghiul dintre geodezica verticală $[i, 0]$ și raza geodezică $[i, \gamma i]$. Se știe că numărul de elemente ale acestei mulțimi (cu multiplicități) este $4B_Q \sim 3Q^2/2$ și că unghiurile θ_γ sunt uniform distribuite când $R \rightarrow \infty$. De fapt aceste unghiuri sunt exact unghiurile dintre geodezicele închise pe suprafața modulară $\mathcal{M} = \Gamma \backslash \mathbb{H}$ ce trec prin $\Pi(i)$, unde $\Pi : \mathbb{H} \rightarrow \mathcal{M}$ este aplicația cât. Geodezicele închise de acest tip pe \mathcal{M} au fost considerate inițial de R. Fricke and F. Klein (1892). Recent, ele au fost studiate într-un context modern și numite geodezice reciproce de către P. Sarnak (2007).

Statistica spațiilor dintre elementele unui șir, în particular perechea de corelație, dă o măsură mai fină asupra “gradului de distribuție uniformă” a unui șir, sau mai general a unui șir crescător de submulțimi finite din $[0, 1]$. Reamintim că pentru statistica de tip Poisson densitatea g_2 a perechii de corelație este egală cu funcția constantă 1. În general problema determinării perechii de corelație este dificilă. Dintre exemplele interesante de șiruri care nu au statistică de tip Poisson menționăm: șiruri de tip Farey (studiate de Boca, Zaharescu și co-autori), părțile fracționare ale lui \sqrt{n} (studiate de N. Elkies și C. McMullen), punctele vizibile asociate laticilor translatale aleator (J. Marklof și A. Strömbergsson).

Un rezultat obținut în ultimul an în colaborare cu A. A. Popa, V. Pașol și A. Zaharescu arată că perechea de corelație a unghiurilor menționate mai sus există și nu este Poisson când $R \rightarrow \infty$. Densitatea ei este o funcție continuă g_2 ce se poate calcula efectiv. În particular se arată că

$$g_2(0) = \frac{8}{3} \sum_{\mathcal{C}} \sum_{n=1}^{\infty} \frac{1}{e^{n\ell(\mathcal{C})} - 1} = 0.7015\dots,$$

unde sumarea se face după toate geodezicele primitive reciproce \mathcal{C} de lungime $\ell(\mathcal{C})$. Acest lucru arată că iregularitățile din distribuția unghiulară a punctelor laticiale hiperbolice apar ca urmare a unor motive subtile de natură aritmetică.

Un alt fapt interesant este că înlocuirea “originii” i cu un alt punct $\omega \in \mathcal{M}$ produce în general o pereche de corelație diferită. Acest fenomen va fi discutat în detaliu într-o lucrare în colaborare cu Popa și Zaharescu.

Bonciocat Anca Iuliana - În anul 2011 am obținut o serie de rezultate legate de studiul inegalităților funcționale pe spații metrice cu măsură și de factorizarea polinoamelor, după cum urmează:

- m-am ocupat cu studiul inegalităților Talagrand de tip transportation cost pe spații metrice

discrete și grafuri; am studiat o inegalitate slabă de transport în cazul spațiilor metrice discrete cu curbura Ricci minorată, ce are drept consecință o inegalitate de concentrare a măsurii de referință pe spațiul metric considerat; am obținut rezultate de integrabilitate a funcțiilor Lipschitz pe spații metrice ce satisfac o inegalitate Talagrand slabă de transport.

- am studiat extinderi ale inegalităților de transport, înlocuind metrica Wasserstein cu metricile definite în articolul *A new class of transport distances between measures*. (Calc. Var. Partial Differential Equations 34, no. 2, 193231 (2009), autori J. Dolbeault, B. Nazaret, G. Savare); în cazul continuu aceste inegalități sunt echivalente cu inegalitățile Talagrand de transport, însă în cazul discret se obțin inegalități mai slabe.

- am obținut criterii de ireductibilitate pentru polinoame ai căror coeficienți sunt obținuți prin exprimarea numerelor prime prin diverse forme pătratice (e.g. forme pătratice având coeficienții dați de șirul lui Lucas) și am exprimat rezultatul dintre un polinom arbitrar și un polinom de grad 2, prin intermediul unor forme liniare recurente de ordinul 2.

- am obținut criterii de ireductibilitate pentru polinoame Littlewood, ca și pentru alte clase de polinoame cu coeficienți întregi.

Bonciocat Nicolae Ciprian - În anul 2011 am obținut o serie de rezultate privind factorizarea polinoamelor și studiul ecuațiilor diofantice, după cum urmează:

- dacă f și g sunt polinoame cu coeficienți întregi, și $|g(\theta)| > 1$ pentru orice rădăcină θ a lui f , atunci numărul total al factorilor ireductibili ai lui f (numerați cu multiplicități) nu poate depăși numărul total al factorilor primi ai rezultatului lui f și g (numerați cu multiplicități).

- dacă f și g sunt polinoame cu coeficienți întregi și $|Res(f, g)| = p \cdot q$, unde p este un număr prim și q este un întreg pozitiv, și $|g(\theta)| > q$ pentru fiecare rădăcină θ a lui f , atunci f este ireductibil peste \mathbb{Q} .

- dacă f este un polinom Littlewood de grad n astfel încât $|b^n f(c/b)|$ este un număr prim pentru doi întregi nenuli b, c cu $|c| \geq 2|b| + 1$ sau $|b| \geq 2|c| + 1$, atunci f este ireductibil.

- exprimarea rezultatului dintre un polinom arbitrar și un polinom de grad 2 prin intermediul unor forme liniare recurente de ordinul 2, și obținerea de criterii de ireductibilitate pentru polinoame ai căror coeficienți sunt obținuți prin exprimarea numerelor prime prin diferite forme pătratice (de exemplu forme pătratice având coeficienții dați de șirul lui Lucas).

- pentru orice întreg $k \geq 2$ și orice două polinoame relativ prime $f, g \in \mathbb{Z}[X]$ cu $\deg g - \deg f \in \{1, 2, 3\}$, polinomul $f(X) + p^k g(X)$ este ireductibil peste \mathbb{Q} dacă p este un număr prim suficient de mare (deci pentru toate numerele prime mai mari decât o anumită constantă p_0).

- date fiind două polinoame relativ prime $f, g \in \mathbb{Z}[X]$ cu $\deg g - \deg f \in \{1, 2, 3\}$, și orice număr prim p care nu divide coeficientul dominant al lui f , polinomul $f(X) + p^k g(X)$ este ireductibil peste \mathbb{Q} pentru k număr natural suficient de mare (deci pentru toate numerele naturale k mai mari decât o anumită constantă k_0).

- obținerea unor demonstrații efective pentru cele două rezultate anterior menționate, și anume găsirea unor expresii concrete pentru p_0 și k_0 în funcție de înalțimile și gradele celor două polinoame f și g , și îmbunătățirea pentru cazul $k = 1$ a constantei p_0 cunoscute anterior.

- obținerea unor rezultate similare pentru polinoame în mai multe nedeterminate peste un corp arbitrar, în care numărul prim p este înlocuit cu un polinom ireductibil într-un număr arbitrar r de nedeterminate X_1, \dots, X_r , de grad suficient de mare în raport cu una dintre nedeterminate, iar f și g sunt polinoame relativ prime în $r + 1$ nedeterminate X_1, \dots, X_{r+1} .

- reducerea marginilor pentru componente și pentru numărul eventualelor $D(-1)$ -cuadrupluri existente, în speranța probării conjecturii care afirmă inexistența unor astfel de cuadrupluri.

Brinzanescu Vasile - În anul 2011 am abordat probleme din următoarele teme de cercetare:
(a) Spații de moduli de fibrati vectoriali pe varietati Calabi-Yau eliptice de dimensiune 3;
(b) Sisteme hamiltoniene complet integrabile algebric.

Buliga Marius - În anul 2011 am continuat studiul spațiilor metrice cu dilatări (sau structuri cu dilatări) și formulă variaționale care utilizează bipotențialele.

Burciu Sebastian - În acest an au fost studiate categoriile de fuziune, în principal cele care admit un functor fibrat și deci provin din algebre Hopf semisimple. A fost de asemenea continuat studiul nucleelor de reprezentari pentru algebrele Hopf semisimple. A fost introdusa notiunea de nucleu stang și drept pentru a compensa lipsa de normalitate a notiunii de nucleu definita anterior în Proc AMS 12/2009. Aceasta noua notiune de nucleu permite obtinerea unui rezultat similar teoremei Brauer pentru orice algebra Hopf semisimpla.

S-a studiat structura subalgebrelor coideal ale algebrelor Hopf de tipul $A\#kF$ unde A este o algebra Hopf și F un grup finit. În cazul particular $A = kG^*$ se obțin subalgebrele coideal ale algebrelor de tip Kac. În acest caz, o caracterizare completa pentru subalgebrele Hopf normale ale acestor algebre Hopf a fost găsită. Rezultatul obținut generalizează rezultatele deja cunoscute pentru C^* -algebre.

Folosind tehnici asemnătoare s-au studiat de asemenea subcategoriile de fuziune ale unui cross product dintr-o categorie de fuziune \mathcal{C} și un grup finit G care acționează pe această categorie. Caracterizarea acestora este făcută în funcție de o subcategorie de fuziune \mathcal{D} a lui \mathcal{C} , un subgroup al lui G și anumite coseturi generate de subcategoria de fuziune \mathcal{D} . Modul de interacțiune între aceste coseturi rămâne de studiat în continuare.

A fost de asemenea început studiul factorizarilor algebrelor Hopf semisimple și primele rezultate în acest sens au fost publicate în articolul 1 din lista de publicații 2.1. Se dorește realizarea unei conexiuni între toate factorizarile posibile ale unei algebre Hopf semisimple și centralizatoarele Mueger pentru subcategoriile de fuziune generate de algebra Hopf semisimpla. O astfel de conexiune a fost realizată de Mueger în articolul în care a introdus notiunea de centralizator dar doar pentru categoriile de fuziune Vec_G cu G abelian. În particular se va încerca să se descrie factorizarile primare pentru categoriile de fuziune de tipul $\text{Rep}(D(A))$. Faptul că un sir exact scurt de categorii de fuziune a fost de asemenea încercată o caracterizare a catului corepunzător conform unui articol al lui Natale și Bruguières.

De asemenea folosind teoria Clifford introdusă în articolul 2 de la 2.1 s-a început studiul reprezentărilor ireductibile ale unui dublu quantice.

Buruiana Nicolae - În anul 2011 am abordat problema următoare. Se știe că unei curbe algebrice pe o varietate abeliană i se pot atașa o serie de clase numerice în orice codimensiune analoage ciclilor Weil pe o jacobiană. Într-o lucrare mai veche am studiat proprietățile numerice ale acestor clase iar anul acesta m-am interesat de posibile aplicații ale formulelor obținute acolo. În context am arătat că pe această cale se pot reobține, în caracteristica arbitrară, teoreme ale lui Matsusaka, Hoyt și Ran. O lucrare cu această temă este în curs de redactare.

Calinescu Corina - Domeniul meu curent de cercetare este în teoria vertex operator algebras și teoria reprezentărilor algebrelor Lie de dimensiune infinită. În anul 2011 am lucrat la proiectul "Vertex-algebraic structure of the standard modules for affine Lie algebras". Tehnicile folosite în acest proiect sunt din teoria operatorilor intertwining, a algebrelor comutative intertwining (abelian intertwining algebras), algebrelor Lie și teoria partițiilor.

Capatina Anca - În anul 2011 am continuat studiul comportamentului asimptotic al unor ecuații eliptice cu coeficienți tare oscilanți într-un domeniu perforat periodic cu diverse tipuri de perforații în fiecare perioadă și cu condiții diferite pe frontierele acestor perforații. Utilizând metoda desfășurării periodice, în cazul unor condiții de tip Signorini și, respectiv, Neumann, am demonstrat că, la limită când $\epsilon \rightarrow 0$, obținem o ecuație eliptică ce conține doi termeni adiționali: un termen în membrul drept și un termen “strange”. Acești termeni capturează cele două surse de oscilații implicate în această problemă; mai precis, acele oscilații provenite din dimensiunea specială a perforațiilor (cazul critic) cât și acelea datorate structurii heterogene a mediului. Pe de altă parte, în problema limită, efectul de împrăștiere, datorat condiției unilaterale Signorini $u_\epsilon \geq 0$, poate fi resimțit prin faptul că termenul “straniu” conține doar partea negativă a soluției. Aceste rezultate au fost finalizate într-un articol trimis spre publicare:

- A. Capatina, H. Ene, C. Timofte, *Homogenization results for elliptic problems in periodically perforated domains with mixed-type boundary conditions*, în **Asymptotic analysis**

De asemenea, am demarat (împreună cu H. Ene și C. Timofte) cercetarea unor probleme similare. Mai precis, am studiat comportamentul asimptotic pentru problema obstacolului considerând perforații Signorini de aceeași mărime cu perioada (perforații mari) și perforații Neumann critice (perforații mici), obținând, la limită, o inegalitate variațională. În cazul a două tipuri de perforații critice (mici) de tip Neumann, am arătat că problema limită este sub forma unei ecuații cu doi termeni adiționali în membrul drept.

O altă direcție a activității mele de cercetare a fost finalizarea monografiei despre inegalități variaționale și probleme de contact, lucrare trimisă spre publicare.

Cheptea Dorin - În anul 2011 am elaborat un articol ”Determination of perturbative invariants of 3-dimensional manifolds by weight systems”, care a fost trimis spre publicare la o revista ISI (Comment. Math. Helv.). De asemenea, suntem pe punctul de a finaliza articolul împreună cu K.-M. Jacobsson de la Uppsala, la care am lucrat și în 2010, care sperăm să fie trimis spre publicare până la sfârșitul anului.

Chiose Ionut - În anul 2011 am continuat studiul suprafețelor de clasa VII, scopul fiind de a arăta (pornind de la clasificarea suprafețelor de rang Kähler egal cu 1) ca întotdeauna există un ciclu de curbe raționale pe astfel de suprafețe.

Am trimis spre publicare lucrarea *Obstructions to the Existence of Kähler Structures on Compact Complex Manifolds* la Math Z.

Chiriacescu Gabriel - În anul 2011, am continuat să studiez suportul modulelor de coomologie locală, mai exact când acest suport este o multime Zariski închisă a spectrului inelului de bază. Problema este încă deschisă, ea fiind strins legată de finitudinea multimii idealelor prime asociate modulelor de coomologie locală. Ultima problemă a primit un răspuns negativ datorat contraexemplului lui Singh, Katzmann, Katzmann și Swanson.

Cu toate acestea se ridică următoarea problemă:

Problema 1 Fie R un inel local Noetherian, M un R -modul finit generat, I un ideal al lui R și $i \geq 0$. Este $\text{Min}(\text{Ass}H_i^1(R))$ o multime finită?

O reformulare a acestei probleme într-un limbaj topologic, o transformă în următoarea conjectură:

Conjectura 1 Fie R un inel local Noetherian, M un R -modul finit generat, I un ideal al lui R și $i \geq 0$. Este $\text{Supp}(H_I^i(R))$ o multime Zariski închisă?

Mi-am concentrat atenția asupra unei probleme înrudite și anume când $\text{Supp}(\bigoplus_{i \geq k} H_I^i(R))$ este o multime închisă.

Cimpoeas Mircea - În anul 2011 mi-am continuat activitatea de cercetare pe mai multe direcții, publicând mai multe preprinturi electronice. În lucrarea "Vertex cover algebras of simplicial multicomplexes" am introdus noțiunea de "vertex cover algebras" (algebre de acoperire cu vârfuri) pentru multicomplexe simpliciale, generalizând o noțiune introdusă de Jürgen Herzog. De asemenea, am dat o teoremă de caracterizare a acestor algebre, în cazul particular al unui multicomplex cu o singură fațetă maximală.

În lucrarea "Multigraded modules of Borel type", am generalizat noțiunea de "tip Borel" de la ideale la module multigraduate, arătând că anumite proprietăți specifice idealelor de tip Borel se transferă și în acest caz mai general. Într-un cadru similar, în lucrarea "Regularity of symbolic and bracket powers of Borel type ideals", am calculat explicit regularitatea pentru puterile simbolice și puterile "bracket" pentru ideale de tip Borel.

În lucrarea "Several inequalities regarding sdepth", am dat mai multe margini pentru invariantul sdepth pentru intersecții, sume, câțuri de ideale monomiale, dar și pentru inelele cât respective, în funcție de sdepth-ul idealelor (inelelor cât) inițiale. Ca o consecință, am obținut mai multe forme echivalente pentru conjectura Stanley. În lucrarea "A note on Stanley conjecture for monomial ideals", am demonstrat că idealele (și inelele cât) cu un număr relativ mic de generatori verifică conjectura Stanley, extinzând rezultate similare ale altor autori. De asemenea, am dat o metodă prin care, în cazuri particulare, se poate determina dacă un ideal (cât de ideal) satisface conjectura Stanley.

Cipu Mihai - În anul 2011 m-am ocupat de ireductibilitatea polinoamelor și de $D(-1)$ -cadrupluri.

Pólya a arătat că un polinom cu coeficienți întregi care ia multe valori mici pentru valori întregi ale variabilei este ireductibil. Împreună cu N. C. Bonciocat și colaboratorii de la Univ. Strasbourg Y. Bugeaud și M. Mignotte am obținut un analog al acestui rezultat pentru polinoame de mai multe variabile cu coeficienți într-un corp arbitrar. Lucrarea noastră va fi publicată în *Communications in Algebra*. Constatând că cele mai multe criterii de ireductibilitate peste inelul întregilor se aplică polinoamelor unitare, am trecut la studierea polinoamelor cu coeficientul dominant supraunitar. Împreună cu aceiași colaboratori studiem în prezent ireductibilitatea polinoamelor cu coeficienți întregi ce se pun sub forma $f + p^k g$, unde p este număr prim, iar g are gradul mai mare decât f .

Cealaltă problemă la care am lucrat în acest an provine de la Diofant. Se caută mulțimi de numere naturale cu proprietatea că produsul oricăror două elemente distincte ale sale este succesul unui pătrat perfect. Se cunoaște că o astfel de mulțime nu poate avea mai mult de patru elemente. În plus, orice $D(-1)$ -cadruplu (a, b, c, d) verifică $a = 1$, $b > 100$, $c < 10^{491}$, iar numărul lor nu poate depăși 10^{356} . Într-o lucrare comună cu N. C. Bonciocat și M. Mignotte am dat noi condiții necesare pentru existența $D(-1)$ -cadruplurilor, între care $b > 10^{13}$ și $\max\{10^{14}b, b^{1,16}\} < c < \min\{2.5 b^6, 10^{148}\}$. Am arătat, de asemenea, că nu pot exista mai mult de 10^{71} de astfel de mulțimi. În prezent suntem pe cale de a confirma o conjectură a lui Dujella, potrivit căreia nu există $D(-1)$ -cadrupluri.

Coanda Iustin - În anul 2011 I. Coandă a elaborat, în colaborare cu D. Faenzi (Universitatea Pau, Franța), lucrarea *A refined stable restriction theorem for vector bundles on quadric three-folds* (ce va fi postată, curând, pe arXiv [math.AG]). În această lucrare se arată că dacă E este un fibrat stabil de rang 2 pe o hipercuadrică netedă Q din spațiul proiectiv 4-dimensional \mathbb{P}^4 atunci mulțimea hiperplanelor H din \mathbb{P}^4 pentru care restricția lui E la secțiunea hiperplană $H \cap Q$ nu e stabilă formează, în general, o submulțime închisă de codimensiune cel puțin 2 a spațiului proiectiv dual \mathbb{P}^{4V} . În plus, fibratele E care nu au această proprietate sunt descrise explicit. Acest rezultat rafinează o teoremă a lui L. Ein și I. Sols [*Nagoya Math. J* 96 (1984), 11–22] în același mod în care rezultatul principal al lucrării lui I. Coandă [*J. reine angew. Math.* 428 (1992), 97–110] rafinează teorema de restricție a lui Barth [*Math. Ann.* 226 (1977), 125–150] pentru fibrate vectoriale stabile de rang 2 pe \mathbb{P}^3 . Lucrarea lui Coandă a fost folosită în studiul spațiilor de moduli de fibrate de tip instanton matematic pe \mathbb{P}^3 . Motivația care a stat la baza elaborării lucrării lui Coandă și Faenzi e faptul că acesta din urmă a introdus, recent, o noțiune naturală de *fibrat instanton matematic* pe hipercuadrica din \mathbb{P}^4 și, mai general, pe varietăți Fano de dimensiune 3 cu grupul Picard ciclic.

Cobeli Cristian - În anul 2011 am studiat o serie de probleme legate în special de construcția și proprietățile aritmetice, geometrice și probabilistice ale pachetelor apoloniene de cercuri, construite recursiv prin înserări multiple.

Cojocaru Alina-Carmen - În anul 2011 activitatea mea de cercetare s-a concentrat pe studiul reducerilor modulo primi ale unui modul Drinfeld de rang arbitrar.

Coltoiu Mihnea - În anul 2011 am studiat împreună cu Cezar Joita probleme legate de q -convexitatea acoperirii linkului, algebricitatea imaginilor de varietati proiective, condiția discului pentru acoperiri de suprafețe 1-convexe.

Constantinescu Adrian - În anul 2011,

a) am obținut o caracterizare simplă a clasei de morfisme de scheme peste un corp k , determinată anterior prin impunerea unei condiții topologice universale asupra morfismelor, pentru care proprietatea de coborare a proprietății de a fi varietate algebrică să aibă loc: această caracterizare se bazează pe o restrângere la minimum a gradului de universalitate a proprietății topologice invocate (Această clasă conține morfismele universal închise (în particular, proprii sau întregi) surjective, fidel plate, pe cele care apar în teoreme centrale de invarianți, morfismele tare submersive (definite de M. Nagata și D. Mumford), dar și pe cele universal deschise surjective - dovedite recent ca aparținând aceastei clase, s.a.). Demonstrația se bazează pe utilizarea de corpuri valuate.

Legat de caracterizarea de mai sus și legătura cu corpurile valuate, poate fi dat și un criteriu valuativ de recunoaștere a morfismelor aparținând acestei clase.

b) am revenit asupra unor preocupări anterioare privind finit generarea subalgebrelor \mathbb{N} -graduate ale algebrelor de tip finit peste un corp k , motivat și de prezenta acestei probleme în abordarea Programului Mori (“Minimal Model Program”), legat de clasificarea varietatilor algebrice.

Pentru k arbitrar și subalgebre \mathbb{N} -graduate ale unor algebre \mathbb{N} -graduate de tip finit (cu graduari compatibile), poate fi formulat un criteriu algebric simplu de finit generare. Demonstrația dată în acest moment este una de natura geometrică.

Pentru $k = \mathbb{C}$, se poate găsi o caracterizare pur topologică a finit generării unei subalgebre \mathbb{N} -graduate A în termeni de topologii Gelfand (“fine”) definite pe multimile de ideale maximale

(puncte inchise) $(Proj A)_{cl}$ și $(Spec A_0)_{cl}$ - topologii definite și introduse anterior de noi : A este finit generată dacă și numai dacă $(Spec A_0)_{cl}$ este local compactă, morfismul canonic $(Proj A)_{cl} \rightarrow (Spec A_0)_{cl}$ este propriu (ambele condiții relativ la topologiile Gelfand), iar $Proj A$ este o schema cuasicompactă (în raport cu topologia Zariski). Dacă $dim A \leq 2$ sau $A_0 = \mathbb{C}$, ultima condiție, de cuasicompacitate, poate fi omisă. Ramane de stabilit dacă acest lucru este posibil în general, pentru A arbitrar. Acest rezultat permite o demonstrație simplă, în cazul $k = \mathbb{C}$, a unei teoreme foarte uzitate a lui Zariski și poate fi aplicat direct și la “result of Zariski and Constantinescu” (MR1836861 (2002e:14022)).

Constantinescu Alexandru - În anul 2011 am lucrat în colaborare cu Matteo Varbaro (Universitățile di Genova) la probleme care leagă algebra comutativă de combinatorică. În particular, ne-am ocupat de o conjectură propusă de R. Stanley. Această conjectură pune în legătură h -vectorii idealelor definite de matroizi (un invariant algebric) cu O -șiruri pure (*Engl.: pure O-sequences*) - un obiect pur combinatoric. Această problemă a fost intens studiată de mai mulți cercetători în ultimii ani (vezi J. Migliore, U. Nagel, M. Boij et al.). Împreună am reușit să demonstrăm conjectura în mai multe cazuri semnificative. În plus am făcut acest lucru folosind o abordare complet nouă a problemei.

Tot în 2011 am colaborat cu Elisa Gorla și Matey Mateev (ambii Universitățile Basel). Împreună am studiat interacțiunile dintre obiecte algebrice cu o structură combinatorică subadiacentă și *liaison theory* (o teorie de clasificare în geometria proiectivă). În particular ne-am ocupat de două probleme. Prima se referă la legătura dintre ideale torice definite de grafuri și intersecții complete. A doua problemă constă în descrierea unor invarianți numerici algebrici (funcția Hilbert și numerele Betti) ai varietăților determinanțale standard. În acest caz *liaison theory* este principalul instrument de studiu.

Daia Liviu - În perioada scursă de la precedentul raport de activitate am studiat problema invarianței la imaginea inversă a *quasi-b-funcțiilor* în sensul lui Laurent în categoria \mathcal{D}_X -modulelor olonome.

Mai precis, fie mai întâi X o varietate complexă, \mathcal{O}_X fasciculul funcțiilor olomorfe pe X , și \mathcal{D}_X fasciculul operatorilor diferențiali cu coeficienți în \mathcal{O}_X . Fie $\varphi = (\varphi_1, \dots, \varphi_d)$ o aplicație colomorfă a lui X în $W = \mathbb{C}^d$ și $m_1, \dots, m_d \in \mathbb{N}^*$ prime între ele. Definim o filtrare pe \mathcal{O}_X prin:

$$V_k^\varphi \mathcal{O}_X = \sum_{\langle m, \alpha \rangle = -k} \mathcal{O}_X \varphi^\alpha \quad (1)$$

cu $\alpha \in \mathbb{N}^d$, $\langle m, \alpha \rangle = \sum m_i \alpha_i$ și $\varphi^\alpha = \varphi_1^{\alpha_1} \dots \varphi_d^{\alpha_d}$. Pentru $k \geq 0$ punem $V_k^\varphi \mathcal{O}_X = \mathcal{O}_X$. Această filtrare se extinde la o filtrare pe \mathcal{D}_X :

$$V_k^\varphi \mathcal{D}_X = \{ P \in \mathcal{D}_X \mid PV_l^\varphi \mathcal{O}_X \subset V_{l+k}^\varphi \mathcal{O}_X, (\forall) l \in \mathbb{Z} \} \quad (2)$$

Notăm cu Θ_X fasciculul câmpurilor de vectori pe X . **Definiție.** Numim (φ, m) -câmp de vectori Euler cu ponderi pe X un câmp η pe X astfel încât:

- $\eta(\varphi_i) - m_i \varphi_i \in V_{-m_i-1}^\varphi \mathcal{O}_X$ pentru $i = 1, \dots, d$, și
- $\eta \in \sum_i \varphi_i \Theta_X$.

Definiție. Fie \mathcal{M} un \mathcal{D}_X -modul coerent, și fie $V^\varphi \mathcal{M}$ o $V^\varphi \mathcal{D}_X$ -filtrare bună. Un polinom $b \in \mathbb{C}[X]$ se numește *quasi-b-funcție de tip (φ, m)* pe $V^\varphi \mathcal{M}$ dacă există un (φ, m) -câmp de vectori Euler cu ponderi η astfel încât:

$$b(\eta + k) V_k^\varphi \mathcal{M} \subset V_{k-1}^\varphi \mathcal{M}, \quad (\forall) k \in \mathbb{Z}. \quad (3)$$

Considerăm acum două aplicații olomorfe $\varphi: X \rightarrow W = \mathbb{C}^d$ și $\varphi': X' \rightarrow W' = \mathbb{C}^{d'}$, și fie $m_1, \dots, m_d, m'_1, \dots, m'_{d'} \in \mathbb{N}^*$. Fie $f: X' \rightarrow X$ și $F: W' \rightarrow W$ aplicații olomorfe astfel încât $\varphi \circ f = F \circ \varphi'$, și presupunem că F este un polinom quasi-omogen, adică $F = (F_1, \dots, F_d)$ cu $F_i(\lambda^{m'_1} x_1, \dots, \lambda^{m'_{d'}} x_{d'}) = \lambda^{m_i} F_i(x_1, \dots, x_d)$. Dacă \mathcal{N} este un \mathcal{D}_X -modul, imaginea sa inversă este:

$$f^+ \mathcal{N} = \mathcal{O}_{X'} \otimes_{f^{-1} \mathcal{O}_X} f^{-1} \mathcal{N} = \mathcal{D}_{X' \rightarrow X} \otimes_{f^{-1} \mathcal{D}_X} f^{-1} \mathcal{N} \quad (4)$$

unde $\mathcal{D}_{X' \rightarrow X}$ este $(\mathcal{D}_{X'}, f^{-1} \mathcal{D}_X)$ -bimodulul $\mathcal{O}_{X'} \otimes_{f^{-1} \mathcal{O}_X} f^{-1} \mathcal{D}_X$. Dacă \mathcal{N} are o V^φ -filtrare, atunci aceasta induce o $V^{\varphi'} \mathcal{D}_{X'}$ -filtrare pe $f^+ \mathcal{N}$ prin

$$V_k^{\varphi'} f^+ \mathcal{N} = \sum_{i+j=k} V_i^{\varphi'} \mathcal{D}_{X' \rightarrow X} \otimes f^{-1} V_j^\varphi \mathcal{N}. \quad (5)$$

Conjectură. Dacă \mathcal{N} este oonom, η' este un (φ', m') -câmp Euler cu ponderi pe X' și η este un (φ, m) -câmp Euler cu ponderi pe X astfel încât $\eta = f * \eta'$, și dacă $V^\varphi \mathcal{D}_X$ -filtrarea pe \mathcal{N} este bună, atunci $V^{\varphi'} \mathcal{D}_{X'}$ -filtrarea pe indusă pe $f^+ \mathcal{N}$ este bună, și un polinom $b \in \mathbb{C}[X]$ este o quasi- b -funcție de tip (φ, m) pentru filtrarea lui \mathcal{N} în η dacă și numai dacă b este o quasi- b -funcție de tip (φ', m') pentru filtrarea lui $f^+ \mathcal{N}$ în η' .

Rezultatul este cunoscut în cazul în care f este submersie și $m_1 = \dots = m_d = m'_1 = \dots = m'_{d'} = 1$. Aduagarea ponderilor permite slăbirea ipotezei de submersie. În cazul în care \mathcal{N} este numai coerent, $f^+ \mathcal{N}$ nu este neapărat coerent. Dacă \mathcal{N} este însă oonom atunci $f^+ \mathcal{N}$ este și el oonom, și în acest caz conform unui rezultat al lui B. Malgrange \mathcal{N} admite și filtrări bune globale. Ipoteza de oonomie pare deci a fi necesară.

Dan Nicusor - In anul 2011 cercetarile mele s-au concentrat pe compararea formulelor explicite din articolele precedente "Sur la conjecture de Zagier pour $n = 4$. I" si "Sur la conjecture de Zagier pour $n = 4$. II", in care am obtinut formule diferite prin care un polilogaritm multiplu de pondere 4 general se scrie ca o combinatie liniara explicita de polilogaritmi multipli de tip (3, 1) si polilogaritmi de pondere 4. Compararea celor doua formule explicite da o combinatie liniara explicita intre polilogaritmi multipli de tip (3, 1) si polilogaritmi de pondere 4. Aceasta relatie s-a dovedit a fi prea dificila pentru a fi inteleasa conceptual. Am studiat diferite specializari ale acestei formule si relatiile dintre ele. Nu am reusit insa sa gasesc din combinatii liniare ale acestora ecuatiile functionale conjecturale de acelasi tip care implica conjectura Zagier pentru $n = 4$.

David Liana - În anul 2011 mi-am continuat activitatea de cercetare în domeniul geometriei diferentiale. Mai precis, am lucrat pe tema structurilor Frobenius și a F -varietatilor, pe tema formelor conforme-Killing pe varietati cuaternionice-Kahler și pe tema structurilor complexe generalizate. Astfel, am elaborat împreună cu Prof. Ian A. B. Strachan de la Universitatea din Glasgow o lucrare despre simetriile F -varietatilor (vezi arxiv:1103.2045). F -varietatile au fost introduse de către C. Hertling și Y. Manin și sunt strans legate de varietatile Frobenius. De asemenea, ele apar în mod natural în teoria singularitatilor. O F -varietate este o varietate (reală sau complexă) M dotată cu o multiplicare asociativă, comutativă, cu unitate pe fibratul tangent TM , ce satisface o anumită condiție de integrabilitate. Într-un articol precedent (Adv. Math. 2011) am dezvoltat o dualitate pentru F -varietati. În această lucrare, am studiat interacțiile dintre această dualitate și diverse simetrii ale F -varietatilor, cum ar fi transformatele Legendre.

În lunile aprilie - mai - iunie 2011 am dezvoltat, împreună cu Prof. D.V. Alekseevsky, o descriere explicita completa a structurilor complexe generalizate invariante pe (toate) grupurile Lie semisimple (nu neaparat compacte).

Deliu Dragos - In anul 2011 am terminat proiectul de doctorat, cu lucrarea cu titlul “Homological Projective Duality for $Gr(3,6)$ ”. In aceasta teza descriu urmatorul caz in care HPD nu a fost inteles, iar ca aplicatii mentionez obtinerea unei descrieri a unei varietati Calabi-Yau care apare din intersectia $Gr(3,6)$ cu sase hiperplane, rezultat interesant in fizica si in sine, pentru ca descrie de fapt ultima varietate CY care apare ca intersectie completa in Grassmannieni.

In acelasi timp, folosind tehnici noi de varietati torice dar si un articol de fizica (rezultate care in curand vor fi demonstrate complet matematic de un coleg), lucrez impreuna cu niste colegi la alte aplicatii/constructii pentru “homological projective dual varieties”. Acest proiect este inca in progres, dar avem rezultate parțiale pentru produse de spatii proiective. Printre aplicatii obtinem descrieri ale categoriilor derivate pentru asa numite varietati Fano de tip Calabi-Yau.

Diaconescu Razvan - În anul 2011 am continuat activitatea de cercetare în domeniul teoriei instituționale a modelelor cu aplicații în informatică. Principalele probleme la care am lucrat sunt următoarele:

1. Hibridizare de instituții.
2. Semantică inițială pentru instituții hibridizate.
3. Translatări ale instituțiilor hibridizate in logica de ordinul I.

Diaconu Calin Adrian - În anul 2011 am finalizat lucrarea *Trace Formulas, Character Sums, and Multiple Dirichlet Series* în colaborare cu Vicențiu Pașol. Aceasta reprezintă o primă parte dintr-un proiect pe termen mai lung în care stabilim pentru prima dată o legătură între *Teoria Seriilor Dirichlet Multiple, Geometria Aritmetică și Formule de Urmă*.

Dinu Florin Liviu - Continuarea studiului a **doua tipuri de interactiuni de tip gazo-dinamic**: o interactiune *șoc-turbulență* si o interacțiune regulată *wave-wave*. **Interacțiune șoc-turbulență**. Extindere a demersului Fourier neliniarizat elaborat intr-o formă deja semnificativă in 2010. Din punct de vedere constructiv extinderea consideră o *completare modală* [de sunet] a turbulenței incidente intr-o interacțiune șoc-turbulență. Investigăm *persistența* caracterului clasifiant al reprezentărilor obținute pentru soluția de interacțiune prin extinderea menționată.

Interacțiune regulata wave-wave. Două demersuri analitice sunt folosite respectiv pentru a construi două perechi semnificative și *analoage* de clase de soluții [o pereche izentropică și, respectiv, o pereche anizentropică (de un tip particular)]. Fiecare dintre perechile menționate alătură o clasă de elemente “wave” unei clase de elemente de interacțiune regulată “wave-wave”. *paralelă clasifiantă* este construită între cele două perechi analoage de clase – punând în evidență existența unor consonanțe și, pe de altă parte, a unor contraste puternic netriviiale. In cazul izentropic este considerată importanța clasifiantă a identificării unui “nivel” de neliniaritate veritabilă.

Dragan Vasile - În anul 2011 activitatea de cercetare știintifica desfasurata de mine poate fi structurata in cateva directii principale.

1. Problema filtrării (estimării) unui semnal.

Problema estimării unui semnal $z(t)$ în condițiile în care sunt disponibile măsuratori ale valorilor altui semnal $y(t)$ are o istorie lungă în domeniul controlului optimal și al procesării semnalelor. Atat semnalul care trebuie estimat $z(t)$ cât și semnalul măsurat $y(t)$ sunt iesiri ale unui sistem

dinamic \mathbf{G} care este supus unor perturbatii aditive $v(t)$. Semnalul $\hat{z}(t)$ care trebuie sa estimeze pe $z(t)$ reprezinta iesirea unui sistem dinamic \mathbf{G}_F (adesea numit filtru) care este alimentat la intrare cu valorile masurate $y(s), 0 \leq s \leq t$. Daca perturbatia aditiva $\{v(t)\}_{t \geq 0}$ este modelata de un proces Wiener atunci problema de filtrare a iesirii e cunoscuta sub numele de "filtrare de tip H_2 ". In cazul in care perturbatia aditiva $\{v(t)\}_{t \geq 0}$ este modelata de un proces cu energie totala finita, problema de filtrare este cunoscuta sub numele de "filtrare de tip H_∞ ".

Bazat pe experienta dobandita in studiul unor probleme de control pentru sisteme lineare stochastice, am abordat unele aspecte ale problemei filtrarii de tip H_2 pentru sisteme avand reprezentarea in spatiul starilor descrisa de ecuatii differentiale sau cu diferente perturbate de zgomot alb multiplicativ. Astfel, in colaborare cu prof. dr. A.M. Stoica, de la Universitatea Politehnica Bucuresti, am studiat problema constructiei unui filtru a carui iesire $\hat{z}(t)$ sa furnizeze o "cea mai buna estimare" a iesirii unui sistem modelat de ecuatii differentiale de tip Ito cu zgomot alb multiplicativ si aditiv in conditiile in care sunt disponibile doar masuratori ale iesirii $y(\cdot)$ la momente discrete de timp $t_k = kh, k = 0, 1, \dots, (h > 0$ fiind perioada de esantionare). Rezultatele obtinute au fost cuprinse in lucrarea V. Dragan, A. M. Stoica- "Optimal H_2 Filtering for a Class of Linear Stochastic Systems with Sampling", care a fost trimisa spre publicare la revista Automatica.

Am studiat de asemenea problema estimarii unui semnal generat de un sistem dinamic in timp discret cu coeficienti periodici afectat de perturbatii de tip zgomot alb multiplicativ si aditiv. Rezultatele obtinute au fost cuprinse in lucrarea V. Dragan, "Optimal filtering for a class of discrete-time linear stochastic systems with periodic coefficients", care a fost trimis spre publicare la IEEE Trans. on Automatic Control. In colaborare cu dr. S. Aberkane de la CRAN CNRS UMR, Universit Henri Poincar, Nancy, France, am studiat o problema de filtrare de tip H_∞ pentru sisteme in timp discret cu coeficienti periodici perturbat de un lant Markov neomogen cu un numar finit de stari.

Rezultatele obtinute au fost cuprinse in lucrarea S. Aberkane, V. Dragan, " H_∞ Filtering of Periodic Markovian Jump Systems: Application to Filtering with Communication Constraints".

2) Probleme de control optimal de tip H_2 pentru sisteme stochastice in timp discret.

Ca o continuare a cercetarilor din anii precedenti am realizat in colaborare cu dr. T. Morozan lucrarea: V. Dragan, T. Morozan, " H_2 optimal control for a class of discrete-time linear stochastic systems with periodic coefficients", care a fost trimisa spre publicare la IEEE Trans on Automatic Control. In acest context am aratat ca in cazul sistemelor in timp discret cu coeficienti periodici perturbate de un lant Markov cu un numar finit de stari valoarea normelor de tip H_2 este in mod esential afectata de existenta sau nonexistenta limitei $\lim_{t \rightarrow \infty} P^t$, P fiind matricea probabilitatilor de trecere ale lantului Markov. Acesta pare un fapt surprinzator si credem ca el este specific cazului sistemelor care evolueaza in timp discret.

3) Sisteme stochastice cu perturbatii singulare.

In colaborare cu dr. H. Mukaidani de la Universitatea din Hiroshima, Japonia, am realizat lucrarile: V. Dragan, H. Mukaidani, "Stabilizing Composite Control for Systems Modeled by Singularly Perturbed Ito Differential Equations with Two Small Time Constants, Vasile Dragan, Hiroaki Mukaidani, Peng Shi, "Near optimal linear quadratic regulator for a class of stochastic systems modeled by singularly perturbed Ito differential equations with state and control multiplicative white noise, care vor fi prezentate la a 50-a IEEE Conference on Decision and Control and European Control Conference, care va avea loc in Orlando, Florida, USA in December 12-15, 2011, respectiv la a VI-a ICICIC Conference (The Sixth International Conference on Innovative Computing, Information and Control (ICICIC2011)) care va avea loc in Decembrie

22-24, 2011, la Kitakyushu, Japan.

Dumitrescu Olivia - În anul 2011 am continuat activitatea de postdoctorant anul 2 în cadrul University of California, Davis. Momentan interesul meu cuprinde următoarele teme: Teorie Gromov-Witten, Minimal Model Program / Teorie Mori, Geometrie Torica, Probleme de Interpolare, Conjectura lui Nagata.

Enescu Florian - În anul 2011 am continuat munca de cercetare pe probleme de coomologie locală, multiplicități Hilbert-Kunz și F-signatura inelelor locale.

Epure Mihai - În anul 2011 am redevenit doctorand al Scolii Doctorale de Matematică din cadrul Universității din București sub îndrumarea științifică a Prof. Dr. Dorin Mihail Popescu. A susține o teză de doctorat în anul 2012 este acum un scenariu realist. În susținerea acestei afirmații menționez că pe data de 3 octombrie 2011 am trimis spre publicare un articol realizat în colaborare cu Conf. Dr. Tiberiu Dumitrescu și cu doctorandul Zaheer Ahmad la revista cotate ISI Bulletin Mathematique de la Societe des Sciences Mathematiques de Roumanie. Un preprint electronic al lucrării este atașat sub forma unui pdf la emailul prin care am trimis prezentul raport. În momentul când o să apară și pe <http://arxiv.org/> o să revin cu informația necesară. De asemenea, un al doilea articol scris în aceeași direcție și de aceeași echipă este într-un stadiu avansat de realizare. Am fost zilnic prezent la prezentări susținute în cadrul celui de-al 7-lea Congres al Matematicienilor Români organizat la Brașov în perioada 29 iunie-5 iulie. Am participat și la toate prezentările din cadrul Scolii Naționale de Algebra (19-23 septembrie, ediția a XIX-a).

Făciu Cristian • Teme studiate:

1. A fost studiată structura undelor de șoc și a interfețelor ce se pot propaga într-un material termoelastic ce poate suferi schimbări de fază induse de condiții de impact. Structura acestora a fost analizată în cazul în care mecanismele de regularizare sunt descrise de conducția termică și de timpul de relaxare al materialului. Astfel au fost determinate condiții de existență și unicitate ale undelor progresive (traveling waves). Aceste condiții furnizează un criteriu de selecție al soluțiilor problemelor lui Riemann și Goursat în teoria adiabatică a termoleasticității. S-a arătat că acest criteriu este criteriul corzii în raport cu curba lui Hugoniot în spațiul tensiune-deformație. Rezultatele astfel obținute privind aspectele termodinamice și condițiile de admisibilitate au fost publicate sub forma unui preprint. Partea a doua a acestui studiu este dedicată unei investigații numerice în cazul unui material termo-elastic ce poate descrie comportarea unui aliaj cu memoria formei.

Lucrare în curs de redactare:

Cristian Făciu and Alain Molinari : *The structure of shock and interphase layers for a heat conducting Maxwellian rate-type approach to solid-solid phase transitions. Part II: Numerical study for a SMA alloy.*

2. În cadrul Proiectului PN-II-PPCE-ID-100/2010 a fost studiată tema: "Modelarea instabilităților termo-mecanice care însoțesc fenomene de localizare a deformației în materiale metalice. Aplicații la efectul Portevin-LeChatelier." Lucrare în curs de redactare:
Cristian Făciu and Mihaela Suliciu : *On the dynamics of strain bands nucleation and their thermal behavior using a viscoplastic theory based on overstress*

- Referent în comisia de doctorat a d-lui Emilian Bulgariu cu titlul "Studiul unor modele generalizate în mecanica mediilor continue" (conducător științific Prof. Stan Chirița, Univ. Al. I. Cuza din Iași)

Fulger Mihai- În anul 2011 am terminat anul 4 și am început anul 5 de doctorat la University of Michigan - Ann Arbor, sub îndrumarea lui Robert Lazarsfeld. În prezent aplic pentru programe post-doctorale.

Am finalizat lucrul la articolul care va fi în esență teza mea de doctorat, volume locale. Am definit și studiat o noțiune de volum pentru divizori Cartier pe eclatari de varietăți normale cu un punct distins. Această entitate generalizează două noțiuni distincte în geometria algebrică:

- Noțiunea de multiplicitate Hilbert-Samuel pentru ideale m -primare în inele normale de dimensiune cel puțin 2.
- Volumul definit de J. Wahl pentru singularități izolate de suprafețe complexe normale.

În prezent studiez, într-un mod asimptotic, descompunerea în reprezentări ireductibile pentru acțiunea lui $GL_{n+1}(\mathbb{C})$ pe syzygy-urile liniare determinate de scufundări Veronese ale spațiilor proiective.

Gaba Radu - În anul 2011 am făcut cercetări în colaborare cu Bogdan Canepa în teoria curbelor eliptice, ocupându-mă de problema clasificării unor clase speciale de curbe eliptice complexe. Acestea au făcut obiectul unui preprint electronic pe care l-am postat pe arXiv urmând a-l trimite spre publicare.

Gheondea Aurelian - În anul 2011 am studiat probleme de scufundări închise de spații Hilbert, dilatări de nuclee invariante la acțiuni de semigrupuri cu involuție, estimări ale entropiei topologice pentru scheme de aproximare, precum și probleme legate de spații Sobolev cu ponderi.

Ghergu Marius - În anul 2011 am studiat ecuații eliptice de ordin superior care admit soluții singulare. Am fost interesat în special de operatorul poliharmonic Δ^m , $m \geq 1$. În această direcție am obținut estimări *a priori* pentru soluțiile de clasă C^{2m} . De asemenea am obținut unele rezultate legate de sisteme Lane-Emden cu date singulare al cărui model este $\Delta u + u^p = 0$.

O altă direcție de cercetare în anul 2011 o constituie studiul soluțiilor explozive în întreg spațiul \mathbf{R}^N , $N \geq 3$. Am obținut aici rezultate de existență și unicitate pentru astfel de soluții.

Gologan Radu - În anul 2011 am continuat cercetările legate de modelul Lorenz bidimensional, făcând o legătură cu rezultate legate de distribuția numerelor Farey cu număr rători și numitori ce dau resturi prescrise la împărțirea cu un număr prim dat. Am elaborat lucrarea "A billiard model in the plane close to the Lorez model"

Grecea Valentin - În 2011 am început studiul excursiilor în cadrul general dat de procesul Markov canonic asociat unui semigrup Ray pe un spațiu al stărilor local compact cu baza numărabilă. Am pus în evidență un rezultat tehnic general privind progresivitatea (în măsurabilitate) pentru procesul punctual canonic al excursiilor în afara unei multimi date J din spațiul stărilor, în raport cu filtratia asociată unei familii crescătoare de timpi de oprire $T(t)$ (în raport cu filtratia canonică și satisfăcând o proprietate).

Ichim Bogdan - În anul 2011 am continuat dezvoltarea programului de algebra computerizata Normaliz. A fost lansate o noua versiune: Normaliz 2.7 care contine support complet pentru procesare paralele, rezolvarea sistemelor de inegalitati, ecuatii si congruente lineare precum si multiple imbunatatiri algoritmice. De asemenea a fost lansata interfata grafica jNormaliz 1.1.

Ignat Liviu - În anul 2011 activitatea de cercetare a fost concretizata prin obtinerea unor inegalitati de tip Carleman pentru ecuatiile caldurii si Schrödinger. Aceste rezultate duc la obtinerea unor rezultate pozitive din punctul de vedere al problemelor inverse. De asemenea a fost continuata analiza proprietatilor de dispersie pe structuri de tip arbore cu diferite conditii de cuplare.

Ionescu-Kruse Delia - În anul 2011 am investigat dinamica fluidului la propagarea undelor gravitaționale periodice 2-dimensionale peste domenii infinite adânci. Pentru undele de amplitudine mică, am găsit soluțiile analitice ale ecuațiilor diferențiale neliniare ce descriu mișcarea particulelor aflate pe și dedesubtul suprefetei libere, la propagarea unor astfel de unde. Am arătat că traiectoriile obținute nu sunt curbe închise. Anumite soluții sunt de tip "peakon", altele se exprimă cu ajutorul funcțiilor eliptice Jacobi sau cu ajutorul funcțiilor hipereliptice. O caracteristică surprinzătoare ce apare din studiul anumitor soluții ar putea oferi o buna înțelegere a fenomenului "wave-breaking".

Aproximațiile ecuațiilor lui Euler pentru un fluid ideal incompresibil 2-dimensional aflat într-un câmp gravitațional constant, au condus la multe ecuații neliniare interesante. În 2011 am studiat sistemul de doua ecuații neliniare Camassa-Holm (two-component Camassa-Holm system), modul în care acest sistem apare ca o aproximație a ecuațiilor lui Euler la propagarea undelor de suprafață în ape puțin adânci și deducerea lui printr-o metodă variațională în cadrul formalismului lagrangian. Lagrangianul folosit în derivarea variațională nu este o metrică.

Ionescu Paltin - În anul 2011 am continuat cercetarile, impreuna cu F. Russo, asupra geometriei varietatilor riglate si asupra celor defecte (cu defect dual sau cu defect secant).

Ionescu Paul Cristodor - În anul 2011 am continuat activitatea de cercetare in cadrul Algebrei Comutative, in principal pe 3 directii:

- a) Studiul invariantilor omologici ai morfismelor de inele locale noetheriene, in special deviatiiile André ale unui astfel de morfism;
- b) Studiul proprietatilor de echidimensionalitate ale fibrelor unui morfism de inele locale noetheriene;
- c) Studiul unei clase speciale de inele locale, inelele aproape Cohen-Macaulay, clasa introdusa de catre M.C. Kang;

In fiecare dintre aceste direcții este in curs de definitivare cate o lucrare, care va fi trimisă spre publicare in cursul anului 2012.

Iordanescu Radu - In prima parte a anului 2011 am elaborat un articol de sinteza foarte amplu (171 pagini) intitulat "Jordan Structures in Mathematics and Pysics" (arXiv:1106.4415v1 [math.DG]), cu o bibliografie de peste 1.240 de titluri, pe care l-am facut cunoscut - impreuna cu cartea mea din 2009 si Proceedings Iasi 2009 - si la conferintele la care am participat ulterior, anume:

1. Congresul Matematicienilor Romani de la Brasov (iunie-iulie),
2. Conferinta franco-romana de geometrie complexa de la IMAR (iulie),

3. Conferinta “Nonassociative algebras and related topics” din Portugalia (iulie) - pt.detalii a se vedea raportul meu din 3 aug.,
4. Conferinta “Finsler extensions of relativity theory” de la Brasov (august - septembrie),
5. Al 10-lea WORKSHOP de geometrie diferentiaala si aplicatiile sale de la Constanta (august),al carui principal organizator am fost,
6. Conferinta de geometrie diferentiaala si sisteme dinamice din Bucuresti (octombrie),
7. Conferinta AGMP-7 din Franta (octombrie) - pt.detalii a se vedea raportul meu din 31 oct.,
8. “Zilele Matematice Bacaoane” (octombrie),
9. Conferinta “Non Associative Algebra and its Applications” din Spania (noiembrie) - pt. detalii a se vedea raportul meu din 7 noiembrie.

Mentionez ca la Mulhouse (Franta) am fost solicitat (si am acceptat) sa prezidez “invited plenary lectures” (fiind singurul participant roman in aceasta situatie), iar la Zaragoza (Spania) am fost singurul participant din Romania. In urma discutiilor stiintifice purtate cu numerosi participanti la conferintele mentionate mai sus,am inceput elaborarea versiunii a 2-a a lucrarii mele foarte recente din arXiv. Sunt invitat in Franta (la o data care se va stabili ulterior) in cursul anului 2012.

Joita Cezar - În anul 2011 am studiat proprietati de convexitate analitica pentru acoperiri de spatii 1-convexe, in special proprietatea discului precum si proprietati ale spatiilor complexe care sunt imagini de varietati proiective prin aplicatii proprii cu fibre echi-dimensionale.

Leustean Laurentiu - În anul 2011 am abordat următoarele direcții de cercetare:

- aplicarea tehnicilor de “proof mining” pentru a obține versiuni finite ale unor rezultate din teoria ergodică neliniară ale căror demonstrații folosesc limite Banach.
- studiul funcțiilor “firmly nonexpansive” în spații geodesice.

Lozovanu Victor - În anul 2011 am continuat activitatea mea de cercetare la Queen’s University, Kingston, Canada ca Coleman Post-Doctoral Fellow. In acest an cea mai importanta directie este colaborarea cu profesorul Greg G. Smith de la Queen’s, concentrata pe problema generalizarii teoremei de anulare al lui Kodaira in orice codimensiune. Acest proiect este in ultimul stadiu de finalizare si amandoi speram ca pana la finele lunii decembrie sa putem afisa pe arxiv.org rezultatele noastre comune. In ultima luna am inceput sa lucrez si cu profesorul Mike Roth de la aceeași universitate. Deocamdata nu avem rezultate concrete, demne de a fi mentionate. Un alt proiect, care se afla in ultimul stadiu de finalizare, este in comun cu Alex Küronya de la Albert-Ludwigs-Universität Freiburg, Germania si cu Dave Anderson de la University of Washington, Seattle, SUA. In acest proiect cautam conditii globale pentru fibrate in linii care sa aiba corpuri Newton-Okounkov poliedrale. Speram ca pana la finele lunii decembrie si acest proiect sa fie afisat pe arxiv.org. In alta ordine de idei, la recomandarea profesorului Tony Geramita de la Queen’s am inceput sa fac munca de redactare la Journal of Pure and Applied Algebra unde profesorul Geramita este editor.

Maican Mario - În anul 2011 am studiat spațiile de moduli pentru fasciculele de dimensiune 1 și multiplicitate mică pe planul proiectiv complex. Rezultatele obținute se pot găsi în lucrarea acceptată la publicat, vezi mai jos, și în cele două lucrări menționate la “preprinturi electronice” mai jos. În esență, am descris fasciculele care apar în toate spațiile de moduli de multiplicitate 5 și în doua dintre spațiile de multiplicitate 6. Am găsit stratificări ale acestor spații, straturile fiind obiecte geometrice concrete.

Manolache Nicolae - Lucrările analizate în 2011, până astăzi, (ca cercetare, dar într-o redactare în curs de îmbunătățire) sunt *Globally Generated Vector Bundles on \mathbb{P}^3 with $c_1 = 3$* și *Globally Generated Vector Bundles on \mathbb{P}^n with $c_1 = 3$* (cea din urmă în colaborare cu Cristian Anghel). Pentru conformitate atașez prima lucrare (cu rugămintea expresă de a nu fi făcută publică, dat fiind stadiul ei preliminar, cu stângăcii de diferite naturi). Lucrările vor fi accesibile în curând pe arXiv. Spre publicare în revista va fi propusă a doua, dar cu rezultatele din prima integrate.

Matei Daniel - În anul 2011 am lucrat în principal la doua proiecte de cercetare legate de contracte din cadrul programului Idei al PNII. Mai precis proiectele “Conexiuni, stabilitate și aplicații în geometria algebrică, topologie și teoria grupurilor” (St.Papadima) și “Invarianti geometrice și cuantici ai varietatilor de dimensiune 3 și aplicații” (S.Moroianu). Deasemenea am fost implicat în proiectul “Metode algebrice în probabilitati și statistica” finanțat de Lea-MathMode.

În cadrul primului proiect temele studiate au fost:

1. Grupuri fundamentale de orbi-varietati algebrice. În colaborare cu E. Artal și J. Cogolludo (Universitatea din Zaragoza, Spania) am generalizat o teorema a lui F. Campana asupra varietatilor de salt Green-Lazarsfeld de la orbi-varietati algebrice compacte la orbi-varietati quasi-proiective.
2. Grupuri fundamentale quasi-proiective și nuclee Artin. În colaborare cu E. Artal și J. Cogolludo (Universitatea din Zaragoza, Spania) am studiat realizarea algebro-geometrică a unor subgrupuri de index infinit ale grupurilor Artin.

În cadrul celui de-al doilea proiect tema a fost: Homologia acoperirilor de varietati. În colaborare cu E. Artal și J. Cogolludo am obținut o generalizare a formulelor lui Sakuma pentru primul număr Betti al unei acoperiri abeliene finite la cazul acoperirilor de orbi-varietati.

În cadrul celui de-al treilea proiect tema a fost: Retele multidimensionale și calculul reziduurilor. În colaborare cu F. Avram de la Universitatea din Pau, Franța am obținut rezultate asupra funcției generatoare a distribuției unei rețele, exprimând coeficienții acesteia în termeni de reziduuri definite pe complementele de hipersuprafețe algebrice.

Maxim Laurentiu - În anul 2011, activitatea mea de cercetare a constat în a înțelege efectul pe care singularitățile îl au asupra proprietatilor analitice și topologice ale varietatilor algebrice complexe. În particular, am fost interesat de teorii de clase caracteristice pentru varietati *singulare*, și de aspectele lor computaționale. De exemplu, calcularea acestor clase caracteristice în cazul produselor simetrice, a spațiilor de configurații, și a schemelor Hilbert de puncte asociate unei varietati algebrice, sau în cazul hipersuprafețelor algebrice și a intersecțiilor complete a ocupat un loc important în proiectele mele de cercetare.

Macinic Anca - În anul 2011 tematica mea de cercetare s-a situat în liniile tezei de doctorat, explorând potențiale direcții de generalizare a rezultatelor obținute acolo.

Mihailescu Eugen - În anul 2011 am studiat diferite probleme actuale și de interes pe plan mondial, în teoria sistemelor dinamice și teorie ergodică, cât și aplicații ale acestora în alte domenii (de ex. Fizica statistică). În articolul *On a class of stable conditional measures*, *Ergodic Theory and Dynamical Systems*, 2011, am studiat măsurile condiționale induse de o măsură de echilibru pe o partiție măsurabilă subordonată varietăților locale stabile. În acest fel am demonstrat că măsurile condiționale induse de măsură de echilibru a unui potențial stabil sunt măsurile de dimensiune maximă pe varietățile stabile, răspunzând astfel unei probleme a lui Barreira. În articolul *Asymptotic distributions of preimages for endomorphisms*, *Ergodic Th. And Dynam. Syst.*, 2011, am studiat diferite limite de măsuri probabilistice obținute cu ajutorul preimaginilor pentru endomorfisme speciale. În unele cazuri am găsit măsuri inverse SRB, care satisfac și o formulă de tip Pesin pentru entropia de măsură, folding entropy și coeficienții Liapunov negativi. În articolul *Local geometry and dynamical behavior on folded basic sets*, *J. Stat. Physics*, 2011, am găsit legături surprinzătoare între geometria unor fractali folded și dimensiunea stabilă. Astfel am arătat că dacă dimensiunea stabilă este zero, atunci fractalul se găsește într-o varietate locală instabilă, iar funcția respectivă este expanding. Deasemenea am dat o caracterizare completă a tipurilor de comportamente ergodice (1-sided sau 2-sided Bernoulli) pentru perturbatii ale unor funcții olomorfe pe spațiul proiectiv $\mathbb{P}^2\mathbb{C}$, restranse la multimile lor bazice fractale. În articolul *Hausdorff dimension of the limit set for conformal iterated function systems with overlaps in fibers* joint cu Mariusz Urbanski (SUA), publicat în *Proceedings American Math. Soc.*, 2011, am studiat sisteme iterative de funcții de contractie, care nu satisfac Open Set Condition. Acest caz este mai dificil decât cele studiate anterior în literatură, și care în general satisfăceau Open Set Condition. Am arătat că există legături puternice între dimensiunea Hausdorff a multimii limită și numărul de suprapuneri (overlaps). Într-o altă problemă, de dinamică olomorfa și curenți, lucrez în continuare cu J. E. Fornæss. În articolul *On some coding and mixing properties for a class of chaotic systems*, *Monatshefte fuer Mathematik*, am studiat proprietăți ergodice ale măsurilor de echilibru pentru endomorfisme hiperbolice f . Am găsit fenomene noi și total diferite de ceea ce se întâmplă în cazul difeomorfismelor, și anume: am demonstrat că dacă o măsură de echilibru μ_ϕ este 1-sided Bernoulli pe o multime invariantă Λ , atunci funcția f se comportă expanding pe Λ din punct de vedere al dimensiunii măsurabile. Am arătat totodată și că sistemul verifică Exponential Decay of Correlations, și este mixing de orice ordin. În articolul *Approximations for Gibbs states of arbitrary Holder potentials on hyperbolic basic sets*, *Discrete and Cont. Dynam. Syst.*, am demonstrat teoreme noi de aproximare a unei măsuri de echilibru cu măsuri probabilistice ponderate suportate pe multimii de preimagini.

Minea Gheorghe - • În anul 2011 am finalizat și am în curs de redactare lucrarea *“Entropy conditions for quasilinear first order equations on nonlinear fiber bundles with special emphasis on the equation of 2D flat projective structure. (II)”* pe care o voi supune spre publicare ca preprint electronic în arXiv.org, Cornell University, în săptămânile următoare.

- Folosind rezultatele obținute în această lucrare în cazul dimensiunii 2, am lucrat în 2011 la identificarea condițiilor entropice pentru sistemul hiperbolic al structurii proiective plate în dimensiune arbitrară. Acest sistem reprezintă limita pentru vâscozitate nulă a modelului multidimensional al lui Burgers pentru turbulenta. Deși fără semnificație fizică, acest model simplificat este totuși “o cutie a Pandorei” (după expresia lui U. Frisch din *“Turbulence”*, Cambridge Univ. Press 2004) de fenomenologie matematică legată de singularități ale soluțiilor, instabilitate, indeterminism și hazard.

- Menționez faptul că o comunicare a mea intitulată *“General entropy conditions in terms of*

nonlinear fibre bundles” a fost acceptata si programata la Congresul International de Matematica Industriala si Aplicata (ICIAM 2011) de la Vancouver BC, Canada la care nu am putut totusi participa din motive independente de vointa mea.

Molnar Ionel - In anul 2011 am continuat colaborarea cu prof. Constantin Varsan in domeniul ecuatiilor stocastice ordinare sau cu derivate partiale, avand ca suport metoda sistemului caracteristic. Lucrarea *Two problems for stochastic flows associated with nonlinear parabolic equations*, autori M. Nica, I. Molnar, C. Varsan, a fost prezentata la **International Conference on Mathematical Finance and Economics**, July 6-8, 2011, Istanbul, Turcia (Abstracts Book, Eds. Ahmet Duran and Cskun Cetin, ITU Press, ISBN 978-975-561-398-7) De asemenea, lucrarea *The characteristic system method for linear higher-order SPDEs of parabolic type*, autori I. Molnar si C. Varsan, publicata in preprint IMAR (9/2011) a fost trimisa spre publicare la Mathematical Reports.

In anul 2011 am reluat studiul si cercetarea in domeniul elastoplasticitatii computationale, in special studiul algoritmilor de integrare in plasticitate si viscoplasticitate avand la baza ideile lui J.C. Simo, urmarind analiza si dezvoltarea lor in cazul unor modele relativ simple, deocamdata, dar si simularea numerica utilizand programe scrise in limbaje precum Matlab si chiar Python. In aceasta directie intentionez o reluare si valorificare a unor rezultate obtinute in anii trecuti.

In anul 2011 am abordat un domeniu relativ nou pentru mine, dar foarte interesant, cel al problemelor de contact intre corpuri solide (elastice), cu/fara frecare, unde pe langa modelarea matematica si formularea problemei, un interes deosebit il prezinta aproximarea solutiei, rezolvarea folosind metode de discretizare si simularea numerica. In aceasta directie am lucrat in colaborare cu Mircea Sofonea (Universite de Perpignan, France), si lucrarea *Analysis and numerical approach of a frictionless contact problem for porous elastic bodies*, se afla in faza de redactare finala.

Moroianu Sergiu - În anul 2011 in colaborare cu Guillarmou am finalizat un preprint despre legatura dintre invariantii Chern-Simons si geometria spatiului Teichmuller.

Am scris de asemenea un preprint cu A. Moroianu despre problema Cauchy pentru metrice Riemanniene Einstein. Aratam existenta unor astfel de metrice pornind de la o hypersurfata initiala impreuna cu un tensor simetric care satisface ecuatiile de constrangere. Rezultatul similar pentru o hypersuprafata Cauchy in cadrul Lorentzian este cunoscuta (Choquet-Bruhat) pentru date initiale netede. Impreuna cu Bernd Ammann de la Regensburg lucram in acest moment la evidentierea unor contraexemple netede (ne-analitice) in cadrul Riemannian.

Nastasescu Constantin - În anul 2011 am continuat cercetările din anii precedenți în domeniul teoriei categoriilor cu aplicații la categoria modulelor peste inele graduate și la categoria comodulelor peste o coalgebră. De asemenea, am continuat cercetările în domeniul teoriei algebrelor Hopf.

Negut Andrei - În anul 2011, mi-am continuat studiile doctorale la universitatea Harvard.

Nenciu Irina - În anul 2011 am urmat mai multe direcții de cercetare. In primul rând am continuat, împreuna cu G. Nenciu, studiul autoadjuncției operatorului Schrödinger pe varietăți, ca și al unor categorii de operatori diferențiali de ordin 1 (e.g., operatorul Dirac). Scopul nostru este să obținem condiții optime care descriu creșterea potențialului care garantează că operatorul Schrödinger asociat este esențial autoadjunct. Un alt proiect, împreună cu L.-C. Li, constă

în studiul structurii complet integrabile a ecuației Ablowitz-Ladik cu condiții la frontieră periodice. Studiul se face din punct de vedere al teoriei Lie-Poisson pentru “loop-groups”. Rezultatele includ descoperirea variabilelor canonic conjugate, și rezolvarea ecuației prin metoda de factorizări matriceale. În fine, împreună cu P. Deift continuăm studiul riguros al structurii asimptotice a soluțiilor ecuației Korteweg-deVries, folosind tehnici Riemann-Hilbert.

Nenciu Gheorghe - În anul 2011 am continuat cercetările și s-au obținut rezultate privind:

- i. Mecanica statistică de neechilibru: transport cuantic în nanostructuri.
- ii. Legi de dezintegrare neexponențiale în teoria perturbațiilor a valorilor proprii ale operatorilor Schrödinger.
- iii. Essential auto-adjunctia operatorilor Schrödinger și Pauli pe domenii marginite în R^2 .

Nichita Felix Florin - În anul 2011:

- am obținut rezultate noi pe care le-am prezentat la congresul de matematică de la Brașov și la alte conferințe sau le-am inclus în lucrări trimise spre publicare (în legătură cu algebrele Poisson, ecuații și sisteme Yang-Baxter, algebre Jordan, structuri ingemanate, etc); de exemplu, am arătat că pentru o algebra Poisson se poate asocia un sistem Yang-Baxter;

- am colaborat cu matematicieni, fizicieni și informaticieni români: Basarab Nicolescu, Solomon Marcus, Radu Iordanescu, Barbu Berceanu, Calin Popescu, Bogdan Popovici, Barna Iantovics, etc;

- am colaborat cu matematicieni din străinătate: UK, SUA, Polonia, Cehia, etc;
- activitate de documentare în: statistica mecanică, teorie cuantică, grupuri de transformări, etc.

- Am fost referend pentru revistele: *Symmetry*, *Studies in Computational Intelligence*.

Nicolae Florin - În anul 2011 am continuat studiul funcțiilor L asociate reprezentărilor grupului Galois al unui corp de numere algebrice cu scopul strategic de a decide dacă aceste funcții sunt holomorfe.

Nitica Viorel - În anul 2011 am continuat să lucrez în sisteme dinamice și algebre extremale.

Ornea Liviu - În anul 2011 mi-am continuat cercetările legate de geometria local conformă Kähler. Am finalizat două lucrări începute în 2010, una privind extinderea invariantului Futaki în acest context conform, cealaltă privind eclatarile varietăților LCK de-a lungul subvarietăților. Rezultatele sunt cuprinse în două preprinturi (conform listei de mai jos).

Panaite Florin - În lucrarea *Some (Hopf) algebraic properties of circulant matrices*, autori H. Albuquerque și F. Panaite, sunt studiate anumite proprietăți algebrice ale matricelor circulante, inspirate de faptul că algebra matricelor circulante de tip $n \times n$ este izomorfa cu algebra grupului ciclic cu n elemente. De asemenea, este introdusă o anumită clasă de matrice care generalizează atât matricile circulante cât și matricile “skew-circulant”, și pentru care valorile și vectorii proprii pot fi citite direct din intrările matricelor.

În lucrarea *More examples of pseudosymmetric braided categories*, autori F. Panaite și M. D. Staic, sunt investigate anumite clase de categorii braided (respectiv algebre Hopf quasitriangulare) cu scopul de a le identifica pe acelea care sunt pseudosimetrice (respectiv pseudotriangulare). De exemplu, se demonstrează că braidingul canonic al categoriei de bimodule Yetter-Drinfeld-Long peste o algebra Hopf H este pseudosimetric dacă și numai dacă H este

comutativa si cocomutativa. De asemenea, se arata ca toate structurile quasitriangulare (inclusiv cele care nu sunt triangulare) de pe anumite algebre Hopf introduse de catre Radford sunt pseudotriangulare.

Pantilie Radu - În anul 2011 am obținut, printre altele, următoarele rezultate:

- Introducerea (în colaborare cu S. Marchiafava a) noțiunii de aplicație CR cuaternionică si demonstrarea faptului ca oricare asemenea aplicație real-analitică, cu diferențiala nenulă, este restricția unei aplicații cuaternionice între varietăți cuaternionice. Urmează că, pentru orice subvarietate M , de dimensiune $4k - 1$, a unei varietăți cuaternionice N , astfel încât TM generează un subfibrat cuaternionic de rang (real) $4k$ al lui $TN|_M$, există, local, o subvarietate cuaternionică a lui N , pentru care M este hipersuprafață.

- Inițierea studiului varietăților cuaternionice generalizate prin clasificarea spațiilor vectoriale cuaternionice generalizate și prin punerea în evidență a două clase naturale de asemenea varietăți (neclasice). Astfel, orice varietate simplectică complexă este, în mod natural, o varietate cuaternionică generalizată (neclasică), același lucru fiind valabil și pentru spațiul heaven al oricărui spațiu Einstein–Weyl tridimensional. În particular, produsul Z al oricărei varietăți simplectice complexe M cu sfera este înzestrat cu o structură complexă generalizată naturală, în raport cu care Z este spațiul twistor al lui M .

Papadima Stefan - În anul 2011, am continuat studiul varietatilor caracteristice si de rezonanta asociate spatiilor, cu aplicatii in topologie, geometrie si teoria grupurilor.

In lucrarea 1.1[1], am analizat cazul acoperirilor Galois, cu accent asupra fibrelor Milnor asociate hipersuprafetelor proiective, din punctul de vedere al actiunii de monodromie. Spre exemplu, pentru aranjamente de hiperplane complexe, am reusit sa legam existenta structurilor de multinet reduse de non-trivialitatea monodromiei, extinzand astfel rezultate obtinute de Falk-Yuzvinsky (Compositio Math. 2007).

In preprinturile 2.3[1,2] am folosit varietatile caracteristice si de rezonanta in studiul grupurilor de automorfisme ale grupurilor libere, respectiv grupurilor de difeotopie ale suprafetelor Riemanniene. De exemplu, in 2.3[1] am gasit un rezultat surprinzator de non-finitudine, raspunzand unei intrebari ridicate de F. Cohen si colaboratorii sai (in J. Algebra 2010).

Pascu Mihai - În anul 2011 am investigat posibilitatile de rafinare a proprietatilor de continuitate ale operatorilor pseudodiferentiali definiti pe spatii de modulatie, utilizind baze Wilson

Pasa Gelu - În anul 2011 am continuat sa studiez efectele substantelor surfactante asupra dislocuirii fluidelor imiscibile in celule Hele-Shaw precum si asupra miscarii bulelor de aer in tuburi capilare, cu aplicatii la recuperarea secundara a petrolului din medii poroase. Am obtinut o demonstratie simpla a faptului ca un strat de surfactant preexistent pe peretii celulei Hele-Shaw poate produce o instabilitate contrara celei studiate de Saffman si Taylor in 1958. Lucrarea este in curs de finalizare. Am obtinut o estimare a grosimii stratului de fluid aderent la peretii unui tub capilar in care se ridica o bula de gaz, precum si o relatie in care apar aceasta grosime, tensiunea superficiala de pe suprafaata bulei, viteza de ridicare. Acest model se poate utiliza pentru studiul dislocuirii unui fluid vascos in unele medii poroase particulare. O lucrare cu acest subiect a fost trimisa la revista Math. Report.

Pasol Vicentiu - În anul 2011 am publicat doua articole mentionate mai sus in reviste ISI. Am efectuat vizite de cercetare la Universitatea din Göttingen, unde am continuat colaborarea cu Prof. Preda Mihăilescu in Iwasawa theory. Am continuat colaborarea cu Prof. Adrian Diaconu

de la Univ Durham/ Univ Minnesota. Voi merge la Univ. Minesota si Boston University pentru o vizita de cercetare (16 Nov-2 Dec). Am participat cu expuneri la Congresul international al matematicienilor romani de la Brasov si la ICTAMI, Alba Iulia. Am continuat colaborarea cu Alex Popa despre forme modulare si operatori Hecke.

Pasarescu Ovidiu - În anul 2011 mi-am desfășurat în continuare activitatea în cadrul colectivului de geometrie algebrică și am desfășurat activități de cercetare și documentare, anume:

- Am continuat cercetările legate de vechea și clasică problemă din domeniul curbilor algebrice, numită Halphen-Castelnuovo, descrisă în preprintul meu de la pct. 7.4 (care reprezintă o formă aproape finală pentru domeniul nelacunar), obținând progrese care mă apropie de o soluție completă (domeniul nelacunar și clarificarea frontierei dintre cele două domenii). Această problemă este general recunoscută de către specialiști ca fiind foarte dificilă, de ea ocupându-se în trecut reprezentanți proeminenți ai școlilor de geometrie algebrică franceză (G. Halphen, L. Gruson, C. Peskine), italiană (G. Castelnuovo, C. Ciliberto, E. Sernesi) și americană (J. Harris, D. Eisenbud, R. Hartshorne).
- Am continuat activitățile de documentare în domeniul geometriei algebrice biraționale de dimensiune arbitrară, cu domeniul numit Minimal Model Program. În cadrul acestui program se dorește demonstrarea unui enunț de 5 rânduri, care reprezintă extinderea la dimensiune arbitrară a clasificării biraționale a suprafețelor algebrice. Deși matematicieni proeminenți (din domeniile geometriei algebrice și geometriei analitice) lucrează de câteva decenii (numesc doar doi laureați Fields: matematicianul americano-japonez H. Hironaka și matematicianul japonez S. Mori), enunțul dorit este cunoscut ca adevărat doar în dimensiune 3. Totuși, a rămas de demonstrat o singură parte a programului, numită “terminarea log flipurilor”. În această direcție mi-am îndreptat preocupările, făcând în cadrul seminarului de geometrie algebrică un număr de 10 expuneri (în două serii de câte 5).

Paunescu Liviu - În anul 2011 am obținut titlul de doctor de la universitatea Roma2 “Tor Vergata”. Rezultatele din teza sunt continuate în articolul *On sofic actions and equivalence relations* publicat în Journal of Functional Analysis. Activitatea mea de cercetare se desfășoară în principal în domeniul grupurilor sofice și legăturile acestora cu teoria ergodică, algebre von Neumann, entropie.

Pilca Mihaela Veronica - În anul 2011 am lucrat la mai multe proiecte de cercetare.

Am continuat împreună cu Prof. Liviu Ornea studiul metricilor formale, fiind un proiect încă în lucru.

Am finalizat împreună cu Prof. Andrei Moroianu un proiect despre structurile Clifford omogene de rang superior (a se vedea lista de preprinturi).

Am început noi proiecte de cercetare în diferite direcții, care încep să se contureze în ultimul timp. Este vorba mai ales despre studiul varietatilor torice lcK și despre generalizări ale problemei Yamabe.

În anul 2011 am luat parte la următoarele stadii de cercetare:

- 1-13 August 2011 stadiu de cercetare la centrul de cercetare matematică din Oberwolfach, Germania.
- 9 -15 Octombrie 2011 stadiu de cercetare la Ecole Polytechnique, Franța.

Polisevski Dan - În 2011 am continuat colaborarea cu I. Gruais de la Universitatea Rennes1 in domeniul omogenizarii problemelor de transmisie definite in medii periodice cu substructuri fine, activitate concretizata si anul acesta cu o lucrare trimisa spre publicare:

1. I. Gruais, D. Poliřevski: *Homogenized fractured porous media along Beavers-Joseph interfaces*, **Journal de Mathématiques Pures et Appliquées**.

În cadrul grupului de Mecanica Continuumului din institutul nostru, am continuat studiul problemelor matematice ridicate de modelarea proceselor in celulele de combustie cu membrana de schimb protonic, studii care au inceput prin lucrarile predate pentru contractele anilor trecuti (CeEx-189 și CeEx-320).

Pop Ciprian

- **Problema 1.** Fie Z operatorul de shift unidirecțional definit pe un spațiu Hilbert separabil. Există o legătură strânsă între un anumit tip de lanțuri Markov și momentele operatorului $Z^* + Z^k Z^*$ (unde $k \in \mathbb{N}, k \geq 3$). Intenționez să studiez în profunzime această legătură.
- **Problema 2.** Fie A_θ torul necomutativ, definit printr-o matrice antisimetrică $\theta \in \mathbb{M}_n$. Fie $S \in SL(n, \mathbb{Z})$ astfel încât ${}^t S \theta S = \theta$. Atunci entropia topologică necomutativă a automorfismului α_θ , indus de S pe C^* -algebra A_θ coincide cu entropia topologică a automorfismului toral indus de S pe \mathbb{T}^n .
- **Problema 3.** Fie M un factor von Neumann de tip II_1 cu urma finită normalizată τ . Atunci orice element hermitian $x \in M$ de urmă zero este un comutator în M .

Popa A. Alexandru - In anul 2011 am lucrat la trei teme de cercetare:

1. *Periods of modular forms*. O lucrare a fost acceptata la publicat (vezi mai jos), iar o lucrare in colaborare cu V. Pasol este aproape terminata.
2. *Pair correlation of angles of geodesics on the modular surface*. O lucrare a fost trimis spre publicare si este disponibila ca preprint (vezi mai jos). O alta lucrare este in stadiu de finalizare, impreuna cu F.P. Boca si A. Zaharescu.
3. *Residues of multiple Dirichlet series for affine Lie algebras*. Impreuna cu A. Diaconu, lucrez la generalizarea unor identitati din combinatorica (MacDonald formulas), in contextul seriilor Dirichlet multiple introduse de A. Diaconu si colaboratorii sai.

Popa Nicolae - În anul 2011 am continuat studiul analizei armonice matriceale descriind

matricile infinite generate de un singur sir de numere complexe $[\alpha] = \begin{pmatrix} \alpha_1 & \alpha_1 & \alpha_1 & \dots \\ \alpha_1 & \alpha_2 & \alpha_2 & \dots \\ \alpha_1 & \alpha_2 & \alpha_3 & \dots \\ \vdots & \vdots & \vdots & \ddots \end{pmatrix}$

caracterizand printre matricile din aceasta clasa pe cele care sunt multiplicatori Schur pentru diferite spatii Banach de matrici infinite . Am redactat un articol cu titlul: "A class of Schur multipliers on some quasi-Banach spaces of infinite matrices" pe care am trimis-o la publicare la Journal of Function Spaces and Applications, New Delhi (factor de impact ISI pe 2010 - 0,702). Am participat la un workshop in Germania intitulat FSDONA 2011 organizat de Universitatea

Friedrich Schiller Jena in luna septembrie unde am tinut o conferinta cu titlul de mai sus al lucrarii.

Popescu Andrei - In anul 2011, am urmat doua linii principale de cercetare. Mai intai, un sistem coinductiv de tipuri de date pentru demonstratorul de teoreme Isabelle/HOL, bazat pe teoria categoriilor. Apoi, un studiu al proprietatii de noninterferenta in limbajele de programare, folosind relatii de bisimilaritate a la algebra proceselor. Cele doua linii de cercetare vor fi reflectate in publicatiile mele de anul viitor.

Popescu Calin - În anul 2011 am demonstrat o teoremă de factorizare algebrică produsă de sisteme Yang-Baxter. Teorema a fost enunțată fără demonstrație într-un preprint electronic scris în anul 2010 în colaborare cu Barbu Berceanu și Florin Nichita. Articolul corespunzător este în curs de finalizare și urmează să fie trimis spre publicare.

Popescu Clement Radu - În anul 2011 am studiat rezultate din literatură despre prezentări ale mapping class grupului și subgroupurilor sale (handlebody group, subgroupul Torelli, nucleul morfismului Johnson), folosind acțiuni ale acestora pe diferite complexe simpliciale.

Popescu Dorin - În anul 2011 am continuat cercetarile privind Conjectura Stanley si am elaborat 3 lucrari: una e trecuta la preprinturi electronic anuntate (arXiv), iar doua sunt deja acceptate la Proceed. AMS, respectiv la Analele Univ. Ovidius.

Popescu Ionel - În anul 2011 am avut ca domeniu de cercetare probabilitatile libere pe dreapta reala si in mod particular, inegalitatea Poincare libera. Aceasta a fost legata de inegalitatile de transport si Log-Sobolev deja consacrate. Aceasta linie de cercetare s-a materializat intr-un articol ce urmeaza a fi publicat. O alta linie de cercetare este legata de inegalitatile functionale pe cerc care constituie tema unei lucrari in pregatire. In paralel cu cele de mai sus in lucru este un articol in jurul problemei de convergenta a Ricci flow normalizat pe suprafete. Abordarea este cu totul noua pentru ca tehnologia pe care o folosim este de probabilitati.

Prunaru Bebe - În anul 2011 am abordat trei directii de cercetare dupa cum urmeaza.

1. Puncte fixe pentru operatori Luders. Acesti operatori apar in mecanica cuantica si in alte domenii conexe. Pentru cazul in care un astfel de operator este indus de o contractie linie ale carei componente apartin unei algebre autoadjuncte comutative A am aratat ca toate punctele sale fixe apartin comutantului algebrei A . Aceste rezultate fac obiectul unui articol publicat in J. Physics A.

2. Puncte fixe pentru semigrupuri Markov cuantice. Am aratat ca aceste puncte fixe se pot reprezenta ca si compresii ale punctelor fixe asociate dilatarilor minimale endomorfe ale acestor semigrupuri. Aceste rezultate fac obiectul unui preprint electronic.

3. Corelatii cuantice si reprezentari tensoriale. Am studiat probleme legate de existenta reprezentarilor tensoriale pentru o clasa de comportari bipartite ale caror algebre de observabile intr-o reprezentare relativistica sunt separate de un produs de factori de tip I. Un rezultat in acest sens face obiectul unui preprint electronic.

Prunescu Mihai - În anul 2011 am continuat studiul sirurilor duble recurente peste multimi finite, concentrandu-ma in primul rand asupra acelor siruri duble recurente care se pot genera in mod alternativ printr-o schema de substitutie de dimensiune 2. In primul rand am incheiat cele doua proiecte anuntate in raportul de activitate pe anul 2010: (1) clasificarea geometrica a

sirurilor duble cu recurenta lineara peste inelul de matrici $M_2(\mathbb{F}_2)$ cu conditia initiala $a(i, 0) = a(0, i) = I$, matricea unitate si (2) studiul unor siruri duble recurente care au ca conditie initiala siruri simple obtinute prin scheme de substitutie de dimensiune 1 si ca lege de recurenta homomorfisme de grupuri abeliene finite. Clasificarea geometrica a fost un studiu exhaustiv care imparte sirurile duble recurente lineare in 90 de tipuri geometrice si pe cele afine in 92 de tipuri geometrice. Cu alte cuvinte numai doua tipuri geometrice se pot realiza prin functii afine peste inelul de matrici $M_2(\mathbb{F}_2)$ dar nu se pot realiza prin functii lineare. Unul dintre aceste tipuri este o substitutie primitiva, ceea ce confera sirului dublu recurent un grad foarte ridicat de autosimilaritate - este autosimilar relativ la fiecare submultime de culori. Aceste rezultate sunt redactate intr-un articol de 40 de pagini cu foarte multe figuri aparut deja in revista electronica Symmetry. In cadrul celui de-al doilea proiect legile recurente ale triunghiului Pascal modulo 2 ($x + z$ peste \mathbb{F}_2) si ale Carpetei lui Sierpinski ($x + y + z$ peste \mathbb{F}_3) au fost aplicate unor siruri de substitutie, precum celebrul sir Thue-Morse, dat de substitutiia $1 \rightarrow 10$ si $0 \rightarrow 01$ cu simbol de start 1. Printre rezultatele concrete prezentate, amintesc sirul dublu Thue-Morse-Pascal, care se dovedeste a fi un sir 2-dimensional dat de o substitutie matriciala de tip $4 \times 4 \rightarrow 8 \times 8$ cu 15 reguli de substitutie. Un articol prescurtat continand aceste rezultate a fost deja publicat in Comptes Rendus Mathematique, tot in 2011.

In timpul verii am avut sansa unor importante progrese din punct de vedere teoretic. In primul rand am gasit in literatura monografia "Automatic sequences" de J. P. Allouche si J. Shallit aparuta in 2003 la Cambridge University Press. Recomand ca aceasta carte sa fie achizitionata de Biblioteca Institutului nostru, in cazul in care nu a fost achizitionata deja. Cu ajutorul acestei carti am inteles ca sirurile multi-dimensionale care se pot obtine prin reguli de substitutie sunt intotdeauna automate (Teorema lui Salon) si ca peste un corp finit \mathbb{F}_q de caracteristica p un sir $a(i, j)$ este p -automatic daca si numai daca seria formala $\sum a(i, j)X^iY^j$ este un element algebric peste corpul de functii rationale $\mathbb{F}_q(X, Y)$ (Teorema Christol - Mendes France). Tot din aceasta carte am inteles ca triunghiul lui Pascal modulo 6 nu poate fi generat de un automat finit cu output. Aceasta ultima observatie m-a ajutat sa corectez prin restrangere o conjectura scrisa de mine in articolul "Recurrent two-dimensional sequences generated by homomorphisms of finite abelian p-groups with periodic initial conditions" care era deja acceptat la revista Fractals dar nu aparuse la acea data: conjectura are sens numai pentru p -grupuri abeliene finite, si nu pentru grupuri abeliene finite asa cum scrisesem de exemplu in raportul de activitate pe anul 2010.

Combinand teoremele Christol - Mendes France si Salon cu manipulari algebrice am demonstrat ca sirurile p -afine peste un corp finit \mathbb{F}_q [adica combinatii lineare de puteri ale automorfismului Frobenius in corpul respectiv] sunt intr-adevar p -automatice, deci pot fi obtinute prin substitutii cu factor p . Aceasta inseamna ca am demonstrat conjectura in cazul special al p -grupurilor de forma \mathbb{F}_p^n . In acest mod am reusit prima demonstratie a unui fapt general in directia conjecturii, deoarece toate articolele publicate in aceasta directie contin demonstratii computationale ad-hoc pentru cazuri numerice concrete, dar (in afara articolului publicat in anul 2007 la European Journal of Combinatorics) nici o propozitie cu domeniu de actiune infinit. Demonstratia generala din preprintul electronic \mathbb{F}_p -affine recurrent double sequences over \mathbb{F}_q are p -automatic acopera majoritatea exemplurilor din articolul aparut in anul 2010 la Fractals, toate exemplele aparute in cele doua articole publicate in 2011, si majoritatea exemplurilor din articolul acceptat la Fractals in 2011, care va apare in curand. Totusi, trebuie spus ca teorema nu este constructiva si deci nu spune nimic concret despre regulile de substitutie, in afara de faptul ca ele exista. Privind lucrurile asa, aceste articole nu devin superflue, ci sunt doar intarite de un rezultat mai general dar mai putin descriptiv.

În continuare cercetarea poate avansa în două direcții diferite. În primul rând, trebuie stabilită și demonstrată legătura geometrică între sirurile duble de tip produs tensorial (carpete cu gauri), date de sisteme de recurență de tipul $(\mathbb{F}_p, x + my + z, 1)$ și sistemele de recurență generale $(\mathbb{F}_p, ax + by + cz + d, e)$ (carpete cu petice). Datorită ultimului preprint stim că toate aceste obiecte sunt de substituție. Acum însă trebuie înțeleasă mai bine natura substituției. O altă direcție în care cercetarea trebuie să continue, este de la grupurile \mathbb{F}_p^n la alte grupuri abeliene finite, într-o primă etapă de exemplu grupurile ciclice $\mathbb{Z}/p^2\mathbb{Z}$.

În final menționez că această cercetare se înrudește atât cu rezultate în domeniul parchetarilor aperiodice, făcute de Penrose, cât și cu rezultate din domeniul quasi-cristalelor. Acest lucru devine cu atât mai interesant, cu cât laureatul Premiului Nobel pentru Chimie în anul 2011 a fost Daniel Shechtman, descoperitorul quasi-cristalelor în natură. Un alt precursor este Stephen Wolfram, creatorul programului Mathematica, cu descrierile și rezultatele din cartea lui: *A New Kind of Science*. Aceasta ar fi o a doua recomandare pentru Biblioteca Institutului nostru, pe care îmi permit să o fac în acest raport.

Purice Radu - În anul 2011:

- În colaborare cu Viorel Iftimie am utilizat tehnica operatorilor pseudodiferențiali magnetici dezvoltată în anii anteriori (împreună și cu Marius Măntoiu și Serge Richard) în studiul hamiltonienilor periodici perturbati cu un câmp magnetic marginat și regulat în vederea largirii condițiilor tehnice pentru demonstrarea existenței hamiltonienilor efecivi de tip Peierls-Onsager. O lucrare este în curs de elaborare.
- În colaborare cu Horia Cornean am studiat regularitatea frontierelor insulelor spectrale pentru o clasă largă de hamiltonieni continuând și hamiltonienii cu câmp magnetic marginat și regulat. O lucrare a fost acceptată la publicat într-un proceedings ce va apărea ca volum în seria *Operator Theory: Advances and Applications* din Birkhäuser - Springer. O altă lucrare este în lucru.
- În colaborare cu Marius Măntoiu am studiat unele aspecte abstracte ale algebrelor Moyal, proprietățile lor topologice și spațiile de modulație asociate. O lucrare este în curs de finalizare.

Raicu Claudiu - În prima parte a anului 2011 am urmat studii doctorale în cadrul departamentului de matematică al University of California, Berkeley. Începând cu luna Septembrie, am început un stadiu postdoctoral în cadrul departamentului de matematică al Princeton University.

Ramazan Birant - În anul 2011 împreună cu cercetători de la Desert Research Institute în Reno am lucrat la metode matematice în studiul durabilității surselor de apă în sud-estul și nordul peninsulei Sinai.

Radulescu Vicentiu - În anul 2011 am studiat diverse aplicații ale ecuațiilor cu derivate parțiale neliniare, în conexiune cu aplicațiile lor în chimie, biologie sau genetică. Câteva dintre direcțiile pe care le-am abordat sunt:

- fenomene singulare în fizica matematică;
- probleme neliniare pe fractali;
- ecuații Yamabe generalizate și aplicații la probleme Emden–Fowler.

Această problemă se regăsește atât în articolele publicate, cât și în monografia apărută în colecția Springer Monographs in Mathematics (în colaborare cu Marius Ghergu).

Rasdeaconu Rares - În anul 2011 am fost implicat într-o serie de proiecte de cercetare având ca obiect studiul invariantilor de tip Gromov-Witten asociați varietăților simplectice înzestrate cu o structură reală compatibilă. Astfel de invarianti sunt ingredientul esențial în geometria enumerativă reală, dar sunt și foarte interesanți din punctul de vedere al teoriei corzilor în fizica matematică.

1. Într-un proiect de colaborare cu J. Solomon, Hebrew University, Ierusalim, am definit invarianti Gromov-Witten deschiși relativi. Este un proiect în curs de redactare și care are numeroase consecințe importante. În prezent, lucrăm la obținerea unei formule care să permită calcularea recursivă a acestor invarianti. Am descoperit deja aplicații ale unei astfel de formule care nu sunt analoge celor din teoria Gromov-Witten clasică.
2. Într-un proiect de colaborare cu J-Y Welschinger, CNRS, Université Lyon, studiem proprietățile asimptotice ale invariantilor Welschinger. Acești invarianti furnizează minoranți pentru numărul de curbe raționale reale ale varietăților simplectice înzestrate cu o structură reală compatibilă în dimensiune patru. Este un proiect într-un stadiu avansat.
3. Un ultim proiect la care lucrez este studiul dependenței invariantilor Gromov-Witten deschiși de structura reală ambientală. Am obținut rezultate interesante în cazul suprafețelor cubice.

În alta direcție de cercetare, în colaborare cu I. Șuvaina, Vanderbilt University și M. Lejmi, University of Minnesota, studiem existența de metrici (aproape) Kähler de curbura scalară constantă pe varietăți simplectice de dimensiune patru. Ca un prim pas, am obținut deja rezultate locale, construind astfel de metrici complete pe anumite deformări de singularități ciclice prin metoda Tian-Yau. Intenționăm să extindem rezultatele de lipire Arezzo-Pacard în context simplectic pentru a obține rezultate globale. Este un proiect într-un stadiu avansat pe care intenționăm să îl terminăm în următorul an.

Staic Mihai - În lucrarea *Secondary cohomology for commutative algebras* introduc o construcție ce asociază unei algebre comutative A un modul simplicial $K(A)$. Rezultatele sunt inspirate de o prezentare explicită a grupului simplicial $K(A, 2)$.

În lucrarea *More examples of pseudosymmetric braided categories*, (autori F. Panaite și M. D. Staic), sunt investigate anumite clase de categorii braided (respectiv algebre Hopf quasi-triangulare) cu scopul de a le identifica pe acelea care sunt pseudosimetrice (respectiv pseudotriangulare). De exemplu, se demonstrează că braidingul canonic al categoriei de bimodule Yetter-Drinfeld-Long peste o algebra Hopf H este pseudosimetric dacă și numai dacă H este comutativă și cocomutativă. De asemenea, se arată că toate structurile quasitriangulare (inclusiv cele care nu sunt triangulare) de pe anumite algebre Hopf introduse de către Radford sunt pseudotriangulare.

Stan Florin - În anul 2011 am încercat să obțin rezultate referitoare la un anumit grup, introdus într-o lucrare anterioară. Mai exact, am încercat să obțin estimări ale rangului acestui grup abelian. În acest sens, lucrez la articolul 'Effective bounds for the Loxton-Kedlaya rank'.

Stanica Pantelimon - Cercetarea mea se desfasoara in cateva domenii: Teoria Numerelor, Combinatorica, Matematica Discreta, in special functii Booleene cu aplicatii in criptografie. Conduc programul de *Matematica Comunicarii Secrete*.

Stavre Roxandra - În anul 2011 activitatea de cercetare s-a desfășurat în următoarele direcții:

1. Am continuat studiul asimptotic al unor probleme de cuplaj între un fluid vâscos și o structură elastică. Am urmărit generalizarea rezultatelor publicate pe această temă în anii 2006-2010 la cazuri cât mai apropiate de realitate. Sunt finalizate sau în curs de finalizare lucrările:

a) *R. Fares, G. Panasenko, R. Stavre, A viscous fluid flow through a thin channel with mixed (rigid-elastic) boundary. Variational and asymptotic analysis,*

b) *G. Panasenko, R. Stavre, The interaction problem between a viscous fluid and an elastic medium. Asymptotic analysis for the periodic case.*

2. Pornind de la numeroasele aplicații ale curgerilor multifazice prin medii poroase, ne-am propus să analizăm mișcarea a două fluide imiscibile printr-un mediu poros, în condițiile în care pe frontiera care separă cele două fluide există o discontinuitate de temperatură. În lucrarea

a) *R. Stavre, A distributed control problem for two coupled fluids in a porous medium*

se face un studiu variațional și se propune o problemă de control optimal asociată cu problema cuplată a curgerii a două fluide imiscibile printr-un mediu poros, cuplajul realizându-se printr-o condiție de salt pentru temperatură.

Tiba Dan - În anul 2011 am continuat activitatea de cercetare stiintifica in programele finantate de CNCS (grant 1192/2009) , programul LEA (impreuna cu ua, pekka Neittaanamaki, M.Sofonea, Perpignan), programul Brincusi (impreuna cu Murea Cornel, Mulhouse) unde sunt director de Grant. Temele cercetate sunt legate de probleme de optimizarea formelor, de aplicatii ale metodei variationale prin control optimal, de alicatii la inecuatii variationale, etc. Am efectuat si numeroase vizite in Spania, Finlanda, Germania, Franta unde am dezvoltat colaborari cu matematicieni ca Enrike Zuazua, P.Neittaanmaki, Cornel Murea, Mircea Sofonea, etc. Mai multe lucrari sunt in curs de redactare.

Timofte Aida - În anul 2011 am finalizat un articol care caracterizeaza convergenta uniforma a sirurilor generalizate monotone si simplu convergente de functii definite pe multimi arbitrare. Rezultatele obtinute generalizeaza atat teorema clasica a lui Dini, cat si teorema Dini-Weston asupra convergentei in spatii ordonate local convexe.

Timofte Vlad - In anul 2011 mi-am continuat cercetarile si am obtinut noi rezultate semnificative pe linia dezvoltarii unei noi teorii de diferentiabilitate de tip Frechet pe spatii local convexe, pentru care majoritatea teoremelor importante (inclusiv cele de existenta si diferentiabilitate a functiilor implicite si a celor inverse) functioneaza in ipotezele standard. Aceasta noua teorie care trateaza o veche problema deschisa este acum aproape completa.

Timotin Dan - În anul 2011, în cursul unei vizite de trei luni la Universitatea din Lille am continuat o colaborare mai veche cu Chafiq Benhida. Este in curs de finalizare o lucrare comună privind subspații contractiv incluse în spații Nevanlinna–Pick. Tot la Lille am inițiat

o colaborare cu Cătălin Badea și Laurian Suciu privind dominarea Harnack a contractiilor pe spații Hilbert.

Împreună cu Isabelle Chalendar și Emmanuel Fricain de la Universitatea din Lyon am definitivat o notă privind conjectura Feichtinger pentru nuclee reproducătoare pe spații Nevanlinna–Pick. Lucrarea se poate găsi sub formă de preprint electronic (v. mai jos).

Am continuat colaborarea cu doctorandul meu Waleed Noor, o primă concretizare fiind o lucrare despre măsuri de scufundare pentru spații Müntz care se găsește sub formă de preprint electronic (v. mai jos).

Torok Andrei - În anul 2011 m-am ocupat cu analiza sistemelor dinamice necompacte, cu scopul de a obține rezultate pentru “coupled lattice networks” în care dinamica locală nu este hiperbolică. De asemenea, în colaborare cu D. Damjanovic și C. Zhan, studiem rigiditatea acțiunilor parțial hiperbolice de rank cel puțin doi pe nilvarietăți.

Ursu Vasile - În anul 2011 a fost obținute următoarele rezultate:

- 1) în laticia tuturor cvasivarietăților de bucle Moufang nilpotente sunt descrise toate cvasivarietățile neabeliene minimale;
- 2) laticia tuturor cvasivarietăților varietății generată de o buclă Moufang nilpotentă finit-generată L nu poate avea putere numărabilă, adică are puterea continuă sau finită. Aceasta latică este finită dacă și numai dacă L este grup abelian finit;
- 3) o buclă Moufang L conține o subbuclă nilpotentă neabeliană, iar rangurile grupurilor abeliene din L sunt marginite de un același număr natural, atunci toate cvasiidentitățile adevărate în L nu au bază de cvasiidentități de la un număr finit de variabile. În particular, buclă Moufang nilpotentă finit generată are bază finită de cvasiidentități dacă și numai dacă ea este un grup abelian finit;
- 4) s-a rezolvat problema bazei finite de cvasiidentități pentru buclă Moufang nilpotentă finit generată, în particular, și pentru grupul nilpotent finit generat.

Valusescu Ilie - În anul 2011 s-au obținut rezultate privind geometria proceselor Γ -corelate, în special privind unghiurile Dixmier și Friedrichs dintre trecutul și viitorul proceselor, concretizate în lucrările:

1. Ilie Valusescu: *On the Friedrichs angle between the past and the future of some Γ -correlated processes*, **Proceedings of the International Conference on Theory and Applications of Mathematics and Informatics, ICTAMI-2011**, ICTAMI-2011, Alba Iulia, 21-24 iulie 2011, editori: Daniel Breaz, Nicoleta Breaz, Nicoleta Ularu. Acta Universitatis Apulensis, Special Issue (2011), pag. 85-94, ISSN: 1582-5329.
2. Ilie Valusescu: *Γ -correlated processes. Some geometrical considerations*, Preprint IMAR nr. 7/2011, 12 pag.

Vajaitu Marian - În anul 2011 activitatea mea de cercetare s-a desfasurat pe câteva direcții principale concretizate în lucrări aparute în 2011, în lucrări acceptate spre publicare sau în lucrări trimise spre publicare:

- **Studiul fracțiilor Farey**, concretizat în apariția lucrărilor:

- *The distribution of rationals in residue classes*, Mathematical Reports, Vol. 13(63), No.4 (2011), C. Cobeli, M. Vâjăitu, A. Zaharescu. (Revista ISI.)
- *A density theorem on even Farey fractions*, Rev. Roumaine Math. Pures Appl., Tome LV, No.6, (2010), pag. 447-482, (C. Cobeli, M. Vâjăitu, A. Zaharescu.)

- **Studiul funcțiilor analitice rigide**, concretizat în lucrările:

- *Representation Results for Equivariant Rigid Analytic Functions*, acceptată la *Algebr. Represent. Theory*, V. Alexandru, N. Popescu, M. Vâjăitu, A. Zaharescu. (Revista ISI.)
- *The behavior of rigid analytic functions around orbits of elements of \mathbf{C}_p* , acceptată la *Rend. Semin. Mat. Univ. Padova*, S. Achimescu, V. Alexandru, N. Popescu, M. Vâjăitu, A. Zaharescu. (Revista ISI.)
- *On the zeros of rigid analytic functions*, V. Alexandru, N. Popescu, M. Vâjăitu, A. Zaharescu, submisă.
- *On p -adic analytic continuation with applications to generating elements*, V. Alexandru, M. Vâjăitu, A. Zaharescu. (In progress.)
- *A theorem of local representation of p -adic analytic elements*. (In progress.)

- **Studiul corpurilor Tate**, concretizat în lucrarea:

- *An algebraic metric equivalence relation over p -adic fields*. (In progress.)

Rezultatele obținute au fost ca rod al colaborării cu Alexandru Zaharescu, Cristian Cobeli, Victor Alexandru, Sever Achimescu, cu colegii din cadrul seminarului de Teoria Numerelor cât și cu cercetători și profesori de la renumite Institute de cercetare și Universități din țară și străinătate ca: University of Illinois at Urbana-Champaign, IMAR, Universitatea din București etc

- În cadrul Seminarului Științific al IMAR, “Nicolae Popescu” Number Theory, am ținut o serie de 5 expuneri reprezentând diseminarea articolelor științifice aparute, acceptate sau în curs de publicare.
- Am participat la conferințele IMAR.
- Am fost referent pentru o serie de lucrări trimise spre publicare la revistele: *Communications in Algebra*, *Proc. Romanian Academy*, *Analele Universității din București* etc

Vilcu Costin - În anul 2011 am continuat colaborarea cu Joseph O’Rourke, asupra existenței conice a unor curbe închise pe poliedre convexe, cu consecințe asupra desfășurării plane a unor clase de curbe de pe poliedre convexe.

De asemenea, am elaborat și prezentat, împreună cu Chie Nara și Jin-ichi Itoh, prima metodă de aplatizare continuă a suprafețelor poliedrale convexe, bazată pe structura cut locus-ului.

Vuza Dan Tudor - În anul 2011 am colaborat în cadrul proiectelor de cercetare inițiate de Frosch Electronics, Graz, Austria, asupra aspectelor teoretice și practice ale proiectării, simulării și realizării cititoarelor RFID pentru protocoalele FDX/HDX în conformitate cu cele mai recente cerințe și standarde impuse unor astfel de dispozitive. Lucrarea *A Current-Driven RFID Reader with Automatic Antenna Tuning* rezultată în urma acestei colaborări a fost distinsă cu Excellent Poster Award în cadrul conferinței SIITME 2011 menționată mai sus (conform diplomei anexate). De asemenea a rezultat lucrarea *RFID Readers for the HDX Protocol - A Designers Perspective* publicată în volumul colectiv **Current Trends and Challenges in RFID** în urma invitației editorilor de a contribui la volum (conform certificatului anexat).

Zaharescu Alexandru - În anul 2011 am desfășurat o activitate de cercetare care s-a concretizat în mai multe lucrări. Am continuat colaborarea cu Marian Vajaitu, Victor Alexandru, Cristian Cobeli, Ciprian Bonciocat, Florin Stan, Bruce Berndt, Mohammad Zaki, Maosheng Xiong, Sun Kim, Mu Tsun Tsai și Kit Ho Mak. Subiectele principale abordate se referă la funcțiile analitice rigide pe complementara orbitei unui element din completarea închiderii algebrice a unui corp de numere p -adice, continuarea analitică a unor serii Dirichlet ai caror coeficienți

sunt legati de anumite functii Bessel, numere Weil in extinderea abeliana maximala a corpului numerelor rationale, corelarea directiilor din origine prin puncte laticiale vizibile, reprezentarea numerelor naturale ca sume de numere prime consecutive si distributia punctelor pe o curba algebrica peste un corp finit.

Zamfirescu Tudor - În anul 2011 am studiat generalizări ale conceptelor de convexitate și moderație. De asemenea, am studiat cicluri de lungime maximă în grafuri laticiale.

7.2 Activitate in seminarii

Achimescu Sever - Participare la seminarul de Teoria Numerelor "Nicolae Popescu"; doua prezentari despre forme modulare p-adice.

Albu Toma - Nu am participat in mod regulat la Seminarii IMAR, ci doar ocazional. Am participat in schimb cu expuneri la Seminarul de Algebra organizat de "Atlantic Algebra Center", Memorial University of Newfoundland, St. John's, Canada (vezi punctul 8.5.1 din acest raport).

Ambro Florin

1. *Division Flow*, Laboratory of algebraic geometry and its applications, Faculty of Mathematics, Higher School of Economics, Moscow, October 14, 2011
2. *Division Flow*, The 19th National School on Algebra, Computer Algebra and Combinatorics, Univ. Ovidius-IMAR, September 19, 2011
3. *An injectivity theorem*, French-Romanian Workshop on Complex Geometry, Bucharest, July 9, 2011
4. *Divisibility in graded rings*, Algebra Seminar, FMI, Bucharest, May 31, 2011
5. *Series of toric surface singularities*, Workshop for Young Researchers in Mathematics, Ovidius University, May 12, 2011
6. *An approximation problem*, Algebra and Geometry Seminar, Ovidius University, Constanta, April 1, 2011
7. *Nef dimension of canonical divisors*, MAGIC Seminar, Imperial College London, March 21, 2011
8. *MMP and Graded Algebras I - VII*, Algebraic Geometry Seminar, IMAR, Bucharest, March 3,10,31, April 14,21, June 16, 23, 2011
9. *Singularities in Birational Geometry*, Algebraic Geometry Seminar, IMAR, Bucharest, January 20 2011

Anghel Cristian - Am participat la seminarul de Geometrie Algebrica.

Anton Marian - Topological data analysis study group, organizator, Centre College, Fall 2010 - Spring 2011

Aprodu Marian - Prezentări la seminariile de specialitate de la: Institutul Elie Cartan Nancy (3 expuneri) Institutul Fourier Grenoble (1 expunere), Institutul Jussieu Paris (1 expunere, programat după depunerea raportului), Institutul Simion Stoilow București (3 expuneri)

Arsu Gruia - Am participat la:

- Seminarul de ecuații cu derivate parțiale (coordonatori Viorel Iftimie și Radu Purice).
- Seminarul: Sisteme hiperbolice de legi de conservare (coordonator Liviu Dinu).

Badea Lori - Am participat la doua seminarii,

- Seminarul de Mecanica comun IMAR - Facultatea de Matematica, Universitatea din Bucuresti, si
- Seminarul de Ecuatii cu Derivate Partiale al IMAR.

Baran Andrei - Am participat la Seminarul de functii de mai multe variabile complexe.

Barcau Alexandru Mugurel - Seminarul de Geometrie Algebrică, IMAR.

Baditoiu Gabriel - Am participat la toate seminariile de Geometrie Diferentiala de la IMAR si am facut urmatoarele prezentari in cadrul aceluiasi seminar:

1. Consecinte ale clasificarilor submersiilor Riemann. Teoreme de rigiditate: 9 februarie 2011
2. Introducere in teoria fluxului Ricci (I), (II), (III): 26 octombrie 2011, 2 si respectiv 9 noiembrie 2011.

Barcanescu Serban - In 2011 am continut conducerea Seminarului de Algebra Combinatoriala si Comutativa "Nicolae Radu" (IMAR)

-Fac.Matematica Bucuresti - din partea Facultatii supervizarea a fost facuta de prof. Dorin Popescu).

In cadrul acestui Seminar am tinut conferinta "Combinatorica poliedrelor laticiale si geometria varietatilor torice" (noiembrie2011).

Beltita Daniel - Daniel Beltiță a participat la Seminarul de Geometrie Diferențială, la Seminarul de Ecuații cu Derivate Parțiale, și la Seminarul de Metode Operatoriale în Cuantificare, din cadrul Institutului de Matematică "Simion Stoilow" al Academiei Române. La acest din urmă seminar a făcut urmatoarele prezentări:

- *Algebre de operatori integrali închise în raport cu inversarea* (serie de 2 expuneri).
- *Calcul Weyl într-o infinitate de variabile* (serie de 3 expuneri).

Beltita Ingrid - Ingrid Beltiță a participat la Seminarul de Geometrie Diferențială, la Seminarul de Ecuații cu Derivate Parțiale, și la Seminarul de Metode Operatoriale în Cuantificare, din cadrul Institutului de Matematică "Simion Stoilow" al Academiei Române.

Berceanu Barbu - Am organizat seminarul de topologie din Abdus Salam School of Mathematical Sciences. Tot aici am tinut un sir de expuneri despre teoria singularitatilor.

Beznea Lucian - Am participat si organizat (impreuna cu profesorii Nicu Boboc si Gheorghe Bucur) seminarul de teoria potentialului al IMAR-Facultatea de Matematica.

Bonciocat Anca Iuliana - participare la Seminarul de Teoria Potențialului, organizat de Facultatea de Matematică și Informatică a Universității din București și Institutul de Matematică “Simion Stoilow” al Academiei Române. În cadrul acestui seminar, am ținut două expuneri (pe 8 și respectiv 15 februarie 2011) în seminarul de Teoria Potențialului pe tema ”Functional inequalities”. Am prezentat inegalitățile Brunn-Minkowski, izoperimetrice, de transport și log-Sobolev, ca și conexiuni cu inegalitățile de concentrare a măsurii.

Bonciocat Nicolae Ciprian - participare la seminarul de Algebra Locala “Nicolae Radu” organizat de Institutul de Matematica “Simion Stoilow” al Academiei Romane in colaborare cu Facultatea de Matematica si Informatica a Universitatii din Bucuresti.

Brinzanescu Vasile - Am participat la seminariile de geometrie algebrica si de geometrie diferentia. Am organizat seminarul de geometrie algebrica.

Burciu Sebastian - S-a participat la seminarul de topologie algebrica IMAR si la un miniseminar de algebre Hopf din cadru Universitatii Bucuresti unde s-a tinut expunerea ”Asupra unei Teoreme a lui Ito” in Februarie 2011.

Buruiana Nicolae - Am participat la seminarul de Geometrie Algebrica al Institutului.

Calinescu Corina - Sunt co-organizator al seminarului ”Geometry, Symmetry and Physics” in departamentul de matematica la Universitatea Yale.

Prezentari la seminarii in 2011:

1. CUNY Representation Theory Seminar, CUNY-Graduate Center, New York.
2. Lie Groups/Quantum Mathematics Seminar, Rutgers University, New Brunswick.

Capatina Anca - Am participat la următoarele seminarii :

- *Metode variaționale în mecanică* - seminar al grupului de Mecanica Mediilor Continuumului din IMAR (coordonator H. Ene)
- *Metode asimptotice și aplicații* - seminar de lucru (coordonator H. Ene)
- *Mecanica mediilor deformabile* - seminar organizat de catedra de mecanică din Facultatea de Matematică, Universitatea București și grupul de Mecanica Mediilor Continuumului din IMAR (coordonatori V. și S. Țigoiu)

Cheptea Dorin - Seminarul de topologie, IMAR

Chiriacescu Gabriel - Participare in Seminarul de Algebra Comutativa si Combinatorica ”N. Radu”.

Cimpoeas Mircea - Am participat la seminarul de algebră ”Nicolae Radu”, care are loc săptămânal pe perioada anului universitar, marți între orele 12-14, unde am susținut o prezentare intitulată ”Bounds for Stanley depth of certain classes of monomial ideals and their residue class rings”.

Cipu Mihai - Am participat la Seminarul de Algebră Comutativă „Nicolae Radu”, în cadrul căruia am susținut expunerea „Using symmetry to project polytopes”.

Cojocaru Alina-Carmen

- Participare in seminarii: Seminar de Teoria Numerelor, Universitatea Illinois - Chicago, SUA
- Prezentații facute:
 - Octombrie 2011, Seminar de Teoria Numerelor, Universitatea Illinois - Chicago, SUA
 - Iulie 2011, Colocviu, Institutul de Matematica „Simion Stoilov”, Academia Romana, Bucuresti, Romania
- Seminarii organizate: Seminarul de Teoria Numerelor, Universitatea Illinois - Chicago, SUA

Constantinescu Adrian - Participare la seminariile:

Geometrie Algebrică (de la Institutul de Matematica “Simion Stoilov” al Academiei Romane),

Algebra Comutativa (de la Facultatea de Matematica si Informatica a Universitatii din Bucuresti, in colaborare cu Institutul de Matematica “Simion Stoilov” al Academiei Romane),

Teoria Subvarietatilor (de la Facultatea de Matematica si Informatica a Universitatii din Bucuresti. Participare partiala.).

Constantinescu Alexandru - *Are toric ideals of graphs glicci?*,

Seminarul de algebra si topologie al Universității din Basel, Octombrie 2011.

Daia Liviu - Am participat la seminariile și conferințele organizate de grupul de Analiză Complexă și Teoria Potențialului, din care fac parte.

Dan Nicusor - Am participat la cateva sedinte ale Seminarului de Geometrie Algebrică al IMAR.

David Liana - Am participat la seminarul de geometrie diferentia la de la IMAR, unde am tinut expuneri pe tema structurilor complexe generalizate invariante pe grupuri Lie, si, de asemenea, pe tema 2-formelor conforme-Killing (studiu local) definite pe varietati cuaternionice-Kahler.

Deliu Dragos

1. 2011-Homological Projective Duality for $Gr(3,6)$
University of Vienna, Austria
2. 2011-Landau-Ginzburg Calabi-Yau correspondence in Orlov’s work
University of Vienna, Austria
3. 2011-Cycles on surfaces
University of Vienna, Austria

Diaconescu Razvan - Activitatea de tip seminar am desfășurat-o în cadrul cursurilor, seminariilor și practicilor de cercetare ținute în cadrul programului masteral *Logică și Specificații Formale* al SNSB, program puternic orientat către cercetare și organizat de mine.

Diaconu Calin Adrian

1. *Trace Formulas, Character Sums, and Multiple Dirichlet Series*, Seminarul de Teoria Numerelor, Februarie 2011, Institutul de Matematică Max Planck.
2. *Trace Formulas, Character Sums, and Multiple Dirichlet Series*, Joint Number Theory meeting Aachen-Koeln-Lille-Siegen, March 2011, Universitatea din Köln.
3. *Trace Formulas, Character Sums, and Multiple Dirichlet Series*, Oberseminar de Teoria Analitică a Numerelor, April 2011, Universitatea din Göttingen.
4. *Trace Formulas, Character Sums, and Multiple Dirichlet Series*, The Analytic Theory of Automorphic Forms Workshop, 28 August - 3 Septembrie 2011, Oberwolfach.

Notă: Fiecare prezentare a fost făcută în 60 de minute.

Dinu Florin Liviu - Participare la Seminarul de Ecuatii cu Derivate Parțiale 2011.

Dragan Vasile - Particip la Seminarul de Ecuatii Differentiale si Control Optimal. Am prezentat expuneri legate de cercetarile personale privind problema filtrarii unor semnale generate de sisteme stochastice in timp discret. Ma ocup de organizarea acestuia in sensul anuntarii temei si lectorilor, convocarea colegilor.

Dumitrescu Olivia

- *Cones of Divisors of Blow-ups of Projective Space*
Graduate Algebraic Geometry Seminar - University of California, Davis, October 2011
- *Approximations of Nagata's conjecture*
Algebraic Geometry Seminar - Mittag-Leffler Institute, Stockholm, May 2011
Algebra Seminar - Colorado State University, Fort Collins, April 2011
- *Approximations of Nagata's conjecture*
Algebra Seminar - Colorado State University, Fort Collins, April 2011
- *Atiyah-Bott Localization: Introduction and Examples*
Gromov Witten Seminar - University of California, Davis, March 4th, 11th 2011
- *Lectures on Interpolation Problems*
Algebra Seminar - University of California, Davis, February 2011
- *Lectures on Fano Varieties*
Algebra Seminar - University of California, Davis, October 2010
- *Degenerations Techniques and Interpolation Problems*,
Ottawa-Carleton Algebra Seminar Ottawa-Carleton, Ottawa, December 2010

Enescu Florian - Am organizat seminarul de algebra comutativa la Georgia State University unde am si tinut cateva expuneri. Am tinut urmatoarele expuneri: (October 2011), Hilbert-Kunz multiplicities, Algebra Seminar, Georgia Tech. (May 2011), Local cohomology in positive characteristic, Institute of Mathematics of the Romanian Academy, Romania. (May 2011), Hilbert-Kunz multiplicities, University of Bucharest, Nicolae Radu Algebra Seminar, Romania.

(May 2011), The Hilbert-Kunz multiplicity, Algebraic Geometry Seminar, Mainz University, Germany

Epure Mihai - Sunt membru activ al seminarului de algebra comutativa si combinatorica "Nicolae Radu" organizat de I.M.A.R. avand mai multe expuneri pe 2 teme : monoizi afini (normali) si baze Grobner pentru module.

Faciu Cristian - Participare la seminarul săptămânal de Mecanica mediilor deformabile organizat impreuna cu Catedra de Mecanică de la Facultatea de Matematică la Universitatea din București. Serie de prezentări făcute în lunile martie si aprilie 2011 cu titlul *Structura stratului de șoc generată de vâscozitatea maxwelliană și termoconducție in cazul tranzițiilor de fază solid-solid.*

Gaba Radu - In 2011 am participat in prima parte a anului la seminariile QVNTS (Québec-Vermont number theory seminars), Montréal, Canada iar in cea de-a doua la seminariile de Teoria Numerelor si de Algebra comutativa si combinatorica din cadrul IMAR; sustin in data de 23 Noiembrie 2011 prezentarea cu titlul "Asupra unor clase speciale de curbe eliptice complexe" in cadrul seminarului "Nicolae Popescu" de Teoria Numerelor. Tot astfel, am participat la Scoala Nationala de Algebra (a 19-a editie), 18-24 Septembrie si la Workshop-ul romano-francez de Geometrie Complexa, 7-9 iulie.

Ghergu Marius - Am ținut expuneri in cadrul seminariilor din University College Dublin, Trinity College Dublin (Irlanda), Université de Picardie (Franța), Swansea University (UK).

Gologan Radu - Am participat la seminarul de teoria operatorilor.

Ichim Bogdan - Am participat la seminarul grupului de algebra unde am tinut in total 5 prezentari. Am participat la seminarul grupului de geometrie algebrica.

Ionescu-Kruse Delia - Participare la seminarul de Mecanica Mediilor Deformabile, organizat impreuna cu catedra de Mecanica a Facultatii de Matematica.

Ionescu Paltin - Am participat la Seminarul de Geometrie Algebrica organizat de IMAR-FMI

Iordanescu Radu - In fiecare MIERCURI, la Seminarul de geometrie diferentia la si (uneori) VINERI, la Seminarul de topologie.

Leustean Laurentiu - Am organizat la IMAR seminarul "Effective methods in (nonlinear) ergodic theory" pentru studenții SNSB, unde au ținut prezentări Laurențiu Leuștean, Ulrich Kohlenbach (Universitatea Tehnică din Darmstadt), David Ariza (Universitatea din Sevilla) și studenții SNSB Diana Putan, Andrei Stoica și Emanuel Vlad.

Lozovanu Victor

1. **Prezentare:** "A multigraded vanishing theorem", CMS Winter Meeting, Toronto, Canada (December 2011).
2. **Prezentare:** "Vanishing theorems", Seminarul de Geometrie Algebrica si Teoria Numerelor, Johns Hopkins University, USA (November 2011).

3. **Prezentare:** “*Projective normality of adjoint line bundles*”, Seminarul de Geometrie Algebrica, Queen’s University, Canada (September 2011).
4. **Prezentare:** “*Volumes of NObodies*”, Mini-Workshop: “New Developments in Newton-Okounkov Bodies”, Oberwolfach, Germany (August 2011).
5. **Prezentare:** “*Regularity of smooth curves in biprojective spaces*”, Al V-lea Congres Iberoamerican in Geometrie, Chile (December 2010).
6. **Prezentare:** “*Asymptotic invariants in algebraic geometry*”, Scoala in Geometrie Complexa, Chile (December 2010).
7. **Co-Organizator:** “Curve Seminar”, Queen’s University, Semestrul Iarna-Primavara 2011 (impreuna cu prof. Greg G. Smith si prof. Mike Roth).

Maican Mario - Participare in seminarul de Geometrie Algebrica al IMAR.

Matei Daniel - Seminarul de topologie, IMAR: doua serii de expuneri cu titlurile *Grupuri de clase de homeomorfisme de suprafete si invarianti de 3-varietati* si *Acoperiri finite de 3-varietati*.

Maxim Laurentiu

1. In anul 2011 am (co-)organizat urmatoarele seminarii:
 - (a) Mathematics Colloquium, University of Wisconsin-Madison
 - (b) Geometry and Topology Seminar, University of Wisconsin-Madison
2. In anul 2011 am facut prezentari in seminarii si conferinte dupa cum urmeaza:
 - (a) *Iberian Meeting on Algebraic Analysis and Geometry*, Lisbon, Portugal, 09/2011.
 - (b) *Latin American School of Algebraic Geometry and Applications*, Cordoba, Argentina, 08/2011.
 - (c) *Seminar on Singularity Theory and Related Topics*, Beijing, China, 07/2011.
 - (d) *The Seventh Congress of Romanian Mathematicians*, Brasov, Romania, 06-07/2011.
 - (e) *Geometry Summer School (40 hours of lecturing)*, University of Science and Technology of China, Hefei, China, 05-07/2011.
 - (f) *East China Normal University Topology Seminar*, Shanghai, China, 06/2011.
 - (g) *Michigan State University Algebra Seminar*, East Lansing, Michigan, USA, 03/2011.
 - (h) *Iowa State University Colloquium*, Ames, Iowa, USA, 02/2011.
 - (i) *University of Wisconsin-Madison Geometry & Topology Seminar*, Madison, Wisconsin, USA, 02/2011.
 - (j) *Northeastern University Colloquium*, Boston, USA, 01/2011.

Macinic Anca - In cursul anului 2011 am participat la seminarul organizat in cadrul colectivului de Topologie al IMAR.

Am organizat si sustinut, impreuna cu lector dr.Denis Ibadula un seminar stiintific studentesc la Universitatea Ovidius Constanta cu tematica ”Aranjamente de hiperplane”.

Mihailescu Eugen - In anul 2011 am participat activ la seminarul de analiza complexa la IMAR.

Minea Gheorghe - In cadrul seminarului "Sisteme hiperbolice de legi de conservare" am continuat in 2011 ciclul de expuneri "Investigatii geometrice asupra conditiilor entropice" in care prezint rezultatele obtinute de mine; am tinut in total 24 de expuneri in anul scolar 2010-2011.

Molnar Ionel - Participare la seminarul stiintific *Mecanica mediilor deformabile*.

Moroianu Sergiu

1. Expunere la seminarul de geometrie de la Univ. Regensburg, Ianuarie 2011;
2. Expunere la seminarul de geometrie de la Univ. Nantes, Martie 2011.

Negut Andrei - Am participat in doua seminarii de teoria geometrica a reprezentarilor (Harvard, primavara 2011 si toamna 2011).

Nenciu Irina - Prezentări în următoarele seminarii și conferințe:

1. Seminarul de fizic ua teoretică, Institutul Național de Fizică și Inginerie Nucleară, București, Decembrie 2010;
2. 2011 AMS Spring Central Section Meeting, Sesiunea Specială pentru Teorie Spectrală, University of Iowa, Iowa City, IA, Martie 2011;
3. 7th Congress of Romanian Mathematicians, Brasov, Romania, Iunie 2011;
4. Conferința ESF "Completely Integrable Systems and Applications", Erwin Schrödinger Institute, Viena, Austria, Iulie 2011.

Începând din August 2011, sunt unul dintre organizatorii seminarului săptămânal de cercetare "Mathematics and its applications", în Departamentul de Matematică, Univeristy of Illinois at Chicago.

Nenciu Gheorghe - Participare la seminarul de lucru "Analiza Spectrala si Operatori Pseudodiferentiali" al grupului de Ecuatii Diferentiale si Fizica Matematica din IMAR. Expuneri: "Operatori Schroedinger cu camp magnetic constant si hamiltonieni efectivi Peierls-Onsager", "Transformari F-W si bloc-diagonalizarea operatorilor Dirac".

Nichita Felix Florin - Am participat la toate seminariile stiintifice ale colectivului de Topologie si la conferintele organizate de IMAR si FMI.

Ornea Liviu - Am participat la seminarul de geometrie diferentiaala al IMAR (miercuri, 10-12, sala 309).

Panaite Florin - Am participat la Seminarul saptamanal de Topologie al colectivului, in cadrul caruia am tinut o expunere cu titlul "Pseudosymmetric braidings and a quotient of the braid group"

Pantilie Radu - Particip la organizarea Seminarului de Geometrie Diferențială al I.M.A.R., în cadrul căruia am făcut următoarele expuneri:

- Clasificarea subspațiilor vectoriale reale ale unui spațiu vectorial cuaternionic;
- Aplicații CR cuaternionice.

Deasemenea, în cadrul seminarului de specialitate al departamentului de matematică al Universității din Roma “La Sapienza”, am făcut următoarele expuneri:

- On holomorphic maps and Generalized Complex Geometry;
- Introduction to Quaternionic Geometry (expunere de două ore);
- On CR quaternionic maps;
- Generalized quaternionic manifolds.

Papadima Stefan - Am organizat Seminarul de Topologie al IMAR.

Pascu Mihai - seminarul de Analiza spectrala si operatori pseudodiferentiali.

Pasa Gelu - Am participat la seminarul “Metode Functionale in Mecanica Fluidelor”, condus de Prof. Horia Ene, tinut la IMAR, precum si la “Seminarul doctoral” sustinut de doctoranzi de la Universitatea din Pitesti, condus de prof. Horia Ene. Am participat si la Semirnatul de Mecanica de la Facultatea de Matematica Bucuresti, condus de prof. Sanda Tigoiu si conf. Victor Tigoiu.

Pasol Vicentiu - Seminarul de teoria Numerelor ”Nicolae Popescu”.

Pasarescu Ovidiu - Am participat la seminarul de geometrie algebrică efectuând un număr de 10 expuneri, în două serii:

- Aplicații ale analizei nonstandard și teoriei modelelor în geometria algebrică (5 expuneri).
Prin aceste expuneri am adus în atenția membrilor seminarului unele metode din domenii nu foarte bine reprezentate în România (la unele proiecte am observat că nu se găsesc ușor evaluatori competenți din domeniile teoriei modelelor și analizei nonstandard). Aceste metode sunt folosibile și în modelarea matematică (economii matematice, fizică cuantică, informatică cuantică, etc.), cum am punctat în seminar.
- Asupra terminării flipurilor (5 expuneri).
Aceste expuneri (ca și cele anterioare) au fost legate de pct. al doilea al secțiunii mele 7.1. Am prezentat seminarului diverse metode de abordare a problemei considerate, folosind diverse tehnici: metodele lui V. Shokurov (legate de ascending chain condition pentru minimal log discrepancy=mld), cele ale lui M. Mustață, polinosmele Bernstein-Sato (din teoria D-modulelor) și log canonical thresholds=lct, legături dintre arc spaces, jet schemes, motivic integration și mld și lct, posibilul impact al acestora asupra terminării log flipurilor, etc.

Paunescu Liviu - *Sofic actions and equivalence relations*; Sofic Groups seminar Lausanne-Wien-Neuchtel 30 March 2011. <http://egg.epfl.ch/lawine/>

Pilca Mihaela Veronica - Participare in seminarii si prezentari facute:

1. 5.01.2011, On Formal Riemannian Metrics, Differential Geometry Seminar, IMAR, Bucharest, Romania.
2. 18.05.2011, Dirac Operators in Kähler Geometry, Spring School Index Theory, Graduiertenkolleg Regensburg, Hesselberg, Germania.

Polisevski Dan - Particip la doua seminarii saptamanale:

1. "Mecanica mediilor deformabile", organizat de Catedra de Mecanica si Ecuatii, Universitatea Bucuresti si Grupul de Mecanica Continuumului, Institutul de Matematica "Simion Stoilow", Bucuresti
2. "Metode variationale in mecanica", organizat de Grupul de Mecanica Continuumului,, Institutul de Matematica "Simion Stoilow", Bucuresti

Pop Ciprian - Seminarul de Algebre de operatori, UNR (University of Nevada, Reno)

Popescu Clement Radu - În anul 2011 am participat regulat la seminarul de topologie al Institutului de Matematică. Am ținut expuneri despre extinderea morfismului Johnson făcută de Morita (expuneri făcute după o lucrare a lui Perron); și despre unele rezultate parțiale ale lui Putman în rezolvarea unei conjecturii lui Ivanov (primul număr Betti al unui subgrup de index finit al mapping class grupului este 0, egal cu cel al grupului însuși).

Popescu Dorin - Am participat la seminarul de Algebra Locala "Nicolae Radu" cu mai multe prezentari, seminar organizat de mine cu S. Barcanescu si C. Ionescu.

Popescu Ionel - participare in seminarii;
Inegalitati Functionale (seminarul de teoria Potentialului) minicurs de 8 sedinte,
Libertate si matrici aleatoare (algebre de operatori) 2 sedinte

Prunescu Mihai - Am participat la Oberseminar der Mathematischen Logik, Universitatea Freiburg, Germania, condus de Prof. Dr. Martin Ziegler si Prof. Dr. Heike Mildenerger.

Purice Radu - Am participat la seminarul de Analiza Spectrala si Operatori Pseudodiferentiali, in cadrul caruia, in perioada Aprilie-Mai 2011 am sustinut 2 seminarii privind articolul C. Gérard, A. Martinez, J. Sjöstrand de Hamiltonieni periodici cu camp magnetic (Comm. Math. Phys. 142 (1991)).

Raicu Claudiu - Am fost invitat să susțin prelegeri în seminarii si workshopuri organizate în diverse universități din Statele Unite și Germania:

1. Princeton Algebraic Geometry Seminar: *Secant Varieties of Segre–Veronese Varieties*.
2. Princeton Algebraic Geometry Preprints Seminar: *F–Signature*.
3. Macaulay2 Workshop, Institute for Mathematics and its Applications, Minneapolis: *The SchurRings package*.
4. Géométrie Algébrique en Liberté, Berlin: *Affine Toric Equivalences are Effective*.
5. UC Berkeley Algebraic Geometry and Commutative Algebra Seminar: *Secant Varieties of Toric Varieties*.
6. MIT Combinatorics Seminar: *The GSS Conjecture*.
7. Joint Harvard/MIT Algebraic Geometry Seminar: *Affine Toric Equivalence Relations are Effective*.

8. Northeastern Geometry-Algebra-Singularities-Combinatorics Seminar: 3×3 *Minors of Catalecticants*.
9. University of Michigan Algebraic Geometry Seminar: *The Garcia–Stillman–Sturmfels Conjecture*.
10. UC Davis Geometry and Topology Seminar: 3×3 *Minors of Catalecticants*.
11. Texas A&M Geometry Seminar: *The GSS Conjecture*.
12. Queen’s Curves Seminar: 3×3 *Minors of Catalecticants*.
13. Queen’s Algebraic Geometry Seminar: *Affine Toric Equivalence Relations are Effective*.

Radulescu Vicentiu - Am organizat seminarul de analiză neliniară pentru doctoranzii de la Universitatea din Craiova care lucrează sub îndrumarea mea. Am prezentat următoarele expuneri pe baza rezultatelor proprii:

(i) *Variational principles and applications to multiple solutions of PDEs*, International Conference on Nonlinear Operators, Differential Equations and Applications (ICNODEA 2011), Cluj, July 5-8, 2011

(ii) *Qualitative analysis of some problems in the theory of non-Newtonian fluids*, Partial Differential Equations in Mathematical Physics and their Numerical Approximation, Levico Terme, Trento, Italy, September 4-9, 2011

(iii) *Proprietăți calitative ale soluțiilor unor probleme de valori proprii neliniare*, Seminarul Catedrei de Matematică, Universitatea Ovidius, Constanța, 21 Octombrie 2011

(iv) *Bifurcation phenomena associated to degenerate or singular elliptic equations*, Oxford PDE Seminar, University of Oxford, November 14, 2011

Rasdeaconu Rares - În anul 2011, pe lângă participarea la seminariile curente ținute la Vanderbilt University, Nashville, USA, am susținut următoarea prezentare:

1. *Tian-Yau metrics and cyclic quotient singularities*, Noiembrie 2011, Vanderbilt University, Nashville, SUA.

Staic Mihai

1. Prezentare la North Dakota State University, 20 Ianuarie 2011.
2. Prezentare la Bowling Green State University, 6 Aprilie 2011.

Stan Florin - În anul 2011 am încercat să obțin rezultate referitoare la un anumit grup, introdus într-o lucrare anterioară. Mai exact, am încercat să obțin estimări ale rangului acestui grup abelian. În acest sens, lucrez la articolul 'Effective bounds for the Loxton-Kedlaya rank'.

Stanica Pantelimon

1. *Generalized Bent Functions and nega-Hadamard Transform*, Integers Conference, Univ. West Georgia, October 2011.
2. *Catalan Numbers and Euler Functions*, West Coast Number Theory Conference, December 2011, Monterey, CA.

Stavre Ruxandra - Am participat la următoarele seminarii științifice:

1. Metode variaționale în mecanica fluidelor, IMAR, conducător prof. dr. Horia Ene,
2. Mecanică și aplicații, Facultatea de Matematică, conducător prof. dr. Sanda Cleja-Tigoiu,
3. Seminarul IMAR.

La primul seminar am susținut expuneri legate de elaborarea lucrării 2 a) de mai sus.

Tiba Dan - Seminarul Differential Equations, IMAR : doua expuneri. Am organizat si Seminarul Grantului 1192 CNCS

Timofte Aida - Seminarul de analiza (saptamanal) de la University of Mississippi, Department of Mathematics.

Timofte Vlad - Seminarul de Analiza de la University of Mississippi, Department of Mathematics.

Timotin Dan - Am participat la seminarul de teoria operatorilor desfășurat la institut, precum și la seminarul de teoria operatorilor de la universitatea din Lille (martie-mai).

Torok Andrei - Particip in seminariile de Analiză (University of Houston) și Sisteme Dinamice (University of Houston, Rice U.). Sunt unul din organizatorii seminarului de Sisteme Dinamice de la University of Houston.

Valusescu Ilie - Participare la seminariile de Teoria Operatorilor, Teoria Potențialului și alte seminarii, în funcție de tematica discutată.

Vajaitu Marian - In cadrul Seminarului Stiintific al IMAR, "Nicolae Popescu" Number Theory, am tinut o serie de 5 expuneri reprezentand diseminarea articolelor stiintifice aparute, acceptate sau in curs de publicare, dupa cum urmeaza:

- Local representations of p-adic analytic elements I. Speaker: Marian Vajaitu (IMAR), Wednesday, February 9, 2011, 16:00, FMI, Hall 204.
- Local representations of p-adic analytic elements II. Speaker: Marian Vajaitu (IMAR), Wednesday, February 16, 2011, 16:00, FMI, Hall 204.
- Essential singularities of rigid analytic functions. Speaker: Marian Vajaitu (IMAR), Wednesday, April 6, 2011, 16:00, FMI, Hall 204.
- Some remarks on the p-adic log gamma function. Speaker: Marian Vajaitu (IMAR), Wednesday, May 4, 2011, 16:00, FMI, Hall 204.
- On p-adic analytic continuation with applications to generating elements. Speaker: Marian Vajaitu (IMAR), Wednesday, October 26, 2011, 16:00, FMI, Hall 216.

Vilcu Costin - În anul 2011 am participat la seminarul de geometrie diferențială din cadrul IMAR, unde am avut două expuneri, despre *Quasigeodezice și puncte cele mai îndepărtate pe suprafețe convexe* și despre *Existența conică a unor curbe închise pe poliedre convexe*.

În plus, am avut o prezentare la *Colocviul de geometrie un an de la dispariția profesorului Stere Ianuș* (Facultatea de Matematică și Informatică Universității București, 6 Mai 2011), intitulată *O teoremă de aplatizare*.

7.3 Lucrari acceptate la publicat

1. S. Achimescu, V. Alexandru, N. Popescu, M. Vajaitu, A. Zaharescu *The Behavior of Rigid Analytic Functions around Orbits of Elements of \mathbf{C}_p* , acceptata la Rendiconti del Seminario Matematico della Universit di Padova
2. T. Albu: *The Osofsky-Smith Theorem for modular lattices, and applications (I)*, acceptata la **Comm. Algebra**, **40** (2012), pag, 1 – 19.
3. Marian Aprodu, Gavril Farkas: *Green’s Conjecture for general covers*, acceptata la Contemporary Math. AMS
4. L. Badea and R. Krause, *One- and two-level Schwarz methods for variational inequalities of the second kind and their application to frictional contact*, **Numer. Math.**, DOI: 10.1007/s00211-011-0423-y
5. Barcanescu Serban - Am propus spre publicare (la Questiones Mathematicae-20/03/2011) lucrarea : “On the non-generic Tzitzeica-Johnson Configuration” (colab.cu W.Boskoff, A.Bobe).
6. Michael Anshelevich, Serban T. Belinschi, Maxime Février, Alexandru Nica: *Convolution powers in the operator-valued framework*, acceptata la Transactions of the American Mathematical Society, pag. 33. (disponibil și la arXiv:1107.2894).
7. I. Belțiță, D. Belțiță: *Algebras of symbols associated with the Weyl calculus for Lie group representations*, acceptată la Monatshefte für Mathematik (<http://dx.doi.org/10.1007/s00605-011-0329-x>).
8. D. Belțiță, K.-H. Neeb: *Schur-Weyl Theory for C^* -algebras*, acceptată la Mathematische Nachrichten.
9. Barbu Berceanu, Saima Parveen: *Fundamental group of Desargues configuration spaces*, acceptata la Studia Sci. Math. Hungarica, pag. n – (n+10)
10. S. Burciu: *Kernels of representations and coideal subalgebras of Hopf algebras*, **Glasgow Mathematical Journal to appear** (2011), pag. ... – ...
11. S. Burciu: *Quantum doubles of rank two pointed Hopf algebras*, **Commun. Algebra, to appear** (2011), pag. –
12. M. Cipu, M. I. Qureshi: *On the behaviour of Stanley depth under variable adjunction*, acceptată la **Bulletin Mathématique de la Société des Sciences Mathématiques de Roumanie**
13. M. Cipu, I. Diouf, M. Mignotte: *Testing degenerate polynomials*, acceptată la **Applicable Algebra in Engineering, Communication and Computing**
14. N. C. Bonciocat, Y. Bugeaud, M. Cipu, M. Mignotte: *Some Pólya-type irreducibility criteria for multivariate polynomials*, acceptată la **Communications in Algebra**
15. : I. Chiose, M. Toma *On compact complex surfaces of Kähler rank one*, acceptata la Amer J Math

16. M. Cipu: *Cyclic quadrilaterals associated to squares*, acceptată la **Forum Geometricorum**
17. I. Coandă: *A simple proof of Tyurin's babylonian tower theorem*, acceptata la Comm. Algebra
18. M. Coltoiu, C. Joita: *The disk property of coverings of 1-convex surfaces*, acceptata la Proc. AMS
19. M. Coltoiu, C. Joita, M. Tibar: *q-convexity properties of the coverings of a link singularity*, acceptata la Publ. Res. Inst. Math. Sci.
20. L. David: *A prolongation of the conformal-Killing operator on quaternionic-Kähler manifolds*, **Annali di Matematica Pura ed Applicata**, (6) vol. 61 (2011), DOI10.1007/s10231-011-0198-x.
21. D. V. Alekseevsky, L. David: *A note about invariant SKT-structures and generalized Kähler structures on flag manifolds*, acceptata in **Proceedings of the Edinburgh Mathematical Society**.
22. R. Diaconescu: *Interpolation for predefined types*, acceptata la Mathematical Structures in Computer Science, DOI:10.1017/S0960129511000430
23. R. Diaconescu: *Borrowing interpolation*, acceptata la Journal of Logic and Computation, DOI:10.1093/logcom/exr007
24. A. Diaconu, P. Garrett și D. Goldfeld: *Natural boundaries and integral moments of L-functions*, acceptată în "Multiple Dirichlet Series and Applications to Automorphic Forms", **Progress in Mathematics**, Birkhäuser.
25. V. Dragan, H. Mukaidani, P. Shi: *The Linear Quadratic Regulator Problem for a Class of Controlled Systems Modeled by Singularly Perturbed Ito Differential Equations*, acceptata la SIAM Journal on Control and Optimization, 20 pagini.
26. Enescu Florian: *Finite dimensional vector spaces with Frobenius action*, acceptata la "Progress in Commutative Algebra. Ring Theory, Homology, and Decompositions" edited by Sean Sather-Wagstaff, Christopher Francisco, Lee Klingler, and Janet C. Vassilev, publisher: De Gruyter, Germany.
27. A. Gheondea, B.E. Ugurcan: *On two equivalent dilation theorems in VH-spaces*, acceptata la Complex Analysis Operator Theory.
28. M. Ghergu: **Lane-Emden systems with singular data** acceptată la Proc. Royal Society of Edinburgh: Section A (Mathematics)
29. H. Render, M. Ghergu: **Positivity properties for the clamped plate boundary problem on the ellipse and strip**, acceptată la Mathematische Nachrichten.
30. M. Ghergu, **A biharmonic equation with singular nonlinearity** acceptată la Proc. Edinburgh Math. Soc.

31. Gologan Radu: “*A billiard model in the plane close to the Lorez model*”, acceptata la Bulletin Mathematique de la Soiciete Roumaine de Mathematiques
32. Grecea Valentin: Jumps of the canonical Markov process associated with a Ray semigroup, Markov processes and related fields.
33. Ionescu-Kruse D.: *Elliptic and hyperelliptic functions describing the particle motion beneath small-amplitude water waves with constant vorticity*, acceptata la Discrete and Continuous Dynamical Systems-Series B, pag. 1–22.
34. P. Ionescu, F. Russo: *Manifolds covered by lines and the Hartshorne Conjecture for quadratic manifolds*, acceptata la Amer. J. Math.
35. M. Colţoiu, C. Joiţa: *The disk property of coverings of 1-convex surfaces*, acceptata la Proceedings of the AMS.
36. M. Colţoiu, C. Joiţa, Tibăr: *q-convexity properties of the coverings of a link singularity*, acceptata la Publ. Res. Inst. Math. Sci.
37. U. Kohlenbach, L. Leuştean: *On the computational content of convergence proofs via Banach limits*, acceptata la Philosophical Transactions of the Royal Society A, pag. 13.
38. A. Küronya, V. Lozovanu, C. Maclean, *Convex bodies appearing as Okounkov bodies of divisors*, preprint, arXiv:1008.4431, acceptata in *Advances in Mathematics*.
39. Mario Maican: *On the moduli spaces of semi-stable plane sheaves of dimension one and multiplicity five*, acceptata la “Illinois Journal of Mathematics”, pag. 64
40. A. Libgober, L. Maxim: *Hodge polynomials of singular hypersurfaces*, acceptata la Michigan Math. Journal
41. L. Maxim, J. Schürmann: *Twisted genera of symmetric products*, acceptata la Selecta Mathematica
42. F. Castaño-Iglesias, C. Năstăsescu, L. Năstăsescu: *Locally stable Grothendieck categories. Applications*, acceptată la **Applied Categorical Structures**.
43. G. Nenciu, I. Nenciu: *On essential self-adjointness for magnetic Schroedinger and Pauli operators on the unit disc in R^2* , acceptata la Letters in Mathematical Physics DOI: 10.1007/s11005-011-0506-9
44. David Hobby, Barna Laszlo Iantovics, Florin Felix Nichita: *On Computational Methods and the Yang-Baxter Equations*, acceptata la Proc. Rom. Acad.
45. L. Ornea, R. Pantilie: *On holomorphic maps and Generalized Complex Geometry*, acceptata la Journal of Geometry and Physics.
46. Liviu Ornea, Misha Verbitski: *Locally conformally Kaehler manifolds admitting a holomorphic conformal flow*, acceptata la Mathematische Zeitschrift, pag. 9
47. Stefano Marchiafava, Liviu Ornea, Radu Pantilie: *Twistor theory for CR quaternionic manifolds and related structures*, acceptata la Monatshefte fuer Mathematik, pag. 16

48. M. Ciungu, F. Panaite: *L-R-smash products and L-R-twisted tensor products of algebras*, acceptata la **Algebra Colloquium**
49. F. Panaite: *More examples of invariance under twisting*, acceptata la **Czechoslovak Mathematical Journal**
50. F. Panaite: *Invariance under twisting for crossed products*, acceptata la **Proceedings of the American Mathematical Society**
51. Mihaela Pilca: *A Note on the Conformal Invariance of G-Generalized Gradients*, acceptata la *Internat. J. Math.*, DOI:10.1142/S0129167X11007355.
52. A.A. Popa: *Rational decomposition of modular forms*, **Ramanujan Journal of Math.** (2011), aparuta online DOI: 10.1007/s11139-011-9301-6
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54. D. Popescu: *Graph and depth of a square free monomial ideal*, acceptata la *Proceedings AMS*, pag. ...
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56. Măntoiu, Marius; **Purice, Radu**; Richard, Serge: *Positive Quantization in the Presence of a Variable Magnetic Field*, acceptata la **Journal of Mathematical Physics** **52**, 112101- 15 pg.
57. Cornean, Horia; Duclos, Pierre; **Purice, Radu**: *Adiabatic Non-Equilibrium Steady States in the Partition Free Approach*, acceptata la **Annales Henri Poincare**.
58. Cornean, Horia; **Purice, Radu**: *On the regularity of the Hausdorff distance between spectra of perturbed magnetic Hamiltonians*, acceptata la **Operator Theory: Advances and Applications**, Birkhäuser - Springer.
59. B. Prunaru: *A factorization theorem for multiplier algebras of reproducing kernel Hilbert spaces*, acceptata la *Canadian Mathematical Bulletin*, pag. <http://cms.math.ca/10.4153/CMB-2011-174-x>
60. Mihai Prunescu: *Recurrent two-dimensional sequences generated by homomorphisms of finite abelian p-groups with periodic initial conditions*, acceptata la *Fractals*, probabil apare in Decembrie 2011.
61. V. Rădulescu, D. Repovš: *Combined effects in nonlinear problems arising in the study of anisotropic continuous media*, acceptata la *Nonlinear Analysis, T.M.A.*, pag. 7.
62. T. Rădulescu, V. Rădulescu: *A 21st century mathematical renaissance*, acceptata la *The Psychology of the Mathematician*, Mathematical Association of America (P. Casazza, S. Krantz, Eds.), pag. 9.
63. G. Bonanno and G. Molica Bisci, V. Rădulescu: *Arbitrarily small weak solutions for a nonlinear eigenvalue problem in Orlicz-Sobolev spaces*, acceptata la *Monatshefte für Mathematik*, pag. 12.

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65. V. Rădulescu: *Noncoercive elliptic equations with subcritical growth*, acceptata la Discrete and Continuous Dynamical Systems – Series S, pag. 8.
66. M. Boureanu, V. Rădulescu: *Anisotropic Neumann problems in Sobolev spaces with variable exponent*, acceptata la Nonlinear Analysis, T.M.A., pag. 18.
67. G. Bonanno and G. Molica Bisci, V. Rădulescu: *A note on elliptic equations involving the critical Sobolev exponent*, acceptata la International Conference on Differential & Difference Equations and Applications: Conference in honour of Professor Ravi P. Agarwal, Springer Proceedings in Mathematics, pag. 9.
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79. Ilie Valuşescu: *Notes on continuous parameter periodically Γ -correlated processes*, acceptată la An. Univ. Timișoara, 10 pag. (In curs de aparitie).
80. Jin-ichi Itoh, Costin Vilcu: *Cut locus structures on graphs*, acceptata la Discrete Math., <http://www.sciencedirect.com/science/article/pii/S0012365X1100121X>

81. Kouchi Ieiri, Jin-ichi Itoh, Costin Vîlcu: *Quasigeodesics and farthest points on convex surfaces*, acceptata la Adv. Geometry, <http://www.reference-global.com/doi/abs/10.1515/ADVGEOM.2011.033>. Va apare in numarul 4 (Oct.) 2011 al revistei, foarte probabil in zilele urmatoare: <http://www.reference-global.com/loi/adv>
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85. M. Xiong, A. Zaharescu: *Statistics of the Jacobians of hyperelliptic curves over finite fields*, acceptata la Math. Res. Lett., pag. 38.
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3. I. Beltiță, D. Beltiță: *Faithful representations of infinite-dimensional nilpotent Lie algebras*, preprint arXiv:1108.5563v1 [math.RT]/2011, 8 pagini.
4. Samia Ashraf, Haniya Azam, Barbu Berceanu: *Representation stability of power sets and square free polynomials*, preprint arXiv: 1106.4926 [math.RT] 27.06.2011, 14 pag.
5. A.I. Bonciocat: *Lower Ricci curvature bounds for metric measure spaces*, preprint 2011, pag. 25.
6. Vasile Brinzanescu, Andrei D. Halanay, Gunther Trautmann: *Vector Bundles on non-Kahler Calabi-Yau type 3-folds*, preprint arXiv:1008.3365, pag. 16
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8. Marius Buliga: *Normed groupoids with dilations*, preprint arXiv:1107.2823
9. Marius Buliga: *Maps of metric spaces*, preprint arXiv:1107.2817
10. Marius Buliga: *Computing with space: a tangle formalism for chora and difference*, preprint arXiv:1103.6007

11. S. Burciu: *Depth one extensions of semisimple algebras and Hopf subalgebras*, preprint arxiv.org/abs/1103.0685 numar/2011, pag. 10
12. Dorin Cheptea, *Determination of perturbative invariants of 3-dimensional manifolds by weight systems*, trimis spre publicare la revistă ISI (încă nu am răspuns)
13. Dorin Cheptea, Karl Magnus Jacobsson, *$U(N)$ weight system specification of the LMO functor*, preprint
14. Mircea Cimpoeas: *Vertex cover algebras of simplicial multicomplexes*, <http://arxiv.org/pdf/1101.4379>.
15. Mircea Cimpoeas: *Multigraded modules of Borel type*, <http://arxiv.org/pdf/1105.5638> .
16. Mircea Cimpoeas: *Regularity of symbolic and bracket powers of Borel type ideals*, <http://arxiv.org/pdf/1106.4029> .
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20. A.C. Cojocaru, D. Shulman: *Almost all reductions of a generic Drinfeld module of arbitrary rank have a large exponent*, preprint, trimis spre publicare.
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On the h -vectors of Cohen-Macaulay Flag Complexes,
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Pure O -sequences and h -vectors of Matroids
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25. Aberbach Ian, Enescu Florian: *New estimates of Hilbert-Kunz multiplicities for local rings of fixed dimension*, preprint 2011, Georgia State University, de asemenea arXiv:1101.5078.
26. Zaheer AHMAD, Tiberiu DUMITRESCU si Mihai EPURE: *A SCHREIER DOMAIN TYPE CONDITION* (7 pagini)
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36. S. Cappell, L. Maxim, J. Schürmann, J. Shaneson: *Equivariant characteristic classes of complex algebraic varieties*, arXiv:1004.1844.
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38. M. Banagl, L. Maxim: *Deformation of Singularities and the Homology of Intersection Spaces*, arXiv:1101.4883.
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41. Colin Guillarmou, Sergiu Moroianu: *Chern-Simons line bundle on Teichmüller space*, preprint arXiv:1102.1981 (2011).
42. Andrei Moroianu, Sergiu Moroianu: *The Cauchy problem for metrics with parallel spinors*, preprint arXiv:1106.2066 (2011).
43. Andrei Negut: *Push-forwards on Projective Towers*,
44. Andrei Negut: *Affine Laumon Spaces and Integrable Systems*,
45. Andrei Negut: *Yangians of $\widehat{\mathfrak{gl}}_n$ and Affine Laumon Spaces*,
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49. Florin F. Nichita: *Algebraic Models for Transdisciplinarity*, Centre International de Recherches et Etudes Transdisciplinaires (CIRET); Pratique de la transdisciplinarite; March 2011 (<http://basarab.nicolescu.perso.sfr.fr/ciret>).
50. Florin F. Nichita: *Asupra unui model algebric pentru transdisciplinaritate*, The Institute for Transdisciplinary Studies in Science, Spirituality, Society; Articles; February 2011 (<http://www.it4s.ro>).
51. Liviu Ornea, Misha Verbitsky, Victor Vuletescu: *Blow-ups of locally conformally Kaehler manifolds* , preprint arxiv:1108.4885/2011, pag. 12
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53. H. Albuquerque, F. Panaite: *Some (Hopf) algebraic properties of circulant matrices*, arXiv:math.RA/1110.1546
54. S. Marchiafava, R. Pantilie: *Twistor Theory for co-CR quaternionic manifolds and related structures*, preprint arXiv:1106.5431 / 2011.
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56. R. Pantilie: *On the classification of the real vector subspaces of a quaternionic vector space*, preprint arXiv:1109.6467 / 2011.
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58. S. Papadima, A. Suciu: *Homological finiteness in the Johnson filtration of the automorphism group of a free group*, preprint arXiv:1011.5292 (2010), 32 pag.
59. A. Dimca, R. Hain, S. Papadima: *The abelianization of the Johnson kernel*, preprint arXiv:1101.1392 (2011), 16 pag.
60. Ovidiu Păsărescu: *Curves on Rational Surfaces with Hyperelliptic Hyperplane sections*, preprint arXiv 1101.0577v1[mathAG] /2011, pag. 1-39.
61. Mihaela Pilca, Andrei Moroianu: *Higher Rank Homogeneous Clifford Structures*, preprint arXiv:1110.4260v1 [math.DG]
62. F.B. Boca, V. Pasol, A.A. Popa, A. Zaharescu: *Pair correlation of angles between reciprocal geodesics on the modular surface* , preprint, arxiv:1102.0328
63. D. Popescu: *Depth of factors of square free monomial ideals*, preprint arXiv 1110.1963/2011, pag. ...

64. M. Ledoux, I. Popescu: *The One Dimensional Free Poincaré Inequality*, preprint arXiv.org arXiv:1105.2031v2, 2011.
65. B. Prunaru: *Tsirelson's problem and purely atomic von Neumann algebras*, preprint arXiv:1110.0661v1 [math.OA]/2011, pag. <http://arxiv.org/abs/1110.0661>
66. B. Prunaru: *Lifting fixed points of completely positive semigroups*, preprint arXiv:1106.2521v3 [math.OA]/2011, pag. <http://arxiv.org/abs/1106.2521>
67. Mihai Prunescu: *\mathbb{F}_p -affine recurrent double sequences over \mathbb{F}_q are p -automatic*, preprint Universitatea Freiburg, Germania.
<http://home.mathematik.uni-freiburg.de/prunescu/fpaffine.pdf>.
68. Mihai Prunescu: *Contributie la Online Enciclopedia of Tilings* http://tilings.math.uni-bielefeld.de/people/m_prunescu
69. Claudiu Raicu: *Secant Varieties of Segre–Veronese Varieties*, preprint arXiv: 1011.5867.
70. R. Răşdeaconu, I. Şuvaina: *Tian-Yau metrics and cyclic quotient singularities*, <http://arxiv.org/find/all/1/au:+rasdeaconu/0/1/0/all/0/1>
71. Elizabeth Strouse, Dan Timotin, Mohamed Zarrabi: *Unitary equivalence to truncated Toeplitz operators*, preprint arXiv:1001.6055 pe www.arxiv.org.
72. Isabelle Chalendar, Emmanuel Fricain, Dan Timotin: *A short note on the Feichtinger Conjecture*, preprint arXiv:1106.3408 pe www.arxiv.org.
73. S.Waleed Noor, Dan Timotin: *Embeddings of Müntz spaces: the Hilbertian case* , preprint arXiv:1110.5422 pe www.arxiv.org.
74. Joseph O'Rourke, Costin Vîlcu: *Conical Existence of Closed Curves on Convex Polyhedra*, preprint arXiv:1102.0823v2, 4 Feb 2011, 24 pag.
75. Jin-ichi Itoh, Costin Vîlcu: *Cut locus structures on graphs*, preprint arXiv:1103.1758v1, 9 Mar 2011, 16 pag.
76. Jin-ichi Itoh, Costin Vîlcu: *Every graph is a cut locus*, preprint arXiv:1103.1759v2, 9 Mar 2011, 14 pag.
77. Jin-ichi Itoh, Costin Vîlcu: *On the number of cut locus structures on graphs*, preprint arXiv:1103.1764v1, 9 Mar 2011, 13 pag.
78. Jin-ichi Itoh, Costin Vîlcu: *Orientable cut locus structures on graphs*, preprint arXiv:1103.3136v1, 16 Mar 2011, 24 pag.
79. V. Alexandru, N. Popescu, M. Vâjâitu, A. Zaharescu, *On the zeros of rigid analytic functions*, submisa.
80. M. Vâjâitu, A. Zaharescu: *An algebraic-metric equivalence relation over p -adic fields*, in progress.
81. V. Alexandru, M. Vâjâitu, A. Zaharescu: *On p -adic analytic continuation with applications to generating elements*, in progress.

7.5 Preprinturi tiparite

1. T. Albu: *The Osofsky-Smith Theorem for modular lattices, and applications (I)*, preprint Institutul de Matematica "Simion Stoilow" al Academiei Romane, Nr.1 / 2011, 18 pagini.
2. Marian Anton: *Pasch's Axiom in Sensor Networks*, preprint Ripon College 2011
3. Samia Ashraf, Haniya Azam, Barbu Berceanu: *Representation stability of power sets and square free polynomials*, preprint Abdus Salam School of Mathematical Sciences, nr. 339, 2011.
4. Adrian Constantinescu: *Open embeddings of algebraic varieties in schemes.IV-1 : Residue fields of Noetherian subalgebras*, preprint in Preprint Series of the Institute of Mathematics of the Romanian Academy, ISSN 0250 3638, 2011, pag. 14.
5. A. Diaconu și V. Pașol: *Trace Formulas, Character Sums, and Multiple Dirichlet Series*, Preprint, 2011.
6. Cristian Făciu and Alain Molinari : *The structure of shock and interphase layers for a heat conducting Maxwellian rate-type approach to solid-solid phase transitions. Part I: Thermodynamics and admissibility.*, IMAR Preprint Series 6/2011, pag. 1–33.
7. L. Dupaigne, M. Ghergu, O. Goubet, G. Warnault: *Entire Large solutions for semilinear elliptic equations*, preprint arxiv/2011, pag. 1-27.
8. I. Gruais, D. Poliřevski: *Homogenizing the Darcy/Stokes coupling*, preprint Institut de Mathématique de Rennes, 11-34/2011, pag. 1–14
9. C. Gupta, W. Ott, A. Török. *Memory loss for time-dependent piecewise expanding systems in higher dimension*
10. Ursu V.: *The smallest nonabelian nilpotent quasivarieties of Moufang loops*, Preprint Series of the Institute of Mathematics of the Romanian Academy, P.O. Box-1765, Bucuresti, Romania, no. 5/2011, pag. 17. ISSN 0250-3638
11. Ilie Valusescu: *Γ -correlated processes. Some geometrical considerations*, preprint IMAR 7/2011, pag. 12.
12. I. Molnar, C. Varsan: *The characteristic system method for linear higher-order SPDEs of parabolic type*, preprint IMAR 9/2011, pag. 10

8 Alte activitati

Dumitrescu Olivia - Participare in cadrul programului ‘Algebraic geometry with a view towards applications’, Mittag-Leffler Institute, April-May 2011
Instructor, Graduate Algebra, U.C. Davis, Fall Quarter 2010.

Molnar Ionel - Participare la realizarea proiectului **Sistem bioinformatic pentru analiza conformatiei proteinelor**, nr. proiect 62-056/2008, desfasurat in perioada 2009-2011, in cadrul programului **Parteneriate in domenii prioritare** in colaborare cu Institutul National de Cercetare-Dezvoltare pentru Stiinte Biologice. Cercetarea desfasurata in cadrul proiectului s-a focalizat pe identificarea/studiul unor algoritmi si apoi scrierea unor proceduri in limbaje de programare de inalt nivel, (in speta Perl/BioPerl si Python) pentru analiza secventiala a ADN, (identificarea de *situri restrictie*, efectuarea de *restrictii digest* sau crearea de *harti restrictie*, etc.) cat si scrierea unor programe pentru gasirea si extragerea selectiva a informatiilor din bancile/bazele de date genetice (precum GenBank NCBI, DNA Data Bank).

8.1 Comisii de Doctorat

Purice Radu - Referent în Comisia de Doctorat a Dlui Max Lein de la Universitatea Tehnică din München, sub conducerea Prof. Herbert Spohn.

8.2 Conducere granturi

Albu Toma - Grant **PN II - IDEI 443, code 1190/2008**, oferit de CNCSIS - UEFISCSU cu titlul “*Ireductibilitate, Factorizari, Dimensiune Krull si Aspectele lor Computationale in Polinoame, Inele, Module, Latici si Categorii Grothendieck*”.

Aprodu Marian - PN-II-ID-PCE- 2011-3-0288 (contract nr. 132/05.10.2011)

Beltita Daniel

- Daniel Beltiță este director al proiectului *Structuri geometrice în analiza funcțională - Cuantificări de varietăți infinit dimensionale*, contract PN II, Programul “Idei”, cod ID 1194, derulat în intervalul 2009–2011.
- Daniel Beltiță este director al proiectului *Calcul operatorial pentru reprezentări de grupuri Lie, cu aplicații la ecuații cu derivate parțiale si fizica cuantică*, Programul “Idei”, cod proiect: PN-II-ID-PCE-2011-3-0131. Proiectul a fost acceptat pentru finanțare în urma competiției PCE2011, și urmează să se deruleze în intervalul 2012–2014.

Beznea Lucian

- Grant CNCSIS (PN II, Proiecte de cercetare exploratorie, Competitia 2008), cod CNCSIS 1186, Probleme actuale in teoria potentialului si analiza complexa. Director de proiect.
- Proiect Complex ”Sisteme diferentiale in analiza neliniara si aplicatii” (CNCSIS PCCE-55/2008). Responsabil partener IMAR.

Brinzanescu Vasile - Sunt manager la proiectul POSDRU 62988 pentru partenerul IMAR, proiect de burse postdoctorale

Buliga Marius - Continuarea proiectului LEA "Bipotentials for non monotone multivalued operators: fundamental results and applications", în colaborare cu Géry de Saxcé (Lille I) și Claude Vallée.

Împreună cu Laurențiu Leuștean am început, din octombrie 2011, proiectul PN-II-ID-PCE-2011-3-0383 "Proof mining in metric analysis, geometric group theory and ergodic theory".

Burciu Sebastian - Sunt directorul Grantului Postdoctoral Individual CNCSIS PN II RU PD 168/27.08.2010 și beneficiaz de o bursă PosDru la Universitatea București, Facultatea de Matematică și Informatică.

Calinescu Corina - În 2011 am primit grantul "Anne Coffin Hanson Grant", Yale.

Chiose Ionut - Marie Curie International Reintegration Grant

Cojocaru Alina-Carmen - DMS- 0747724, National Science Foundation Career Award, SUA,.

Coltoiu Mihnea

1. grant CNCSIS PN II ID 1185 2009-2011

2. grant CNCSIS PN II ID contract 145/05.10.2011 2012-2014

David Liana - Conduc un grant PN-II-IDEI, cod 1187/2008, care se va încheia în data de 15 decembrie 2011. Titlul proiectului: **Structuri geometrice pe varietati diferentiale**.

Diaconescu Razvan - PN-II-ID-PCE-2011-3-0439 (Metode de logică universală pentru informatică)

Diaconu Calin Adrian - Conducător științific, grant NSF (National Science Foundation, SUA), pe perioada 2007-2012 (doi ani extensie).

Dinu Florin Liviu - Responsabil IMAR pentru Grantul PN2 "Nonlinear evolution, quasi coherence and transport in the turbulence of fluids", No.573, 2009–2011.

Faciuc Cristian - Coordonator echipa de cercetare a IMAR în cadrul Proiectului complex de cercetare exploratorie PN-II-PCCE-ID-100/2010, **Modelarea continuă - de la micro la macro scară - a materialelor avansate în fabricația virtuală**. Director proiect Prof. D. Banabic, Universitatea Tehnică din Cluj-Napoca.

Ignat Liviu - În acest moment sunt director al următoarelor granturi:

1. Proiect TE 4/2010, competiție 2010, suma totală = 750.000 RON

2. Proiect IDEI, PN-II-ID-PCE-2011-3-0075, competiție 2011, suma totală = 1.500.000 RON

Leustean Laurentiu - Grant IDEI PN-II-ID-PCE-2011-3-0383 "Metode efective în analiza metrică, teoria geometrică a grupurilor și teoria ergodică" (2011-2014)

Maxim Laurentiu

1. National Science Foundation grant DMS-1005338: “Geometry and Topology of Singularities”, 2010-2013.
2. National Science Foundation grant DMS-1104329: “International Conference on Singularity Theory and Applications”.

Macinic Anca - Din 5 octombrie 2011 sunt directorul unui proiect de cercetare de tip postdoc finantat de CNCSIS, cu titlul ”Metode algebrice si combinatoriale in topologie”.

Mihailescu Eugen - In anul 2011 am condus in calitate de Director Proiect, grantul **Invarianti Numerici si Proprietati Geometrice pentru Clase de Sisteme Dinamice**, PN II-Idei 2008.

Moroianu Sergiu - Grant CNCSIS PNII-ID-1188 “Geometric and Quantum invariants of 3-manifolds”

Nenciu Irina - Conducator principal al grantului DMS-0701026 al National Science Foundation, USA, “Integrable systems and random matrices”, 2007 – 2012.

Nitica Viorel - Simons Foundation, Collaboration Grants for Mathematicians \$35,000, 2011-2016

Ornea Liviu - Grant 525/2009 CNCSIS, derulat la Universitatea din București.

Pantilie Radu - Teorie twistor pentru aplicații și morfisme armonice între spații simetrice riemanniene, Grant CNCSIS, PN II Idei, cod 1193.

Papadima Stefan - Director de proiect, grant CNCSIS (Proiecte de cercetare exploratorie) 530/2009-2011: *Conexiuni, stabilitate si aplicatii in geometrie algebrica, topologie si teoria grupurilor.*

Pasol Vicentiu - Director Proiect CNCSIS PD-171.

Popa A. Alexandru - Grant Marie Curie de reintegrare “Periods of modular forms” in cadrul FP7, cu un buget de 100,000 euro, pe perioada Octombrie 2009-Septembrie 2013

Popescu Dorin - Director PN II Program, CNCSIS 542/2008 care sfarseste la 31 Decembrie 2011. Director P Idei Program, CNCS 247/2011 care incepe la 1 ianuarie 2012.

Popescu Ionel

1. Reintegration Grant Marie Curie 249200 SAMTFP ”Stochastic Analysis, Mass Transportation and Free Probability”.
2. CNCS PN-II-RU-TE-2011-3-0259 “Randomness, Geometric Problems and Functional Inequalities ”

Purice Radu

1. Manager Proiect POSDRU/107/1.5/S/82514.

2. Membru in echipa de management a proiectului POSDRU/89/1.5/S/62988.
3. Co-director roman al Laboratorului European Asociat CNRS Math-Mode.

Radulescu Vicentiu

1. Grant CNCSIS PCCE 55/2008, “Sisteme diferențiale în analiza neliniară și aplicații” (2010-2013)
2. Grant CNCSIS PN-II-ID-PCE-2011-3-0195 “Qualitative and numerical analysis of non-linear problems on fractals” (2011-2014)

Stanica Pantelimon - NPS-GSEAS Deans’s Cyber Security Research Grant

Tiba Dan - Grant 1192 CNCS; Grant LEA; Granta Brancusi

Timofte Aida - Visiting Assistant Professor, University of Mississippi, Department of Mathematics, 15.08.2010–15.05.2011.

Timofte Vlad - Visiting Associate Professor, University of Mississippi, Department of Mathematics, 01 ianuarie – 15 mai 2011.

Timotin Dan - In calitate de director de proiect, am obținut în cadrul competiției 2011 a programului IDEI-PCE un grant de 36 de luni, în valoare de 1487500 lei. Titlul proiectului este *Teoria operatorilor multidimensională. Spații cu nucleu reproducător, funcții necomutative, probleme de momente și rezultate de dilatare generalizată*, cod PN-II-ID-PCE-2011-3-0119.

Vajaitu Marian - “Scientist in charge” pentru grantul FP7-PEOPLE-RG-248569 (2009-2013), director Alex Popa, IMAR.

Zamfirescu Tudor - Conduc grantul PN-II-ID-PCE-2011-3-0533 începând cu 2011.

8.3 Conducere doctorate

Albu Toma

1. *Minculete Nicușor*, stadiu de **depunere** a Tezei
2. *Apostol Brăduț*, stadiu de **elaborare** a Tezei
3. *Petrescu Lucian*, stadiu de **elaborare** a Tezei

Beltita Daniel

- Daniel Beltiță este conducător de doctorat al lui Mihai Nicolae, admis la programul de doctorat în urma colocviului din octombrie 2011, și înmatriculat la 1 noiembrie 2011. Tema propusă pentru teza de doctorat este *Momente pentru reprezentări de grupuri Lie*.

Berceanu Barbu Doua dintre doctorandele de la Abdus Salam School of Mathematical Sciences si-au sustinut tezele in martie 2011:

- Saima Parveen, "Braid groups in complex projective spaces" ;
- Rehana Ashraf, "Recurrence relations for HOMFLY polynomials and rational specializations" .

Alte doua doctorande de la ASSMS sint in faza de redactare a tezelor.

Beznea Lucian

Marian Haiducu, stagiul de pregatire
Andrei Oprina, stagiul de pregatire
Daniela Ghita, stagiul de pregatire
Ana Maria Boeangiu, stagiul de pregatire
Oana Valeria Lupascu, stagiul de pregatire.

Boca Florin-Petre - Joseph Vandehey, University of Illinois Urbana-Champaign.

Brinzanescu Vasile - Doctorandul Marius Marchitan a sustinut in 2011 teza de doctorat cu tema: Fibrati vectoriali pe suprafete complexe.

Cojocar Alina-Carmen - Drew Shulman, Universitatea Illinois-Chicago, SUA. Teza: *Elementary divisors of reductions of generic Drinfeld modules*, sustinuta in mai 2011; doctorat conferit in august 2011.

Coltoiu Mihnea - 3 doctoranzi : Geroge Ionut Ionita, Natalia Gasitoi, Ovidiu Preda

Diaconescu Razvan - Madeira, Alexandre, **Behavioural Certification of Evolving Software Requirements**, în cadrul MAP-i (program doctoral comun în informatică al universităților Minho, Aveiro și Porto, Portugalia).

Ene Horia - Am continuat activitatea de conducere doctorate. S-au sustinut doua teze:

1. Camelia Gheldiu - Omogenizarea structurilor reticulate (controlabilitate exacta interna pentru structuri subtiri inalte tip fagure)
2. Mihaela Arsene - Metode calitative pentru studiul unor ecuatii diferentiale si sisteme diferentiale care modeleaza fenomene mecanice

Enescu Florian - Conducere la doctorat a Sarei Malec, student la doctorat in matematica (algebra comutativa) la Georgia State University.

Maxim Laurentiu

1. Yun Su (University of Wisconsin-Madison)
2. Kai Ho Wong (University of Wisconsin-Madison)
3. Yongqian Liu (University of Science and Technology of China)

Nastasescu Constantin - În anul 2011 și-au susținut cu succes teza trei doctoranzi ai mei (Buruiană Cerasela, Toader Nicolae Bogdan și Angheluță Carmen Florentina). În prezent, am doi doctoranzi în diverse stadii de elaborare a tezei.

Nenciu Irina - Deniz Bilman, student la doctorat, Departamentul de Matematica, University of Illinois at Chicago

Ornea Liviu - Da, la Universitatea din Bucuresti, 2 doctoranzi, o teza finalizata in octombrie 2011 (Rodica Voicu).

Polisevschi Dan

1. Dumitru Adina, inmatriculata in 2005, a sustinut ultimul referat
2. Cristian Cotoarba, inmatriculat in 2009, a sustinut al doilea examen
3. Florentina-Alina Stanescu, inmatriculata in 2010, admisa cu frecventa in cadrul Institutului de Matematica "Simion Stoilow" al Academiei Romane, a sustinut primul examen

Popescu Dorin - Am continuat sa lucrez cu doctoranzii mei mai vechi: Corneliu Manescu Avram si Mihai Epure in tara si cu Muhammad Ishaq din Pakistan. D-l Imran Qureshi din Pakistan si-a sustinut teza in Februarie 2011 in Lahore. Am inceput sa lucrez cu noii mei doctoranzi: A. Zarojanu si G. Teseleanu.

Radulescu Vicentiu - In prezent am 7 doctoranzi, aflați în diverse stadii de pregătire a tezei. Este prevăzută susținerea a două teze de doctorat în decursul anului 2012.

Stanica Pantelimon

1. Syridon Pollatos, 2008–
2. Thor Martinsen, 2010–
3. Jong Chung, 2010–

Tiba Dan - Doctorand Merlusca Diana (din 2010)

Timotin Dan - Conduc, la *Abdus Salam School of Mathematical Sciences, GC University* de la Lahore, Pakistan, doctoratul lui Waleed Noor.

Torok Andrei - Supervizez in prezent trei studenți: unul în ecuații diferențiale stochastice pentru modelarea sistemelor biologice (împreună cu R. Azencott) și doi în sisteme dinamice.

Ursu Vasile - Consultant stiintific tezei de doctor dnei Gurdis Aliona cu tema "Bucle Moufang comutative si CH-cuasigrupuri cu conditii de finitudine". Teza a fost sustinuta pe 26 martie 2010 in sedinta Consiliului stiintific specializat DH 01.01.01.06 - 03 din cadrul Institutului de Matematica si Informatica al Academiei de Stiinte a Moldovei.

Vajaitu Marian - Nitu Cosmin Constantin, in stadiul de pregatire. A sustinut in acest an, conform planului de lucru, primul examen si referat in cadrul programului de doctorat.

8.4 Membru in colective editoriale

Albu Toma

1. Revista “*Gazeta Matematica*”, din 1980.
2. Revista “*Bulletin Mathematique de la Societe des Sciences Mathematiques de Roumanie*”, din 2004.
3. Revista “*Communications in Algebra*”, Taylor & Francis Group, Philadelphia (fost Marcel Dekker, Inc., New York), din 2005.

Beznea Lucian - Advances in Pure and Applied Mathematics, de Gruyter
(<http://www.degruyter.com/journals/apam/detailEn.cfm?sel=he>)

Brinzanescu Vasile - Editor la revistele ISI romanesti: Proc. Rom. Acad. si An. St. Univ. Ovidius Constanta.
Editor la revista din Bulgaria: SERDICA Math. J.

Cipu Mihai - Membru în Colegiul Redacțional la *Bulletin Mathématique de la Socié'té des Sciences Mathématiques de Roumanie*, *Gazeta Matematică Seria A*.

Cojocaru Alina-Carmen - International Journal of Number Theory

Coltoiu Mihnea - Acta Universitatis Apulensis (Univ. Alba Iulia) si Proc. Romanian Academy

Constantinescu Adrian - “Acta Universitatis Apulensis“,
S. Mathematics-Informatics, ISSN 1582-5329 (Editata de Universitatea “1 Decembrie 1918” din Alba Iulia. Revista B+ (CNCS), inclusa in bazele de date ale “American Math. Soc. (AMS)”,
“European Math. Soc. (EMS) ”. Recenzata in “Math.Reviews” si “Zentralblatt Math.”)

Diaconescu Razvan - membru al comitetului editorial al seriei de carti *Studies in Universal Logic* ale editurii Springer (Basel).

Dragan Vasile - Editor asociat la International Journal on Innovative Computing, Information and Control (IJICIC).
Editor asociat la ICIC- Express Letters.

Gheondea Aurelian - Journal of Operator Theory – Fundația Theta, București;
Complex Analysis and Operator Theory – Birkhäuser Verlag, Basel;
Opuscula Mathematica – AGH University of Science and Technology, Krakow;
The Open Mathematics Journal, Bentham Science Publishers, Shiraz.

Ghergu Marius - Membru în Colectivul Editorial al *ISRN Mathematical Analysis Journal* și *Advances in Nonlinear Analysis*.

Gologan Radu - Gazeta Matematica seria A,
Bulletin Mathematique de la Societe Roumaine de Mathematiques.

Ionescu Paltin - Membru in comitetul editorial al revistei Annals of the University of Bucharest (Mathematical Series)

Iordanescu Radu - Sunt recenzent (de mai multe decenii) la Math. Rev. si la Zbl. Math., iar in ultimul timp am fost solicitat sa fac multe recenzii.

Mihailescu Eugen - In anul 2011 am devenit membru in Editorial Board la jurnalul american **Discrete and Continuous Dynamical Systems-S**.

Nichita Felix Florin - Axioms (ISSN 2075-1680) – member of the editorial board (2011-2013).

Nastasescu Constantin - Sunt membru în colectivele editoriale ale următoarelor reviste:

- Analele Universității din București, Seria Matematică.
- Revue Roumaine de Mathématiques Pures et Appliquées.
- Bulletin Mathématique de la Société des Sciences Mathématiques de Roumanie.
- Analele Științifice ale Universității "Ovidius" din Constanța, Seria Matematică.
- Analele Universității din Craiova, Seria Matematică - Informatică.
- Mathematica (Cluj).

Ornea Liviu - Bulletin Math. SSMR, Annals of the University of Bucharest

Pascu Mihai - editor al seriei Mathematics-Physics-Informatics, Petroleum-Gas University of Ploiesti Bulletin

Polisevschi Dan - Comitetul Stiintific al celei de a 33-a editie a Conferintei "Caius Iacob" de Mecanica Fluidelor si aplicatiile ei tehnice, București, 29-30.09.2011, www.incas.ro

Popa Nicolae

1. Journal of Function Spaces and Applications, New Delhi, India, ISI impact factor 0,702.
2. Revue Roumaine Mathematiques Pures et Appliquees
3. Proceedings of Romanian Academy (Mathematics)

Popescu Calin - Editor la Gazeta Matematică — Seria A.

Popescu Dorin - Sunt editor la Central European Math. J. (jurnal Springer), la Bulletin Math. Soc. Sc. Math. Roum. si la Analele Universitatii Ovidius din Constanta

Popescu Ionel - Proceedings of the EU - NCG 4th Annual Meeting Bucharest, Romania, April 25 - 30, 2011.

Radulescu Vicentiu

1. Acquisition Editor, *de Gruyter-Versita Book Publishing Program in Mathematics*

2. Editor in Chief of *Advances in Nonlinear Analysis* (Walter de Gruyter)
3. Associate Editor of *Nonlinear Analysis: Theory, Methods & Applications* (Elsevier)
4. Associate Editor of the *Journal of Mathematical Analysis and Applications* (Elsevier)
5. Editor of *Advances in Pure and Applied Mathematics* (Walter de Gruyter)
6. Member of the Editorial Board of *Complex Variables and Elliptic Equations* (Taylor & Francis)
7. Associate Editor of *Boundary Value Problems* (Springer)
8. Associate Editor of the *Electronic Journal of Differential Equations*
9. Associate Editor of the *Bulletin of Mathematical Analysis and Applications*
10. Member of the Editorial Board of *Ann. St. Univ. Ovidius Constanta*
11. Managing Editor of *Annals of the University of Craiova - Mathematics and Computer Science Series*
12. Member of the Editorial Board of *Publications of the Centre for Nonlinear Analysis and its Applications*

Stanica Pantelimon - *European Journal of Pure and Applied Mathematics* (Associate Editor 2007–present)

Tiba Dan - *Mathematical Reports*, Academia Romana, Bucharest; *Mathematics and its Applications*, AOSR, Bucharest; *Recreatii Matematice*, Iasi

Timofte Vlad - Editor asociat, *Australian Journal of Mathematical Analysis and Applications* (AJMAA).

Timotin Dan - Membru în boardul editorial lărgit la *Journal of Operator Theory*.

Zamfirescu Tudor - *Bull. Math. Soc. Sci. Math. Roumanie*, *Carpath. J. Math.*, *An. Univ. Craiova – Ser. Mat.*, *An. Univ. Vest Timisoara – Ser. Mat.*

8.5 Organizari de conferinte

Aprodu Marian - French-Romanian Workshop on Complex Geometry Bucharest, Romania, July 6 - 10, 2011
<http://web.me.com/aprodu/LEA-CG2011/Welcome.html>

Beznea Lucian - The Seventh Congress of Romanian Mathematicians, Brasov, 29 iunie- 5 iulie 2011,
<http://imar.ro/organization/activities/standalone/congmatro2011/conf.php>

Brinzanescu Vasile - 7th Congress of Romanian Mathematicians, Brasov, June 29- July 05, 2011
www.imar.ro

Cojocaru Alina-Carmen - Octombrie 2011, co-organizator (cu Michael Zieve, Universitatea Michigan, SUA) a Sesiunii de Teoria Numerelor in cadrul conferintei *Central Section Meeting of the American Mathematical Society*, Nebraska-Lincoln, SUA
[http : //www.ams.org/meetings/sectional/2185_program_s17.html#title](http://www.ams.org/meetings/sectional/2185_program_s17.html#title)

Coltoiu Mihnea - Comemorare Constantin Banica, Inst. S. Stoilow, 25 noiembrie 2011
<http://www.imar.ro>

Constantinescu Adrian

1. "The 7-th International Conference on Theory and Applications in Mathematics and Informatics (ICTAMI 2011)" - Algebra; Geometry and Topology, Alba Iulia, July 21 - 24, 2011,
<http://www.uab.ro/ictami/>
<http://www.euro-math-soc.eu/node/954>
site:www.ams.org meetings calendar 2011 jul 21 alba iulia
2. "The 19-th International Conference on Applied and Industrial Mathematics (CAIM 2011)" - Algebra and Logic; Topology and Differential Geometry, Iassy, September 22 - 25, 2011,
<http://www.univagro-iasi.ro/caim2011/>
site:www.ams.org meetings calendar 2011 sep 22 iasi
<http://atlas-conferences.com/cgi-bin/calendar/d/faep68>
3. "The 5-th International Conference of Differential Geometry and Dynamical Systems (DGDS-2011)", Bucharest, October 6-9, 2011 .
<http://www.mathem.pub.ro/dept/dgds-11/DGDS-11.htm>

Diaconescu Razvan - *Second Romanian-Japanese Algebraic Specification Workshop*, Sinaia, Romania, 1-4 Martie 2011. <http://www.imar.ro/~diacon/rj2.html>

Ghergu Marius - UCD-TCD Undergraduate Summer School, Dublin, 28 May-3 June 2010.

Gologan Radu - Congresul Matematicienilor Romani, Braşov, iunie, 2011.

Ignat Liviu

1. Workshop for Young Researchers in Mathematics, Constanta, 12-13/05/2011,
<http://math.univ-ovidius.ro/workshop/2011/WYRM/GeneralInfo.htm>
2. open session on "Waves in networks" chaired by L. Ignat and G. Leugering, Workshop on Partial differential equations, optimal design and numerics, Benasque, Spain, 2011, Aug 28 – Sep 09

Ichim Bogdan - Scoala nationala de algebra 2011, Bucuresti, 18-24 Septembrie,
<http://math.univ-ovidius.ro/sna/edition.aspx?itemID=5>

Iordanescu Radu - Am fost principalul organizator al WORKSHOP-ului de la Constanta (august 2011) "The 10th International Workshop on Differential Geometry and its Applications" Ovidius University, Constanta, August 26-30, 2011
<http://math.univ-ovidius.ro/workshop/2011/DGA10/>

Maxim Laurentiu - International Conference on Singularity Theory and Applications, Hefei, China, July 25-31, 2011.

<http://www.math.wisc.edu/~maxim/conf/Hefei/Hefei.html>

Moroianu Sergiu - 10th International Workshop on Differential Geometry and its Applications,

<http://math.univ-ovidius.ro/workshop/2011/DGA10/>

Nenciu Irina - Membru al Advisory Committee pentru conferința NSF-CBMS “Global Harmonic Analysis”, University of Kentucky, Lexington, KY, Iunie 2011,

<http://math.as.uky.edu/cbms>

Nichita Felix Florin - MedDecSup 2011, International Workshop on Next Generation Intelligent Medical Decision Support Systems, Targu Mures, September 18–19, 2011,

<http://ncscs.upm.ro/>

Ornea Liviu

1. Congresul Matematicienilor Romani, Brasov, 29.06-5.07, coorganizator Sectia 1.
<http://imar.ro/organization/activities/standalone/congmatro2011/conf.php>
2. French-Romanian Workshop on Complex Geometry, Bucuresti, IMAR, 7–9 iulie, coorganizator.
<http://web.me.com/aprodu/LEA-CG2011/Welcome.html>
3. Geometric structures on complex manifolds, Moscova, Steklov Inst., 3–7 octombrie, coorganizator.
<http://bogomolov-lab.ru/GS/>

Paunescu Liviu - EU - NCG 4th Annual Meeting , Bucharest, April 25 - 30, 2011,

<http://www.imar.ro/purice/conferences/2011/EUNCG4.html>

Popescu Dorin - Combinatorics in Commutative Algebra, Bucuresti, 19-23 Septembrie, 2011

Popescu Ionel - Bucuresti, Mai 23-24, 2011

A Mini-Conference on Probability and Related Fields:

<http://www.imar.ro/purice/conferences/2011/ProbAndRelated.pdf>

Purice Radu

1. A 4-a Conferinta Anuala a Retelei Europene de Geometrie Neocomutativa, Bucuresti, 25 - 30 Aprilie 2011
<http://www.imar.ro/purice/conferences/2011/EUNCG4.html>
2. Al 7-lea Congres al Matematicienilor Romani, Brasov, 29 Iunie - 5 Iulie 2011
<http://imar.ro/organization/activities/standalone/congmatro2011/conf.php>
3. Prima Conferinta Internationala a Proiectului CERBUN (POS DRU/89/1.5/S/62988), Bucuresti, 7 - 8 Octombrie 2011
<http://www.imar.ro/purice/Inst/2011/anunt-web.pdf>

Radulescu Vicentiu

1. Seventh Congress of Romanian Mathematicians, Brasov, June 29 - July 5, 2011,
<http://imar.ro/organization/activities/standalone/congmatro2011/conf.php>
2. New Trends in Modern Analysis: Probabilistic and Analytic Methods in PDEs and Spectral Theory, Hammamet (Tunisia), November 20-24, 2011,
<http://www.imar.ro/organization/activities/standalone/conf-Tunisia/conf.php>
3. Workshop on Nonlinear Partial Differential Equations on the occasion of the sixtieth birthday of Patrizia Pucci, Perugia, 28 May - 1 June 2012
<http://www.dmi.unipg.it/pucci2012>

Stanica Pantelimon - Co-Editor for the Proceedings of International Conference on Fibonacci Numbers, Morelia, Mexico, July 2010;
<http://faculty.nps.edu/pstanica/F14/fourteenth.html>.

Stavre Ruxandra - Am făcut parte din Comitetul științific al Conferinței "The 33rd Caius Iacob Conference on Fluid Mechanics and its Technical Applications", Bucharest, 29-30 September, 2011,
www.incas.ro

Tiba Dan

1. Computational Analysis, Jyvaskyla, iunie 2011
2. IFIP 2011, Berlin, sept.2011, Organizare minisimpozion impreuna cu Murea Cornel, Mulhouse

Torok Andrei - *Texas Ergodic Theory Workshop*, University of Houston, 22-22 martie 2011
<http://www.math.uh.edu/torok/dynamics2011/>

Vuza Dan Tudor - 2011 IEEE 17th International Symposium for Design and Technology in Electronic Packaging SIITME, Timisoara, 20 octombrie 2011 – 23 octombrie 2011,
www.siiitme.ro. Membru in comitetul stiintific al conferintei.

8.6 Altele

Cipu Mihai

1. Membru în Colegiul pentru Învățământul Superior și Proiecte Științifice al Societății de Științe Matematice din România
2. Referent la *Bull. Math. Soc. Sci. Math. de la Roumanie, An. Șt. Univ. „Ovidius” Constanța, Computers and Mathematics with Applications, Mathematical Communications, Carpathian Math. J., Monatshefte für Mathematik*
3. Responsabil cu recenziile la *Revue Roumaine de Mathématique Pures et Appliquées*
4. Tutor al unui student la SNSB, în prezent masterand la Universitatea Cambridge

5. Membru în Comitetul de selecție a problemelor și coordonator la South Eastern European Mathematical Olympiad for University Students 2011
6. Membru în Comitetul de organizare a Olimpiadei naționale de matematică
7. Coordonator la ediția 2011 a Balcaniadei de matematică

Calinescu Corina - In prezent sunt postdoc la universitatea Yale.

David Liana

1. Am recenzat lucrari de geometrie diferentiaza pentru Geometria Dedicata si Analele Universitii din Constanta.
2. Fac parte din comisia nationala CNATDCU de recunoastere a titlurilor stiintifice (de doctor, conferentiar, profesor etc) obtinute in tara sau in strainatate.

Ionescu-Kruse Delia - In perioada 15 - 31 mai 2011, am participat la programul: *Nonlinear water waves*, organizat la **Erwin Schroedinger International Institute for Mathematical Physics (ESI), Viena, Austria**.

Radulescu Vicentiu - In cadrul Scolii Normale Superioare din București am prezentat cursul “Analiză funcțională aplicată și ecuații cu derivate parțiale” (48 ore, Februarie – Iunie 2011)

Vajaitu Marian

- Membru al consiliului științific al IMAR.
- Am participat la conferințele IMAR.
- Am fost referent pentru o serie de lucrari trimise spre publicare la revistele: Communications in Algebra, Proc. Romanian Academy, Analele Universitatii din Bucuresti etc.

8.6.1 Conferinte sustinute

Albu Toma

1. Expunerea: *SSMR: ieri, azi, maine - ganduri personale*, Centenarul SSMR, Bucuresti, 20 noiembrie 2010.
2. Expunerea: *Rationalitatea sumelor de radicali*, Sesiunea internationala de Comunicari stiintifice “Matematica de Ieri si de Azi”, Editia a XV-a, Colegiul Tehnic “Traian”, Bucuresti, 26 martie 2011.
3. Expunerea: *Tezaur folcloric (II): Zece grupuri numerice familiare si izomorfismele dintre ele*, Sesiunea de Comunicari Metodico-Stiintifice a Profesorilor de Matematica din judetul Prahova, editia a XXXVII-a, Sinaia, 29 mai 2011.
4. Expunerea: *From Galois and Kummer Theory to a gentle introduction into Cogalois Theory*, The Seventh Congress of Romanian Mathematicians, Brasov, 29 June - 5 July 2011.
5. Expunerea: *A gentle introduction into Cogalois Theory*, Colloquium Talk, Dong-A University, Busan, South Korea, 21 June 2011

6. Expunerea: *The Osofsky-Smith Theorem for modular lattices, and applications*, Plenary Talk, The Sixth China - Korea - Japan International Conference on Ring and Module Theory, 27 June - 2 July 2011, Kyung Hee University, Suwon, South Korea.
7. Expunerea: *The Hopkins-Levitzki Theorem: old and new (I)*, Colloquium Talk, Memorial University of Newfoundland, St. John's, Canada, 23 September 2011.
8. Expunerea: *The Hopkins-Levitzki Theorem: old and new (II)*, Algebra Seminar Talk, The Atlantic Algebra Canter, Memorial University of Newfoundland, St. John's, Canada, 28 September 2011.
9. Expunerea: *De la o inspectie de gradul I cu Laurentiu Panaitopol la extindere minimale de inele*, Centrul de Documentare si Informare „Laurentiu Panaitopol”, Colegiul National „Spiru Haret”, Bucuresti, 7 noiembrie 2011.
10. Expunerea: *O introducere elementara in Teoria Galois si Teoria Cogalois*, Simpozionul Galois 200, Valenii de Munte, 19 noiembrie 2011.

Badea Lori - *Multigrid method with constraint level decomposition for some quasi-variational inequalities*, **25-th IFIP TC7 Conference on System Modeling and Optimization**, 12-16 septembrie, 2011, Berlin, Germania.

-*Multigrid methods for constrained minimization problems*, **The Seventh Congress of Romanian Mathematicians**, 7-9 Iulie, 2011, Brasov, Romania.

Anton Marian

1. Mathematics Colloquium, Ripon College, WI, Nov , 2011
2. Math for Everyone, Notre Dame, IN, Sep 15, 2011
3. Congress of Romanian Mathematicians, Brasov, RO, June 30, 2011
4. Mathematics Colloquium, Southern Connecticut State University, CT, Feb 25, 2011
5. Pedagogy Luncheon, Centre College, KY, Feb 24, 2011
6. Mathematics Colloquium, Saint Mary's College, IN, Feb 24, 2011

Baditoiu Gabriel

1. “Geometria submersiilor Riemann”, Universitatea Bucuresti, 6 Mai 2011, in cadrul colocviului de geometrie: Un an de la disparitia profesorului Stere Ianus
2. “Lax pair equations and Connes-Kreimer renormalization”, University of Potsdam, 29 Septembrie 2011, in cadrul workshop-ului “Analysis, Geometry and Quantum Physics” in onoarea sarbatoririi a 60 de ani de la nasterea Profesorului Steven Rosenberg.

Barcanescu Serban

1. 7-9 iulie 2011-participare la Workshop-ul Romano-Francez de Geometrie Complexa (IMAR)
2. 29 iunie-05 iulie 2011-participare la Congresul Matematicienilor Romani(Brasov)

3. 19-24 Septembrie 2011-participare la Scoala Nationala de Algebra (Bucuresti-IMAR)

Belinschi T. Serban - In 2011 am participat la mai multe conferinte si seminarii. La patru dintre ele am prezentat rezultate obtinute singur sau in colaborare cu mai multi autori:

1. Serban Belinschi, 2011. Central limits in non-commutative probability. 50 minutes talk in the Wabash Miniconference, IUPUI, 25 September 2011, Indianapolis, IN, USA.
2. Serban Belinschi, 2011. Towards L^∞ -estimates for densities of free convolutions. 50 minutes talk in the probability seminar of the Institute of Mathematics of Université de Toulouse Paul Sabatier, July 4, 2011, Toulouse, France.
3. Serban Belinschi, 2011. Convolution semigroups in operator-valued probability. 25 minutes talk in the Operator Algebras Session of the CMS Summer Meeting, June 4, 2011. Edmonton, AB, Canada.
4. Serban Belinschi, 2011. Convolution semigroups for operator-valued distributions. 50 minutes talk at the Bialgebras in Free Probability Programme, Erwin Schrödinger Institute, April 18, 2011, Vienna, Austria.

Beltita Daniel

- Daniel Beltiță a susținut o expunere cu titlul *Noncommutative function spaces and Toeplitz operators* pe 8.06.2011 la Institutul de Matematică al Universității din Białystok, Polonia.

Beltita Ingrid

- În perioada 3–5 mai 2011, Ingrid Beltiță a susținut o mini-serie de 4 cursuri cu titlul *Local smoothing for the backscattering transform* în cadrul trimestrului special de probleme inverse "Theoretical and Numerical Aspects of Inverse Problems and Scattering Theory" (4 Aprilie- 8 iulie 2011) organizat la Instituto de Ciencia Matemáticas (Madrid).

Berceanu Barbu "Simple braids" sustinuta la 5th World Conference on 21st Century Mathematics, Abdus Salam School of Mathematical Sciences (ASSMS), februarie 2011.

As adauga alte doua conferinte anulate de circumstante nefavorabile: "Koszul duality for Grobner bases", Abbottabad, mai 2011, "Braiduri simple", Brasov, iunie 2011, si, de asemenea, "Les espaces des configurations des varietes projectives", care a fost pe lista de optiuni la Conferinta franco-romana, Bucuresti, iulie 2011.

Beznea Lucian

Korean Mathematical Society Spring Meeting, April, 2011, Seoul, South Korea, invited speaker
Seoul National University, May, 2011

CRM Montreal, Gauthier-Gowri Fest Conference, June, 2011, invited speaker

IGK-Workshop, Bielefeld, July, 2011, invited speaker

Probability Seminar, Univ. of California at San Diego, USA, September, 2011

Probability Seminar, Purdue University, USA, September, 2011

Mathematics - Colloquium, Worcester Polytechnic Institute, USA, September, 2011

Stochastic Analysis Seminar, Oxford-Man Institute, University of Oxford, October, 2011

Stochastic Analysis Seminar, Imperial College, London, October, 2011

Probabilités et Statistiques, Univ. Orsay, France, November, 2011.

Boca Florin-Petre - *Irregularities in the angular distribution of hyperbolic lattice points*, Seventh Congress of Romanian Mathematicians, Braşov, Romania, June 29 -July 5, 2011.

Bonciocat Anca Iuliana - participare la conferinţa internaţională “Functional inequalities and discrete spaces”, Marne-la-Vallée, Franţa, 11 – 14 ianuarie 2011, cu comunicarea *Curvature bounds: discrete versus continuous spaces*.

- participare la conferinţa internaţională “Workshop for Young Researchers in Mathematics”, Universitatea Ovidius din Constanţa, 12 – 13 mai 2011, cu comunicarea *Functional inequalities in discrete spaces*.

- participare la conferinţa internaţională “The Seventh Congress of Romanian Mathematicians”, 29 iunie - 5 iulie 2011, Brasov, Romania, cu comunicarea *Curvature bounds and functional inequalities in discrete spaces*.

- participare la “A XV-a Conferinţă Anuală a Societăţii de Ştiinţe Matematice din România”, 29 septembrie - 2 octombrie 2011, Hunedoara, Romania, cu conferinţă plenară *Asupra geometriei spațiilor metrice*.

- participare la conferinţa internaţională “Croissance économique et soutenabilité sociale. Défis et perspectives européennes”, 7 - 8 octombrie 2011, Bucureşti, cu comunicarea *Weak transportation cost inequalities on metric measure spaces*. Această întâlnire de dezbateri a avut loc în cadrul proiectului “Cercetarea ştiinţifică economică, suport al bunăstării şi dezvoltării umane în context european - CerBun, ID: 62988.

Bonciocat Nicolae Ciprian

- N.C. Bonciocat, *Using prime numbers to construct irreducible polynomials*, conferinţa susţinută în cadrul celui de-al 7-lea Congres al Matematicienilor Români, 29.06.2011–05.07.2011, Braşov, Romania.

- N.C. Bonciocat, *Irreducibility results for linear combinations of relatively prime polynomials*, expunere susţinută în cadrul seminarului de Teoria Numerelor, Univ. Strasbourg, 29.08.2011.

Brinzanescu Vasile - În februarie 2011 am susţinut (ca invitat) conferinţa cu tema: Generalized complex structures, la Conferinţa Internaţională de Geometrie nekahleriană de la Luminy, Franţa. În martie 2011 am susţinut (ca invitat) conferinţa cu tema: Vector bundles on non-Kähler Calabi-Yau type 3-folds, la Conferinţa Internaţională ”Instantons”, de la Moscova, Rusia. În iulie 2011 am ţinut (ca invitat) o conferinţa cu tema: Moduli spaces of vector bundles on elliptic bundles, la Conferinţa Internaţională French-Romanian Workshop on Complex Geometry, IMAR, Bucharest, July- 7-9, 2011. În lunile mai-iunie 2011 (2 luni) am fost profesor invitat la ICTP Trieste Italia şi am ţinut mai multe conferinţe invitate la: ICTP Trieste, SISSA Trieste, Univ. Bologna, Univ. Firenze, Univ. Potenza.

Buliga Marius - Cursul ”Carnot-Carathéodory spaces as metric spaces with dilations” în cadrul ”Summer School in Non-Linear Analysis” -Rio de Janeiro, ianuarie 2011. La această şcoală de vară au mai ţinut cursuri Bernard Dacorogna (EPFL), Wilfrid Gangbo (Georgia Tech).

Burciu Sebastian

- “On the kernels of the representations of semisimple Hopf algebras”, Quantum theory and symmetries 7, Prague, 13-17 August, 2011.
- “On Clifford theory for semisimple Hopf algebras”, Hopf algebras and tensor categories, Almeria (Spain), July 4-8, 2011.

- ”Clifford theory for semisimple Hopf algebras”
June 29 - July 5, 2011, Brasov, Romania.

Capatina Anca

- On the asymptotic behavior of a Signorini problem in a perforated domain (50 min., lucrare în colaborare cu H. Ene și C. Timofte), The 7-th Congress of Romanian Mathematicians, June 29-July 5, 2011, Universitatea Braşov, România
- Homogenization results for elliptic problems in periodically perforated domains with mixed-type boundary conditions (90 min., lucrare în colaborare cu H. Ene și C. Timofte), Symposium “Homogenization and Multi scale Analysis” joint between INS and IFMA, October 3-7, 2011, Fudan University, China

Cheptea Dorin

1. *Weight systems and finite-type invariants of 3-dimensional manifolds*, The 7th Congress of Romanian Mathematicians June 29th - July 5th, 2011, Brasov, Romania
2. *Applications of the Jacobi-digrammatic formulation of Johnson-Morita homomorphisms*, MITRE-2011 Conference August 22nd, 2011, Chisinau, Moldova
3. *Weight systems and finite-type invariants of 3-dimensional manifolds*, Uppsala, Suedia, November 2011 (va avea loc)
4. (titlul exact va fi precizat) Aarhus, Danemarca, November-December 2011 (va avea loc)

Chiose Ionut - Prezentare la *The Seventh Congress of Romanian Mathematicians*

Cimpoeas Mircea - Am participat la ”The Seventh Congress of Romanian Mathematicians”, Braşov, România, 29 iunie-5 iulie, unde am susținut o expunere cu titlul ”A note on Stanley conjecture for monomial ideals”.

Cipu Mihai - La cel de al șaptelea Congres al Matematicienilor Români am prezentat conferința cu titlul „Bounds for integer D(-1)-quadruples”.

Cobeli Cristian - *Excursion in Pascal Triangle*, The Seventh Congress of Romanian Mathematicians, June 29–July 5, 2011, Braşov, Romania.

Cojocaru Alina-Carmen

- Noiembrie 2011, *Workshop on Women in Numbers*, Banff International Research Station, AB, Canada; **conducator proiect cercetare** cu Alice Silverberg
- Octombrie 2011, *Number Theory Workshop*, University of California at Irvine, CA, SUA
- Octombrie 2011, *Central Section Meeting of the American Mathematical Society*, University of Nebraska-Lincoln, NE, SUA; **adresa plenara**
- Iulie 2011, *The 7th Congress of Romanian Mathematicians*, Brasov, Romania
- Iunie-Iulie 2011, *27th Journées Arithmétiques*, Vilnius, Lithuania; **adresa plenara**

- Iunie 2011, *Workshop on the Arithmetic of Function Fields*, Imperial College, London, UK
- Aprilie 2011, *Workshop on Arithmetic Statistics*, Mathematical Sciences Research Institute, Berkeley, California, SUA
- Ianuarie 2011, *Connections for Women: Arithmetic Statistics*, Mathematical Sciences Research Institute, Berkeley, California, SUA

Constantinescu Adrian

1. Graded subalgebras: Algebra, Topology, Geometry.I (Dedicated to the memory of Professor Nicolae Radu), conferinta in sectie (" 35 min. invited parallel section lecture") la "7-th International Conference on Theory and Applications in Mathematics and Informatics (ICTAMI 2011)" - Algebra; Topology and Geometry, Alba Iulia, July 21-24, 2011.
2. Hilbert 14-th Problem and subalgebras: an introduction, conferinta plenara ("45 min. plenary lecture" suplimentara) la "7-th International Conference on Theory and Applications in Mathematics and Informatics (ICTAMI 2011)", Alba Iulia, July 21-24, 2011.
3. Graded subalgebras: Algebra, Topology, Geometry.II, (Dedicated to the memory of Professor Nicolae Radu (1931-2001)), conferinta plenara ("45 min. invited plenary lecture") la "19-th International Conference on Applied and Industrial Mathematics (CAIM 2011)", Iassy, September 22-25, 2011.
4. Topological properties of morphisms of schemes over a field and the descent of the algebraicity, lectie in sectie ("30 min. keynote lecture") la "5-th International Conference of Differential Geometry and Dynamical Systems (DGDS-2011)", Bucharest, October 6-9, 2011.
5. Topological conditions of finite generation of subalgebras and Hilbert-Mumford-Nagata Theorem on the subrings of invariants.II: the case of an arbitrary base field, conferinta in "Mathematics and Computer Science Program" (" 45 min. invited talk") la "International Conference on Sciences" - Mathematics - Algebra and Applications (cofinanced from the European Social Found, through Sectoral Operational Programme Human Resources Development 2007-2013, project number POSDRU/CPP 107/DMI 1.5/S/77082/2010 - managed by the Romanian Academy), Oradea, November 11-12, 2011.

Nota: Rezumatele acestor talk'uri, continand principalele rezultate prezentate, au aparut in actele Conferintelor.

Extras dintr-o scrisoare recenta din partea unei reviste :

.....

Dear Adrian Constantinescu,

This is Journal of Mathematics and System Science (ISSN 2159-5291, USA).

We are glad to know you have submitted a paper named " Graded subalgebras: Algebra, Topology, Geometry. II. Dedicated to the memory of Professor Nicolae RADU

(1931-2001))” in The 19th Edition of the Annual Conference on Applied and Industrial Mathematics, September 22-25, 2011, Romania. We are very interested in your research, if the paper mentioned has not been published in other journals ...

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David Liana - Am sustinut o expunere la Congresul Matematicienilor Romani de la Brasov (iulie 2011), cu titlul: Dubrovin's duality for F -manifolds with eventual identities.

Diaconescu Razvan - *Guidelines for Formal Specification and Verification*, Second Romanian - Japanese Algebraic Specification Workshop, Sinaia, Romania, Martie 2011.

Dinu Florin Liviu

1. *Shock wave – sound turbulence interaction*, 3rd Congress of Applied Mathematics [3rd MACI 2011], 9–11 Mai 2011, Universitatea Nationala a Sudului, Bahia Blanca, Argentina
2. *Nonlinearized Fourier approach and coherence. Applications to shock – sound turbulence interaction*, International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS 2011, a Laurier Centennial Conference), 25–29 Iulie 2011, Universitatea Wilfrid Laurier, Waterloo, Ontario, Canada
3. *Wave-wave interactions of a gasdynamic type: a comparison between two approaches – regular vs. irregular*, International Conference on Applied Mathematics, Modeling and Computational Science (AMMCS 2011, a Laurier Centennial Conference), 25–29 Iulie 2011, Universitatea Wilfrid Laurier, Waterloo, Ontario, Canada
4. *Wave-wave regular interactions of a gasdynamic type: importance of quantifying an “amount” of genuine nonlinearity*, plenara, A 33-a Conferinta Anuala de Mecanica Fluidelor “Caius Iacob”, 29–30 Septembrie 2011, Bucuresti
5. *Wave-wave regular interactions of a gasdynamic type: a parallel between two contexts – isentropic vs. anisentropic*, Joint Congress of SAMS [South African Math. Soc.] and AMS, 29 Noiembrie – 3 Decembrie 2011, Universitatea Metropolitana Nelson Mandela, Port Elizabeth, Africa de Sud

Ene Horia - La Workshopul “Homogenization and Asymptotic Analysis” organizat intre 3-7 octombrie 2011 la Shanghai, China, am sustinut conferinta “Homogenization results for elliptic problems in periodically perforated domains with mixed-type boundary conditions”

Enescu Florian - (November 2011), A finiteness condition on local cohomology modules, Commutative Algebra and Algebraic Geometry at Urbana-Champaign Conference, University of Illinois.

Faciuc Cristian - *On the structure of shock layers and phase boundaries for a rate-type approach to solid-solid phase transitions* in cadrul 7th Congress of Romanian Mathematicians, June 29 - July 5, 2011

Gaba Radu - Am prezentat articolul ”A mathematical model and computation program of the chamber furnace of boilers for air pollution reduction”, la ”6th International Conference on

Environmental Engineering and Management (Mathematical Modeling, Simulation and Optimization Section)", jointly organized by "Gheorghe Asachi" Technical University of Iasi and University of Pannonia, Veszprém, Balatonalmadi, Hungary, 1-4 September 2011.

Gologan Radu - Conferința Anuală a SSMR, Hunedoara, 29-30 septembrie: Asupra relației continuu-discret în studiul unor șiruri.

Ichim Bogdan

1. International conference on Matrix Methods in Mathematics and Applications, Moscow, Russia, 22 – 25 June 2010.
Am ținut o prezentare cu titlul *Introduction to Normaliz 2.7*.
2. Congresul Matematicienilor Romani, Brasov, 29 Iunie – 5 Iulie,
Am ținut o prezentare cu titlul *Introduction to Normaliz 2.7*.
3. Scoala nationala de algebra 2011, Bucuresti, 18-24 Septembrie,
Am ținut trei prezentari cu titlurile *Hilbert functions and Ehrhart functions I, Hilbert functions and Ehrhart functions II, The Normaliz algorithms*.

Ignat Liviu - Au fost sustinute conferinte la

1. Instituto de Matematica, Universidade Federal do Rio de Janeiro
2. IMPA, Rio de Janeiro
3. Workshop for Young Researchers in Mathematics, Constanta
4. Congresul matematicienilor romani, Brasov
5. Facultatea de stiinte, Universitatea din Galati
6. Workshop on Partial differential equations, optimal design and numerics, Benasque, Spain, 2011, Aug 28 – Sep 09

Ionescu-Kruse Delia - Elliptic and hyperelliptic functions describing the particle motion beneath small-amplitude water waves with constant vorticity, 26 Mai 2011 - *ESI, Viena, Austria*.

Ionescu Paltin - Am fost vorbitor invitat la urmatoarele manifestari stiintifice:

1. Algebraic Geometry at NIMS (Daejeon, Coreia) martie 2011
2. Algebraic Geometry at KIAS (Seul, Coreia) aprilie 2011
3. Colocviul romano-francez de geometrie algebrica, IMAR, iulie 2011

Alte conferinte:

1. Congresul Matematicienilor Romani, Brasov, iunie 2011
2. Univ. Nancy, mai 2011
3. Univ. Complutense, Madrid, iunie 2011

4. Univ. Ferrara, sept. 2011

Ionescu Paul Cristodor

A special class of morphisms in positive characteristic - André Memorial Conference - EPFL Lausanne 11-13 Mai 2011(invited speaker);

Commutative Algebra: interactions with Combinatorics and Graph Theory - The 5th International Conference on Research and Education in Mathematics (ICREM5) ITB Bandung, 20-22 Octombrie 2011(plenary speaker);

Algebraic invariants of commutative rings with geometric applications - ciclul de 5 lectii tinut in cadrul International School on Computational Commutative Algebra and Algebraic Geometry, Villa Pace, Messina, 17-29 Octombrie 2011.

Joita Cezar • *On the disk property of coverings of 1-convex surfaces*, The Seventh Congress of Romanian Mathematicians, Brasov, 29 iunie - 5 iulie, 2011

• *Analytic convexity via lower dimensional objects* The 10th International Workshop on Differential Geometry and its Applications Ovidius University, Constanta, 26 - 30 august, 2011

• *Coverings of a link singularity and q-convexity*, Seminarul de Singularitati si Aplicatii, Universitatea Lille 1, Franta, 21 septembrie 2011

• *On coverings of 1-convex surfaces*, Seminarul de Analiza Geometrica, Universitatea Lille 1, Franta, 23 septembrie 2011

Leustean Laurentiu - *Recent developments in proof mining*, Workshop 1145: Mathematical Logic: Proof Theory, Constructive Mathematics, Nov 6 - Nov 12, 2011, Mathematisches Forschungsinstitut Oberwolfach (invited talk).

Maican Mario

1. *Moduli of Plane Sheaves Supported on Curves of Low Multiplicity*, Contributed talk, Moduli Spaces—Closing Conference, Isaac Newton Institute for Mathematical Sciences, Cambridge University, 28.06.2011

2. *Semi-stable Plane Sheaves of Dimension One and Low Multiplicity*, Invited talk, The Seventh Congress of Romanian Mathematicians, University of Transilvania, Braşov, 05.07.2011

3. *On some moduli spaces of sheaves supported on plane curves*, Invited talk, General Mathematics Seminar of the University of Luxembourg in cooperation with the Luxembourg Mathematical Society, 22.11.2011

Matei Daniel - In luna aprilie am participat la intalnirea A.M.S. de la Worcester, MA, SUA, unde am sustinut conferinta "Characteristic varieties of quasiprojective manifolds and orbifolds".

In luna mai am sustinut o serie de conferinte la Universitate din Pau, Franta, cu titlul "Multidimensional queueing networks and multivariate residues".

In perioada 29 iulie - 5 iulie am participat la Congresul Matematicienilor Romani, la Brasov, unde am sustinut conferinta "Characteristic varieties of quasiprojective manifolds and orbifolds".

Macinic Anca - Am sustinut expunerea cu titlul la conferinta "Workshop for Young Researchers in Mathematics", Univ. Ovidius Constanta, 12-13 mai 2011.

Mihailescu Eugen - International Program Conference Cerbun, Oct. 7-8, 2011.

Moroianu Sergiu

1. Analysis, Geometry and Surfaces, Autrans, martie 2011;
2. Microlocal Methods in Analysis and Geometry, Tübingen, iunie 2011;
3. CAIM 2011, Iasi, septembrie 2011.

Nastasescu Constantin

1. *A Generalization of the Gabriel-Popescu Theorem*: Universitatea din Almería, Spania, martie 2011.
2. *Hopf Algebras Coacting on Coalgebras*: vorbitor principal la conferința "Hopf Algebras and Tensor Categories", Universitatea din Almería, Spania, 4 – 8 iulie 2011.
3. *Nicolae Popescu – omul și matematicianul*: la conferința "Mathematics & IT: Research and Education (MITRE-2011)", Chișinău, Republica Moldova, 22 – 25 august 2011, dedicată aniversării a 65-a a Universității de Stat din Moldova.
4. *Acțiuni și coacțiuni în algebră*: la conferința organizată cu ocazia împlinirii a 100 de ani de la nașterea profesorului dr. Ion Creangă, Universitatea "Al. I. Cuza", Iași, 23 septembrie 2011.
5. *Lema lui Mitchell. Generalizare și aplicații la teorema Gabriel-Popescu*: la "A 19-a Conferință de Matematici Aplicate și Industriale (CAIM)", 22 – 25 septembrie 2011, Iași.
6. *Coactions on coalgebras*: Universitatea din Padova, Italia, noiembrie 2011.

Negut Andrei

1. IMAR, Iulie 2011
2. Universitatea Columbia, Septembrie 2011

Nichita Felix Florin

1. The Seventh Congress of Romanian Mathematicians, Section 1B: Algebra; Brasov, Romania, 29 June - 5 July, 2011 (50 minute).
2. A XV-a Conferinta Anuala a Societatii de Stiinte Matematice din Romania, Hunedoara, 29.09.2011 - 02.10.2011 (20 minute).
3. The Seventh International Conference Quantum Theory and Symmetries (QTS-7), Prague, Czech Republic, August 7-13, 2011 (poster).
4. The 10th International Workshop on Differential Geometry and its Applications, Ovidius University, Constanta, August 26-30, 2011 (poster; cu Bogdan P. Popovici).
5. The Energy and the Entropy of Hybrid Multi-Agent Systems, International Conference on Virtual Learning, Cluj-Napoca, 28-29 Octombrie 2011 (poster; cu Barna L. Iantovics).

Nitica Viorel - Separation results in max-plus algebra, SIAM Conference on Control and Its Applications (CT11), at the Hyatt Regency Baltimore, Baltimore, Maryland, USA, July 25-27, 2011

Ornea Liviu - Rezultate recente in geometria local conform Kaehler, Cagliari, martie 2011 (2x1 ora).

Panaite Florin

1. "Alternative twisted tensor products and Cayley algebras", in cadrul conferintei internationale "Nonassociative Algebras and Related Topics", Coimbra (Portugalia), iulie 2011
2. "Pseudosymmetric braided categories", in cadrul conferintei internationale "Algebra, Geometry and Mathematical Physics VII", Mulhouse (Franta), octombrie 2011

Pantilie Radu - On holomorphic maps and Generalized Complex Geometry, The Seventh Congress of Romanian Mathematicians, 29 iunie – 5 iulie, Braşov, România.

Papadima Stefan - In ianuarie-aprilie 2011, am continuat proiectele de cercetare comune cu co-autorul meu, Prof. Alex Suciu, in calitate de Visiting Professor la Northeastern University, SUA. In perioada 8-11 aprilie, am participat la Amer. Math. Soc. Workshop and Special Session on *The algebraic geometry and topology of hyperplane arrangements* (Boston-Worcester), cu conferinta *Germes of cohomology jump loci*.

Am prezentat conferinta *Diophantine geometry, representation theory and homology of the Johnson filtration*, la *Workshop on the topology of algebraic varieties* (Univ. de Nice, 25-27 mai 2011).

In cadrul LEA *French-Romanian workshop on complex geometry* (IMAR Bucuresti, 7-9 iulie 2011), am tinut conferinta *Arithmetic symmetry of cohomology jump loci*.

Pascu Mihai - On the structure of the elementary solution of the Laplacian on an analytic Riemannian manifold of even dimension, Universitatea Vasile Alecsandri din Bacau, 26 mai 2011

Pasol Vicentiu - Congresul International al matematicienilor romani, Brasov, 2011
ICTAMI, Alba Iulia, 2011

Pilca Mihaela Veronica - 29.08.2011, On Formal Riemannian Metrics, The 10th International Workshop on Differential Geometry and its Applications, Ovidius University, Constanta, Romania.

Polisevski Dan - Homogenizing the Darcy/Stokes coupling, la a 33-a editie a Conferintei "Caius Iacob" de Mecanica Fluidelor si aplicatiile ei tehnice, Bucureşti, 29-30.09.2011, www.incas.ro

Popa A. Alexandru - *Modular forms and period polynomials*, conferinta in cadrul Congresului al VII-lea al matematicienilor romania, Brasov, Iulie 2011

Popa Nicolae - A class of Schur multipliers on some quasi-Banach spaces of infinite matrices - FSDONA 2011 Tabarz Germany.

Popescu Dorin

- 1) Some results on depth and Stanley depth la Scoala de Algebra:Combinatorics in Commutative Algebra, Bucuresti, 19-23 Septembrie, 2011 si
- 2) New results on Stanley depth la Congresul 7 al Matematicienilor Romani, Brasov, iulie, 2011,
- 3) Artin approximation (5 conferinte) la Conferinta "Algebraic versus Analytic Geometry, Noiembrie 19-26, 2011 organizate la Institutul European Erwin Schroedinger din Viena.

Popescu Ionel

1. EU - NCG 4th Annual Meeting, Bucuresti, April 26, 2011
2. Young Researchers, Constanta, Mai 13
3. A Mini-Conference on Probability and Related Fields, Mai 24, Bucuresti, 2011
4. 5th International Conference on Stochastic Analysis and its Applications September 5-9, 2011

Prunescu Mihai - Am sustinut conferinta "Rekurrenente Doppelfolgen über endlichen Mengen" pe 18.02.2011 la Universitatea Bielefeld la invitatia grupului de cercetare "Spectral theory of aperiodic order" si pe 21.02.2011 la Freie Universität Berlin la invitatia grupului interdisciplinar "Embodied Information", in Facultatea de Filozofie a acestei universitati.

Purice Radu

1. *Decay of Eigenfunctions of Magnetic Hamiltonians*, conferință invitată la **Workshop on Mathematical Challenges of Quantum Transport in Nano-Optoelectronic Systems**, WIAS Berlin, 4 - 5 Februarie 2011.
2. *Structuri matematice in studiul observabilelor cuantice*, 8 Martie 2011, în cadrul Conferințelor lunare ale Facultății de Matematică și Informatică a Universității din București.
3. *Quantization in a magnetic field*, conferință invitată la **Microlocal Methods in Mathematical Physics and Global Analysis**, Tübingen, 14 - 18 Iunie 2011.

Raicu Claudiu - SIAM Conference on Applied Algebraic Geometry, Raleigh: *Secant Varieties of Segre-Veronese Varieties*.

Ramazan Birant - Am prezentat expunerea "Problems to Open the Math Appetite of Non-Mathematicians" la 15th Annual Spring Conference of California Mathematics Council, April 30, 2011, South Lake Tahoe.

Radulescu Vicentiu

1. *Variational principles and applications to multiple solutions of PDEs*, International Conference on Nonlinear Operators, Differential Equations and Applications (ICNODEA 2011), Cluj, July 5-8, 2011
2. *Qualitative analysis of some problems in the theory of non-Newtonian fluids*, Partial Differential Equations in Mathematical Physics and their Numerical Approximation, Levico Terme, Trento, Italy, September 4-9, 2011

3. *Proprietăți calitative ale soluțiilor unor probleme de valori proprii neliniare*, Seminarul Catedrei de Matematică, Universitatea Ovidius, Constanța, 21 Octombrie 2011
4. *Bifurcation phenomena associated to degenerate or singular elliptic equations*, Oxford PDE Seminar, University of Oxford, November 14, 2011

Rasdeaconu Rares

1. *Relative open Gromov-Witten theory*, Aprilie 2011, Oberwolfach Workshop, Germania, "Real enumerative questions in complex and tropical geometry", organizat de G. Mikhalkin, E. Shustin, J. Walcher, J.-Y. Welschinger;
2. *Relative open Gromov-Witten theory*, The Seventh Congress of Romanian Mathematicians, June 29 - July 5, 2011, Brașov, Romania, The Algebra, Algebraic, Complex and Differential Geometry and Topology Section.

Stavre Ruxandra - R. Stavre, Asymptotic analysis of the Stokes flow with variable viscosity in a thin elastic channel, "The 33rd Caius Iacob Conference on Fluid Mechanics and its Technical Applications", Bucharest, 29-30 September, 2011.

Tiba Dan - Univ. Jyväskylä, Finlanda, iunie 2011; BCAM, Bilbao, Spania, mai 2011; IFIP 2011, Berlin, Germania, sept. 2011

Timotin Dan

1. Expunere despre subspații contractiv incluse în spații Nevanlinna–Pick, la al șaptelea Congres al Matematicienilor Români, Brașov, iunie 2011.
2. Expunere despre imaginea numerică a contracțiilor de clasă $C_0(N)$, la conferința *International Workshop on Operator Theory and its Applications*, Sevilla, iulie 2011.

Torok Andrei

- *Dynamical Systems seminar*, UT Austin, Austin, April 2011
- *International Workshop on Global Dynamics Beyond Uniform Hyperbolicity*, CIRM Marseille, June 2011
- *The Seventh Congress of Romanian Mathematicians*, Brașov, Romania, July 2011
- *Workshop on Ergodic Theory and Dynamical Systems*, Warwick, July 2011

Ursu Vasile

1. Congresul al VII-lea al Matematicienilor Romani (29 iunie-5 iulie, 2011, Brasov);
2. Conferinta Internationala Loops - 2011 (25-27 iulie, 2011, Tverst, Czech Republic);
3. Conferinta Internationala MITRE 2011 (22-25 august, 2011, Chisinau);
4. Conferinta Internationala CAIM 2011 (22-25 septembrie, 2011, Iasi).

Valusescu Ilie

1. *Some geometrical aspects of the Γ -correlated processes*, Congresul Matematicienilor Romani, CMR-7, Brasov, 29.06-05.07.2011.
2. *On the Friedrichs angle between the past and the future of some Γ -correlated processes*, International Conference on Theory and Applications of Mathematics and Informatics, ICTAMI-2011, Alba Iulia, 21-24 iulie 2011.

Vilcu Costin - Am avut prezentări la: *The Seventh Congress of Romanian Mathematicians*, 29 Iunie - 5 Iulie 2011, Brasov *The 10-th International Workshop on Differential Geometry and its Applications*, 26-30 August 2011, Constanta.

Zamfirescu Tudor - Conferințe la Brașov (România), Mulhouse (Franța), Shijiazhuang (R.P. China), Puerto Vallarta (Mexic), Bandung (Indonezia).

8.7 Cursuri

Albu Toma - In semestrul II al anului universitar 2010-2011 am oredat cursul master intitulat "*Topics in Galois and Cogalois Theory*" la **Scoala Normala Superioara Bucuresti**.

8.7.1 Proiecte depuse

Ambro Florin - Am propus proiectul de cercetare *Inele log canonice*, acceptat de catre CNCS - UEFISCDI (proiect PN-II-RU-TE-2011-3-0097).

Cipu Mihai - Proiect *Analyse diophantienne dans l'étude des polynômes et des équations diophantiennes* acceptat de LEA Math-Mode.

David Liana - Am depus un proiect **Structuri hermitiene si cuaternionice pe varietati diferentiabile si aplicatii**, care a iesit castigator in competitia PCE 2011.

Diaconescu Razvan

1. PN-II-ID-PCE-2011-3-0439 (Metode de logică universală pentru informatică)
2. PN-II-ID-PCCE-2011-2-0025 (Logical Methods for Security Protocol Verification: foundations and methodologies)

Gologan Radu - Biological Signals Computer Aided Diagnosis System
la

Funding Applicationnnns for Joint Applied Research Projects, PN-II-PT-PCCA-2011-3 director de proiect)

Ichim Bogdan - Am depus proiectul TE cu titlul *High-performance Algorithms and Experimental Computations Associated with Commutative Algebra and Combinatorics*.

Ignat Liviu - Proiect IDEI, PN-II-ID-PCE-2011-3-0075, competitie 2011, suma totala = 1.500.000 RON

Ionescu-Kruse Delia - PN-II-RU-TE-2011-3-0162, intitulat *Mathematical modelling of water waves: geometric and analytic aspects*.

Moroianu Sergiu - Grant CNCS TE 2012-2014 (acceptat).

Ornea Liviu - Grant CNCS castigat: Locally conformally Kaehler and related structures (se va derula prin Univ. Bucuresti).

Pantilie Radu - Geometrie cuaternionică generalizată, propunere de proiect depusă la cncs.

Polisevski Dan - Particip la proiectul "Doctoratul in stiinte fundamentale - inceputul unei cariere de varf in cercetare", in calitate de conducator de doctorat

Popescu Ionel - CNSC PN-II-RU-TE-2011-3-0259 "Randomness, Geometric Problems and Functional Inequalities "

Rasdeaconu Rares - În noiembrie 2011, am propus proiectul cu titlul "*Real symplectic geometry: enumerative invariants and smooth topology in low dimensions*" pentru un grant NSF.

Stanica Pantelimon

- AFOSR Research Grant
- Singapore TL@NUS

Tiba Dan - Grant CNCS pe perioada 2012-2014 (obtinut)

Timofte Vlad - Proiectul "*Differentiation and implicit functions in topological vector spaces, and applications*", propus in cadrul programului IDEI-PCE 2011 (nu a fost aprobat pentru finantare).

Valusescu Ilie - Proiect de grant UEFISCDI nr. PN-II-ID-PCE-2011-3-0119.

Vilcu Costin - PN-II-ID-PCE-2011-3-0592: VILCU Costin: *Contributions to the geometry of polyhedra*, 82.33 puncte, pe lista de rezervă.

Zamfirescu Tudor - grantul PN-II-ID-PCE-2011-3-0533

8.7.2 Premii

Stavre Ruxandra - În decembrie 2010 am luat Premiul "Spiru Haret" al Academiei Române.

8.7.3 Visiting

Brinzanescu Vasile - Profesor invitat in lunile mai-iunie (2 luni), 2011, la ICTP Trieste, Italia.

Matei Daniel - In perioada octombrie-decembrie am vizitat Universitatea din Zaragoza, Spania, finantat de o bursa de cercetare a guvernului provinciei Aragon.

Moroianu Sergiu

1. Profesor Invitat CNRS la Ecole Polytechnique, Franta, 1/4/11-30/6/11, finantat de LEA MathMode;
2. Invitat la IHES, Bures-sur-Yvette, 1/12/10-31/3/11.

Ornea Liviu - Universitatea din Cagliari (Italia), 14.03-14.04.2011.

8.7.4 Membru în echipe de grant

Brinzanescu Vasile - Membru intr-un proiect depus la IDEI 2011, castigat pentru perioada 2011-2014.

Cheptea Dorin - Am participat în grantul PN-II-1188 condus de Sergiu Moroianu. (În 2011, m-am ocupat în întregime de partea sa organizatorica.)

Moroianu Sergiu - Membru in echipa grantului PNII-ID-1187 (Liana David).

Ornea Liviu - GRant 529/2009, director Radu Pantilie, IMAR.

Pilca Mihaela Veronica - In timpul anului 2011 am fost membru in cadrul echipei grantului CNCSIS PNII IDEI 529/2009.

Vilcu Costin - Membru in echipa de cercetare a grantului PN II IDEI 1187/2008 (Director de grant L. David).