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Name: Dinca Gheorghe Ioan
Address: University of Bucharest, Faculty of Mathematics and Computer Science, Str. Academiei 14, 010014 Bucharest, Romania
E-mail address: dinca2003@yahoo.fr

Education
1964 - Diploma in Mathematics (solid mechanics) University of Bucharest, Title of diploma: **Rapid deformation of extensible membranes**. Advisor: Professor Nicolae Cristescu
1969 (December) - Ph.D. in Mathematics, University of Bucharest, Title of Ph.D. Thesis: **Monotone operators in the theory of plasticity**. Advisor: Professor Nicolae Cristescu.

Known languages: French, English, Russian

Employment:
1964-1967, Research Fellow, Faculty of Mathematics, University of Bucharest
1967-1970, Assistant Professor
1970-1973, Senior Lecturer
1973-1990, Associate Professor
since 1990, Professor

Field of interest:
- nonlinear analysis (variational methods, monotonicity, convex analysis, topological degree, bifurcation theory)
- P D E
- mechanics

Scientific Activities:

I. Conference and Lecture series held abroad.
Participation at international scientific events (a selective list):

- **1970**
  - The Session of the Udine International Center of Mechanical Sciences
  - Conference at the University of Pisa
- **1971**
  - The Session of the Udine International Center of Mechanical Sciences
  - The Conference of the Italian Society for Theoretical and Applied Mechanics
  - Participation in the Conference on "Existence and Stability in Elasticity" organized by G. Fichera and C. Truesdell (Udine). Among the participants: W. Noll, M. E. Gurtin, T. W. Ting, C. Dafermos, C. C. Wang.
  - Conference at the University of Pisa
- **1972**
  - A series of lectures at the ENEL (CRIS) Milano (The lectures were subsequently published as a monograph under the title "Méthodes variationelles et méthodes numériques", Milano, 1975)
- **1973**
  - Member of the International Jury of the Second Balkan Competition for Young Researches (Athens)
  - The International Congress of the Bulgarian Mathematicians (I presented a one hour's conference)
- **1977**
  - Conferences at the Johns Hopkins University (invited by C.Truesdell) and Brown University (U.S.A) (invited by C.Dafermos)
- **1980**
  - Guest Professor at the International Summer School in Thessaloniki (Greece), offering a series of lectures
- **1983**
  - Participation in the International Congress of Mathematicians (Warsaw)
- **1990**
  - Conference at the University of Udine
- **1991**
  - Conference at the University of Pisa, Trieste, Udine (Italy), the Free University of Bruxelles and the Catholic University of Louvain (Belgium), the University of Thessaloniki (Greece)
  - Participation in the Conference "Models of Hysteresis" (Trento) (I presented a one hour's conference). Among the participants: M.A.Krasnoselskii.
  - Invited Professor at the Catholic University of Louvain
- **1992**
  - Conferences at the Universities of Lisbon, Evora, Coinbra (Portugal), Ferrara (Italy)
  - Invited Professor at the University of Lisbon
  - Invited Professor at the University of Ferrara (Institute of Engineering)
- **1993**
  - Invited Professor at the Catholic University of Louvain to deliver the course "Topological degree and applications"
- **1994**

- Invited Professor at the University of Ferrara
- Conferences at the Universities of Pisa, Udine, Trento
- Conference at the University Paris VI (in the framework of the seminar "Pure and Applied Mathematics")

- **1995**
  - Invited Professor at the Aristotle University of Thessaloniki
  - Member of the Jury of a Ph.D. thesis in Applied Mathematics at the University Paris VI. Advisor: H.Brezis.
- **1996**
  - Invited Professor at the Aristotle University of Thessaloniki
- **1997**
  - Invited Professor at the University of Ferrara
- **1998**
  - Invited professor at the Universities of Ferrara and Salonique
  - Conferences at the Universities of Udine and Brescia
- **1999**
  - Invited professor at the Catholic University of Louvain and Paris VI
  - Invited main speaker at the International Conference on Partial Differential Equations, Fez, Maroc. Among the others invited main speakers: A.Ambrosetti, L.Boccardo, J.P.Gossez, L.Véron.
- **2000**
  - Invited professor at the Catholic University of Louvain and Paris VI
  - Conferences at the Catholic University of Louvain, Free University of Bruxelles, University of Limoges.
  - Invited professor at the Central Doctoral School of Paris, assuring the course: "Brouwer's degree and applications"
- **2001**
  - Invited professor at the University Paris VI and the University of Saint Denis (La Reunion). Title of the course assured at the University of Saint-Denis: "Special topics in non-linear analysis"
- **2002**
  - Invited professor at the University Paris VI
  - Invited professor at the Central Doctoral School of Paris assuring the course "Leray-Schauder's degree and applications"
  - Invited professor at the University of Saint-Denis (La Reunion). Title of the course assured at the University of Saint-Denis: "Brouwer's degree and existence of periodic solutions for non-linear differential equations"
  - Invited speaker at the "International Conference on Non-linear Partial Differential Equations", August 29 - September 2, City University of Hong Kong. Among the participants: L.Nirenberg, Ph.G.Ciarlet, C.Dafermos, John Ball, B.Dacorogna.
  - Plenary speaker at the sixth french-romanian Colloquium on Applied Mathematics, 2-7 September, University of Perpignan
  - Member of the Jury of a Ph.D. thesis in Applied Mathematics at the University of Saint-Denis (La Reunion). Advisor: D.Goeleven
- **2003**
  - Invited professor at the University Paris VI
  - Invited professor at the University of Saint-Denis (La Reunion)
  - Conference on "Nonlinear Partial Differential Equations" - September 15-21, Alushta, Crimea, Ukraine (main speaker)

- Invited professor at the Institute of Mathematics and Physics, Chinese Academy of Sciences, Wuhan.

- **2004**
  - Main speaker at the International Conference on Nonlinear Analysis and Operator Equations, August, University of Cluj-Napoca, Romania
  - Plenary Speaker at the seventh french-romanian Colloquium on Applied Mathematics, September, University of Craiova, Romania
  - Invited Professor at the Catholic University of Louvain (Belgium)
- **2005**
  - Invited Professor at the University of Saint-Denis (France, La Reunion)
  - Member of the Jury of a Ph.D. thesis in Applied Mathematics at the University Paris XI (Orsay). Advisor: R. Temam.
  - Invited Professor at the City University of Hong Kong
- **2006**
  - Visiting professor at the Catholic University of Louvain (Belgium)
  - Member of the Jury of a Ph.D. thesis in Mathematics at the Catholic University of Louvain (Belgium). Advisor: J.Mawhin
- **2007**
  - Visiting professor at the University "Pierre et Marie Curie" (Paris VI) (France)
  - Visiting professor at the University of Saint-Denis (France, La Reunion)
- **2008**
  - Visiting professor at the City University of Hong Kong
  - International Conference on Partial Differential Equations and Applications in honour of Professor P.G.Ciarlet (invited speaker)
  - 9th French-Romanian Colloquium on Applied Mathematics, member of Scientific Committee

II. Significant References to the author's results:

G.Duvaut and J.L.Lions - Les inéquations en mécanique et en physique, Dunod, 1972, [9].
J.J.Moreau - Applications of Convex Analysis to the Treatment of Elastoplastic Systems, Lecture Notes in Mathematics, 503, 1976, [9], [11].
F. Léné - Journal de Mécanique, 1974, pp. 500-534, [9].
J.Necas - Theory of locally monotone operators modelled on the finite displacement theory of hyperelasticity, Beitrage zur Analysis, 8, Berlin, 1976. [11]
T.W.Ting - Topics in the Mathematical Theory of Plasticity, Handbuch der Physik, Band IV/3, pp.535-590, [11].
K.Maurin - Calculus of Variations and Classical Field Theory, Aarhus University, 1972, [11].
V.M.Filippov - Variational Methods for Nonpotential Operators, AMS, 1990, [21].
I.V.Sripnik - Elliptic equations of high order, Kiev, 1971, (AMS translation), [9], [12].
Ph.Clément, M.Garcia-Huidobro, R.Manasevich, K. Schmitt - Mountain pass type solutions for quasilinear elliptic equations, Calc. Var. 11 (2000), 33-62, [40]

III. A selective list of papers and books

Papers

1. Sur la déformation plane du corps plastique (utilisation de variables complexes), Rev. Roum. Math. Pures et Appl., t.X, No.5 (1965), 645-651.
2. Rapid déformation of extensible membranes (romanian), Studii Cerc. Mat., No.5, t.17, (1965), 817-825.
3. Asupra miscarii unui punct material intr-un mediu rezistent sub actiunea a n forte centrale, Analele Universitatii Bucuresti, Anul XIV, No.2 (1965), 34-40.
4. Shock waves in extensible strings (romanian), Anal. Univ. Bucharest, XV, No.1 (1966), 65-73, (jointly with N.Cristescu and I.Suliciu).
5. The influence of the temperature on wave propagations in elastic strings (romanian), Studii Cerc. Mat., t.19, No.5 (1967), 659-690.
6. Grandes deformations des files élastiques (le problème thérmique couplé), Annali della Scuola Normale Superiore di Pisa, Fasc.I, Serie III, vol.XXVII (1968), 41-64.
7. Sur l'existence et l'unicité des solutions généralisée dans la mécanique des fils élasto-plastique, C.R.Acad. Sci., Paris, t.269 (1969), 148-150.
8. Sur l'existence et l'unicité des solutions généralisée dans la théorie du fluage non-linéaire, stationaire et isotrope, C.R.Acad. Sci., Paris, t.269 (1969), 323-325.
9. Sur la monotonie d'après Minty-Browder de l'operateur de la théorie de plasticité, C.R.Acad. Sci., Paris, t.269 (1969), 535-538.
10. Réalisation numérique d'une méthode variationnelle pour la fonctionnelle de la théorie de la plasticité, C.R.Acad. Sci., Paris, t.269 (1969), 1139-1142.
11. Opérateurs monotones dans la théorie de la plasticité, Annali della Scuola Normale Superiore di Pisa, Fasc.III, vol.XXIV (1970), 357-399.
12. Monotone operators in the theory of plasticity (romanian), Studii Cerc. Mat., t.22, No.5 (1970), 701-755.
13. On the existence and uniqueness of generalized solutions in the theory of nonlinear steady creep, Journal of Math. and Phys. Sci., vol.5 (1970), 336-344.
14. Sur un résultat de Langenbach concernant l'éxistence et l'unicité de la solution du probléme de torsion dans la théorie de Hencky, Rev. Roum. Math. Pures Appl., No.2 (1973), 225-231.
15. Contributions a l'Etude des processus de relaxation pour les fonctionnelle-convexes sur les espaces de Banach, Bull. Soc. Math., t.19 (67), 3-4 (1975), 241-267.
16. Propriétés métriques du gradient de la norme au sens de Golomb-Tapia, C.R.Acad. Sci., Paris, 282 (1976), 623-625.
17. Une méthode variationnelle pour l'étude des opérateur non-linéaires a différentielle K-positivement définis, C.R.Acad. Sci., Paris, 286 (1978), 25-28, (jointly with I.Rosca).
18. Remarque sur une méthode de contraction a minimiser les fonctionelles convexes sur les espaces de Hilbert, Bull. Soc. Math., t.23 (71), No.3 (1979), 227-229, (jointly with D.Blebea).
19. A Kerner-Vainberg theory for nonlinear operators having a K-positive definite differential, Rev. Roum. Math. Pures Appl., t.XXV, No.4 (1980), 543-572, (jointly with I.Rosca).
20. Un résultat concernant la structure des opérateurs linéaires et K-positivement définis au sens de Martyniuk-Petryshyn, C.R.Acad. Sci., Paris, t.294 (1982), 293-296, (jointly with D.Mateescu).
21. On the structure of linear and K-positive definite operators, Rev Roum. Math. Pures Appl., No.5 (1982), (jointly with D.Mateescu).
22. A variational method for multivalued operator equations, Rev. Roum. Math. Pures Appl., 29 (1984), 839-846.
23. Sur un théoreme variationell de Langenbach, Math. Nachr., 120 (1985), 7-11.
24. Problémes variationelles bien posés, Rev. Roum. Math. Pures Appl., 30 (1985), 23-27, (jointly with D.Mateescu).

25. A variational method for multivalued operator equations and some applications to mechanics, Math. Nachr., 134 (1987), 273-287.
26. Well posed variational problems and Friedrichs extensions, Math. Nachr, 1990, 277-291, (jointly with D.Mateescu).
27. On the regularity of the solution of a climatization problem in the torsion of cylindrical rods in the Hencky theory by using the Orlicz-Sobolev spaces, St. Cerc. Mat., No.5 (1990), 419-425, (jointly with P.Matei).
28. Friedrichs type extension theorems for multivalued operators, Académie Royale de Belgique, Bulletin de la Classe de Sciences, 1-3 (1991), 105-121, (jointly with D.Mateescu).
29. Friedrichs type extension theorems for multivalued operators, Pitman Research Notes in Mathematics Series, 250, 69-89, (jointly with D.Mateescu).
30. A regularity result for a minimum problem in Orlicz-Sobolev spaces with applications in the study of the Dirichlet problem for the operator of Hencky-Nadai theory, University of Lisbon, No. 2/1992 (jointly with P.Matei).
31. A regularity result for a minimum problem in Orlicz-Sobolev spaces with applications in the study of the Dirichlet problem for the operator of Hencky theory, Applicable Analysis, vol.48 (1993), 223-261, (jointly with P.Matei).
32. Multiple solutions of boundary value problems: an elementary approach via the shooting method, Nonlinear Differential Equations and Applications, 1 (1994), 163-178, (jointly with L.Sanchez).
33. Coercive and semicoercive hemivariational inequalities on convex sets, Vestnik RUDN, ser. Matematika, 1995, No.2, 96-110, (jointly with P.D.Panagiotopoulos and G.Pop).
34. A variational method for a nonlinear Sturm-Liouville problem, Applicable Analysis, Vol.58 (1995), 101-121, (jointly with P.Matei).
35. Inégalités hémi-variationnelles semi-coercives sur des ensembles convexes, C.R.Acad. Sci. Paris, t.320, 1183-1186, 1995, (jointly with P.D.Panagiotopoulos and G.Pop).
36. An Ambrosetti-Rabinowitz type result for the p-Laplacian, in "Qualitative Aspects in Differential Equations and Control", C.Corduneanu Editor, World Scientific, Singapore 1995, (jointly with P.Jebelean and J.Mawhin).
37. Radial solutions for a nonlinear problem with p-Laplacian, Differential and Integral Equations, Vol.9, Nr.5, 1996, 1139-1146, (jointly with P.Jebelean).
38. An Existence Result on Noncoercive Hemivariational Inequalities, Ann. Fac. Sc. Toulouse (jointly with P.D.Panagiotopoulos and G.Pop), 1997, vol.VI, no 4, 609-632.
39. Une methode de point fixe pour le p-Laplacien, C.R.Acad. Sci. Paris, t.234, 165-168, 1997, (jointly with P.Jebelean).
40. Quelques résultats d'existence pour les applications de dualité (avec P.Jebelean), C.R. Acad. Sct. Paris, t.329, 1999, 125-128.
41. Periodic Solution of Superlinear Convex Autonomous Hamiltonian Systems (jointly with D.Pasca), Journal of Global Optimization, vol.17 (2000), No.1/4, 65-75.
42. Existence results for variational-hemivariational inequalities: a F.E.Browder technique (jointly with G.Pop), in "From Convexity to Nonconvexity", R.P.Gilbert Editor, Kluwer 2001, 233-241.
43. Sur la - homogéneité et la continuité par rapport à ϕ de l'application de dualité Jϕ, (jointly with Jean Mawhin), Bulletin de l'Académie Royale de Belgique, Classe des Sciences, 6(12), 2001, 75-80.
44. Existence Theorems for Hamiltonian Systems and Second Order Systems in Hilbert Spaces (jointly with D.Pasca), Differential and Integral Equations Differential and Integral Equations, vol.14, Number 4 (2001), 405-426.
45. Variational and Topological Methods for Dirichlet Problems with p-Laplacian (jointly with

P.Jebelean and J.Mawhin), Portugaliae Mathematica, vol.58 (2001), No.3, 339-378.

46. Some existence results for a class of non-linear equations involving a duality mapping (jointly with P.Jebelean), Nonlinear Analysis, TMA, vol.46, No 3 (2001), 347-363.
47. Valeurs moyennes pour fonctions convexificatrices (with J.Cranganu), C.R.Acad. Sci., Paris, t.333, Série I, p.161-163, 2001.
48. A Fredholm - type result for a couple of nonlinear operators, C.R.Acad. Sci. Paris, t.333, Série I, p.415-419, 2001.
49. Boundary-value Problems for the Operator of Hencky-Nadai Theory in Orlicz-Sobolev Spaces (jointly with P.Matei), Applicable Analysis, vol.79, 111-135, 2001.
50. Existence and Approximation for a General Class of Differential Inclusions (jointly with P.Jebelean and D.Motreanu), Houston Journal of Mathematics, University of Houston, Vol.28, No.1, 2002.
51. Existence Results for General Inequality Problems with Constrains (with P.Jebelean and D.Motreanu) Abstract and Applied Analysis, 10 (2003), 601-619.
52. Duality mappings on infinite dimensional reflexive and smooth Banach spaces are not compact, Bull. Acad. Royale Belgique, Classe des Sciences, 6(XV), 2004, 33-40.
53. An eigenvalue problem for a class of nonlinear elliptic operators (jointly with P.Matei), Analysis and Applications, Vol.3, No.1 (2005), 27-44.
54. Duality mappings and the existence of periodic solutions for non-autonomous second order systems (with Daniel Goeleven and Daniel Pasca), Portugaliae Mathematica, vol.63 (2006), fasc.1, 47-68.
55. Periodic solutions for evolution complementarity systems: a method of guiding functions (jointly with D.Goeleven), Topological Methods in Nonlinear Analysis, Vol.27, 2006, 255-267.
56. Variational and topological methods for operator equations involving duality mappings on Orlicz-Sobolev spaces (with P.Matei), Electronic Journal of Differential Equations, Vol.2007(2007), No.93, 1-47
57. Apriori estmates for the vector p-Laplacian with potential boundary conditions (with P.Jebelean), Archiv der Mathematik 90 (2008), 60-69.
58. Multiple solutions for a class of nonlinear equations involving a duality mapping (with J.Cringanu), Diff. Int. Equations, Volume 21, Numbers 3-4, 2008, 265-284.
59. Multiple solution for operator equations involving a duality mapping on Orlicz-Sobolev spaces (with P.Matei), Diff. Int. Equations, Volume 21, Numbers 9-10, 2008, 891-916.
60. On the structure of the solution set for a class of nonlinear equations involving a duality mapping (jointly with M.Rochdi), Topological Methods in Nonlinear Analysis, Vol.31, No.1 (2008), 29-49.
61. Multiple solution for operator equations involving duality mappings on Orlicz-Sobolev spaces via the Mountain Pass theorem (with P.Matei), Rev. Roum. Math. Pures et Appl., 53 (2008), 5-6, 419-437.
62. Generalized Pohoszaev identity and a non-existence result for p-Laplacian: weak solutions (with F.Isaia), Advances in Diff. Equations, Vol.14, Numbers 5-6 (2009), 497-540.
63. Some existence results for operator equations involving duality mappings on Sobolev spaces with variable exponent, Diff. and Integral Equations (accepted).
64. A remark on the existence of a triangle with prescribed angle bisector lengths (with Jean Mawhin), Bull. Belg. Math. Soc. Simon Stevin (accepted).
65. Infinitely many solutions for operator equations involving duality mappings on Orlicz-Sobolev spaces (with P.Matei), Topological Methods in Nonlinear Analysis (accepted).
66. Geometry of Sobolev spaces with variable exponent and a generalization of the p-Laplacian (with P.Matei), Analysis and Applications (accepted).

67. Geometry of Sobolev spaces with variable exponent: smoothness and uniform convexity, C.R. Acad. Sci. Paris (accepted) (with P.Matei).
68. A fixed point method for the p-Laplacian, C.R. Acad. Sci. Paris (submitted).

Books

1. Monotone operators in the theory of plasticity, Romanian Academy, Bucharest, 1972, 370 p. (Romanian).
2. Methodes variationnelles et methodes numeriques, ENEL, Milano, 1975, 105 p.
3. Variational methods and applications, Tech. Publ. House, Bucharest, 1980, 650 p. (Romanian).
4. Brouwer degree and the coincidence degree, Paris 2000, 150p., Publications of the Laboratory of Numerical Analysis, University Paris VI.
5. Brouwer degree and applications, in preparation, (jointly with Jean Mawhin).

Honours

- **1970** - The prize of the International Center for Mechanical Sciences (CISM), Udine (Italy)
- **1971** - The special prize for applied mathematics of the Balkan Union of Mathematicians
- **1980** - The prize of the Romanian Academy
- **1999** - Docteur Honoris Causa de l'Universite Pierre et Marie Curie (Sorbonne)
- **1999** - Honorary Professor of the University Transilvania of Brasov
- **2003** - Doctor Honoris Causa of the University of Craiova
- **2005** - Doctor Honoris Causa of the University "Ovidius" of Constanta
- Member of the Editorial Board of the "Communications on Applied Nonlinear Analysis"
- Among the honorary editors: Haim Brezis, Avner Friedman, Pierre-L.Lions, Paul A.Samuelson, Eberhard Zeidler
- Among the editors: Antonio Ambrosetti, Thomas Bartsch, Henri Berestycki, C.Dafermos, D.G. de Figueiredo, Jean Mawhin, M.Z.Nashed
- Member of the Editorial Board of the "Advances in Nonlinear Variational Inequalities"

Updated on 27th March 2009