Curriculum Vitae - CS I dr. habil. Ruxandra Marina Stavre

Poziția actuală: Crecetător științific gr. I, Institutul de Matematică "Simion Stoilow" al Academiei Române

Domenii de cercetare: probleme cu frontieră liberă, metode variaționale în mecanica mediilor continue, control optimal pentru probleme de mecanica mediilor continue, metode asimptotice, probleme de interacțiune fluid-structură elastică

Educație și formare:

1973-1977 Liceul Teoretic „George Coșbuc", București, șefă de promoție

1977-1982 Facultatea de Matematică și Mecanică, Universitatea București, Secția Matematică-Mecanică, diplomă Magna cum Laudae, medie absolvire 9,95

1990 titlul de doctor în matematici la Universitatea București, conducător științific: prof. dr. Horia Ene, titlul tezei: Probleme cu frontieră liberă în mecanica fluidelor

ianuarie-iulie 1995 bursă postdoctorală Tempra, Universitatea Jean Monnet, Saint-Etienne, Franța

2019 susținerea tezei de abilitare la Academia Română, SCOSAAR, titlul tezei: Control optimal, metode variaționale și asimptotice pentru studiul unor probleme din lumea reală

2019 conducător de doctorat la SCOSAAR

Activitate profesională:

1983-1990 matematician și cercetător științific la Institutul Național pentru Creație Științifică și Tehnică (INCREST), Secția de Matematică, București

1990-1997 cercetător științific gr. III, Institutul de Matematică "Simion Stoilow" al Academiei Române

1997-2002 cercetător științific gr. II, Institutul de Matematică "Simion Stoilow" al Academiei Române

2002-prezent cercetător științific gr. I, Institutul de Matematică "Simion Stoilow" al Academiei Române

1983-1992 am ținut cursuri și seminarii la Facultatea de Matematică, Universitatea București

Distincții

Premiul „Spiru Haret" al Academiei Române, 2010 (pentru anul 2008)

Lucrări ştiinţifice

Cărţi şi capitole în cărţi

1. Grigory P. Panasenko, Ruxandra Stavre: *Well posedness and asymptotic expansion of solution of Stokes equation set in a thin cylindrical elastic tube*, **Around the Research of Vladimir Maz'ya II/International Mathematical Series, Volume 12**, editor: Ari Laptev, Springer (2010), pag. 275—301, ISBN: 978-1-4419-1342-5.

2. R. Stavre, *Optimization of a nonstationary flow in a magnetic field*, **Current Topics in Continuum Mechanics, vol. III**, general editor Lazar Dragos, Editura Academiei Române (2006), pag. 181--211, ISBN 978-973-27-1348-8.

Articole/studii in extenso publicate în reviste indexate ISI cu factor de impact

3. R. Stavre, A. Ciorogar, *Influence of a given field of temperature on the blood pressure variation: variational analysis, numerical algorithms and simulations,* **Axioms 14** (2025), Article number: 88.

4. G. Panasenko, L. Paoli, R. Stavre, *Micropolar fluid-thin elastic structure interaction: variational analysis,* **Mathematical Modelling and Analysis 29** (2024), pag. 641 – 668

5. G. Panasenko, R. Stavre, *Asymptotic solution for a visco-elastic thin plate: quasistatic and dynamic cases,* **Mathematics 11** (2023), Article number: 2847.

6. A. Ciorogar, R. Stavre, *A thermal fluid-structure interaction problem: modeling, variational and numerical analysis*, **Journal of Mathematical Fluid Mechanics 25** (2023), Article number: 37.

7. J. Orlik, G. Panasenko, R. Stavre, *Asymptotic analysis of a viscous fluid layer separated by a thin stiff stratified elastic plate*, **Applicable Analysis 100** (2021), pag. 589 – 629.

8. G.P. Panasenko, R. Stavre, *Three Dimensional Asymptotic Analysis of an Axi-symmetric Flow in a Thin Tube with Thin Stiff Elastic Wall*, **Journal of Mathematical Fluid Mechanics 22** (2020), Article number: 20.

9. R. Stavre, *Optimization of the blood pressure with the control in coefficients*, **Evolution Equations and Control Theory 9** (2020), pag. 131 – 151.

10. G.P. Panasenko, R. Stavre, *Viscous Fluid-Thin Elastic Plate Interaction: Asymptotic Analysis with Respect to the Rigidity and Density of the Plate*, **Applied Mathematics and Optimization 81** (2020), pag. 141 – 194.

11. G.P. Panasenko, R. Stavre, *Viscous fluid-thin cylindrical elastic body interaction: asymptotic analysis on contrasting properties*, **Applicable Analysis 98** (2019), pag 162 – 216.

12. R. Stavre, *A boundary control problem for the blood flow in venous insufficiency. The general case*, **Nonlinear Analysis-Real World Applications 29** (2016), pag. 98 – 116.

13. I. Malakhova-Ziablova, G. Panasenko, R. Stavre, *Asymptotic analysis of a thin rigid stratified elastic plate - viscous fluid interaction problem*, **Applicable Analysis 95** (2016), pag 1467 – 1506.

14. R. Stavre, *A distributed control problem for two coupled fluids in a porous medium*, **SIAM Journal on Control and Optimization (SICON) 53** (2015), pag. 313 – 335.

15. G. Panasenko, R. Stavre, *Asymptotic analysis for the Kelvin-Voigt model for a thin laminate*, **Comptes Rendus Mécanique 343** (2015), pag. 365 – 370.

16. G.P. Panasenko, R. Stavre, *Asymptotic analysis of a viscous fluid-thin plate interaction: Periodic flow*, **Mathematical Models & Methods in Applied Sciences 24** (2014), pag. 1781 – 1822.

17. G.P. Panasenko, R. Stavre, *Viscous fluid-thin cylindrical elastic layer interaction: asymptotic analysis*, **Applicable Analysis 93** (2014), pag. 2032 – 2056.

18. G.P. Panasenko, R. Stavre, *Asymptotic analysis of a viscous fluid-thin plate interaction: Periodic flow*, **Comptes Rendus Mécanique 340** (2012), pag. 590 – 595.

19. R. Fares, G.P. Panasenko, R. Stavre, *A Viscous Fluid Flow through a Thin Channel with Mixed Rigid-Elastic Boundary: Variational and Asymptotic Analysis*, **Abstract and Applied Analysis** (2012), Article Number: 152743.

20. G.P. Panasenko, R. Stavre, *Asymptotic analysis of the Stokes flow in a thin cylindrical elastic tube*, **Applicable Analysis 91** (2012), pag. 1999 – 2027.

21. A. Capatina, H. Ene, G. Pasa, D. Polisevski, R. Stavre, *Variational approach and optimal control of a PEM fuel cell*, **Nonlinear Analysis-Theory Methods&Applications 74** (2011), pag. 3242 – 3260.

22. G. Panasenko, R. Stavre, *Asymptotic Analysis of the Stokes flow with variable viscosity in a thin elastic channel*, **Networks and Heterogeneous Media 5** (2010), pag. 783 – 812.

23. A. Capatana, H. Ene, D. Polisevschi, R. Stavre, *Parametric study of fluid dynamics in PEM fuel cells*, **Proceedings of the Romanian Academy Series A-Mathematics Physics Technical Sciences Information Science 10** (2009), pag. 101 – 109.

24. A. Capatina, H. Ene, G. Pasa, D. Polisevski, R. Stavre, *Mathematical Model for the PEM fuel cells using Sulfuretted Hydrogen*, **Mathematical Reports 11**, (2009), pag. 1 – 10.

25. D. Dupuy, G.P. Panasenko, R. Stavre, *Asymptotic solution for a micropolar flow in a curvilinear channel*, **Zeitschrift fur Angewandte Mathematik und Mechanik (ZAMM) 88** (2008), pag. 793 – 807.

26. Grigory Panasenko, Ruxandra Stavre, *Asymptotic analysis of a non-periodic flow in a thin channel with visco-elastic wall*, **Networks and Heterogeneous Media 3** (2008), pag. 651 – 673.
27. A. Capatina, H. Ene, G. Pasa, D. Polisevski, R. Stavre, *Optimal Relations between the parameters of a P.E.M. fuel cell*, **Mathematical Reports 10** (2008), pag. 299 – 308.

28. G.P. Panasenko, Y. Sirakov, R. Stavre, *Asymptotic and numerical modeling of a flow in a thin channel with viscoelastic wall*, **International Journal of Multiscale Computational Engineering 5** (2007), pag. 473 – 482.

29. G.P. Panasenko, R. Stavre, *Asymptotic analysis of a periodic flow in a thin channel with visco-elastic wall*, **Journal de Mathématiques Pures et Appliquées 85** (2006), pag. 558 – 579.

30. D. Dupuy, G.P. Panasenko, R. Stavre, *Asymptotic methods for micropolar fluids in a tube structure*, **Mathematical Models & Methods in Applied Sciences 14** (2004), pag. 735 – 758.

31. D. Dupuy, G.P. Panasenko, R. Stavre, *Asymptotic analysis for micropolar fluids*, **Comptes Rendus Mécanique 332** (2004), pag. 31 –36.

32. D. Dupuy, G.P. Panasenko, R. Stavre, *Multiscale Modeling for Micropolar Flow in a Structure with One Bundle of Tubes*, **International Journal of Multiscale Computational Engineering 2** (2004), pag 461 – 475.

33. R. Stavre, *Optimization and numerical approximation for micropolar fluids*, **Numerical Functional Analysis and Optimization 24** (2003), pag. 223 – 241.

34. R. Stavre, *The control of the pressure for a micropolar fluid*, **Zeitschrift fur Angewandte Mathematik und Physik (ZAMP) 53** (2002), pag. 912 – 922.

35. R. Stavre, *Distributed control of a heat conducting, time-dependent, Navier-Stokes fluid*, **Glasgow Mathematical Journal 44** (2002), pag. 191 – 200.

36. A. Capatina, R. Stavre, *Algorithms and convergence results for an inverse problem in heat propagation*, **International Journal of Engineering Science 38** (2000), pag. 575 –587.

37. R. Stavre, *Analysis and finite element approximation of a control model for the dam problem*, **Mathematical Reports 1(51)** (1999), pag. 289 – 304.

38. A. Capatina, R. Stavre, *A control problem in biconvective flow*, **Journal of Mathematics of Kyoto University 37** (1997), pag. 585 – 595.

39. A. Capatina, R. Stavre, *Numerical analysis of a control problem in heat conducting Navier-Stokes fluid*, **International Journal of Engineering Science 34** (1996), pag. 1467 – 1476.

40. A. Capatina, R. Stavre, *Optimal control of a non isothermal Navier-Stokes flow*, **International Journal of Engineering Science 34** (1996), pag. 59 – 66.

41. R. Stavre, *Study of a jet incident on a porous wall in a gravity field*, **IMA Journal of Applied Mathematics 52** (1994), pag. 93 – 103.
42. R. Stavre, *On a free boundary problem in fluid mechanics*, **European Journal of Mechanics B-Fluids 10** (1991), pag. 75 – 95.

43. R. Stavre, B. Vernescu, *Free-boundary properties in non-homogeneous porous-media fluid-flow*, **International Journal of Engineering Science 27** (1989), pag. 399 – 409.

44. R. Stavre, B. Vernescu, *The free boundary problem for the anisotropic dam*, **Archives of Mechanics 40** (1988), pag. 455 – 463.

45. R. Stavre, B. Vernescu, *Incompressible fluid-flow through a non-homogeneous and anisotropic dam*, **Nonlinear Analysis-Theory Methods & Applications 9** (1985), pag. 799 – 810.

46. R. Stavre-Stăncescu, *The flow of a fluid through a porous medium with variable permeability*, **Bulletin Mathématique de la Societé des Sciences Mathématiques de Roumanie 28(76)** (1984), pag. 169 – 179.

Articole/studii in extenso, publicate în reviste sau conferinţe indexate ISI (fără factor de impact);

47. R. Stavre, *Optimal control of non stationary, three dimensional micropolar flows*, Conference: International Working Conference on Analysis and Optimization of Differential Systems, **ANALYSIS AND OPTIMIZATION OF DIFFERENTIAL SYSTEMS Book Series: International Federation for Information Processing** (2003) **121** pag. 399 – 408, Constanța, sep. 10 – 14, 2002.

48. R. Stavre, *The impact of a jet with two fluids on a porous wall*, Conference: 1st Franco-Romanian Conference on Optimization, Optimal Control and Partial Differential Equations, **OPTIMIZATION, OPTIMAL CONTROL AND PARTIAL DIFFERENTIAL EQUATIONS Book Series: International Series of Numerical Mathematics 107**, pag. 11 – 23, Iași, sep. 07 – 11, 1992.

Articole/studii in extenso, publicate în reviste indexate în alte BDI;

49. R. Stavre, *Optimization of the blood flow in venous insufficiency*, **Annals of the University of Bucharest 5** (2014), pag. 383 – 402.

50. R. Stavre, *Incompressible flow of the molten powder in meniscus zone of continuous casting mold*, **Annals of the University of Bucharest 55** (2006), pag. 121 – 128.

51. C. Carasso, R. Stavre, *Numerical simulation of a jet of ink*, **Annals of the University of Bucharest 1-2** (2001), pag. 31 – 36.

52. R. Stavre, *A distributed control problem for micropolar fluids*, **Révue Roumaine de Mathématiques Pures et Appliquées 45** (2000), pag. 353 – 358.
53. A. Capatina, R. Stavre, *Optimality conditions for control problems in heat-conducting Navier-Stokes fluid*, **Révue Roumaine des Sciences Techniques, Série de Mécanique Appliquée 40** (1995), pag. 189 – 199.

54. R. Stavre, *Fluid flow through a porous medium with variable permeability in which the discharge is unknown*, **Révue Roumaine des Sciences Techniques, Série de Mécanique Appliquée 29** (1984), pag. 391 – 402.

Publicaţii in extenso, apărute în lucrări/volume ale conferinţelor internaţionale de specialitate

55. R. Stavre, *Boundary control of a nonstationary magnetohydrodynamic flow*, Conference: **New Trends in Continuum Mechanics**, M. Mihăilescu-Suliciu editor, Theta, Bucharest (2005), pag. 285 – 294.

56. R. Stavre, *Optimal control of nonstationary, three dimensional micropolar flows*, Conference: **Analysis and Optimization of Differential Systems**, V. Barbu, I. Lasiecka, D. Tiba, C. Vârsan editors, Kluwer Academic Publishers, Boston/Dordrecht/London (2003), pag. 399 – 409.

57. R. Stavre, *A theoretical and numerical approach of a distributed control model for a free boundary problem*, Conference: **Analysis and numerical computation of solutions of nonlinear systems modelling physical phenomena**, Timişoara (1997), pag. 311 – 330.

Publicaţii in extenso, apărute în lucrări/volume ale conferinţelor naţionale de specialitate

58. R. Stavre, B. Vernescu, *A free boundary problem in fluid mechanics*, Conference: **Differential equations**, Cluj Napoca (1985), pag.299 – 304.

Alte lucrări ştiinţifice

59. I. Malakhova-Ziablova, G. Panasenko, R. Stavre, *Asymptotic analysis of a thin rigid stratified elastic plate - viscous fluid interaction problem*, **Conference: 5th International Conference on the Multiscale Modeling and Methods - Upscaling in Engineering and Medicine Location: Bauman Moscow State Tech Univ, Moscow, RUSSIA**, Jun 25 – 28, 2015.

60. R. Stavre, *Viscous flow of the molten powder in meniscus zone with elastic boundary*, **Bulletin of the Transilvania University of Braşov 13(48)** (2006), pag. 379 – 389.

Proiecte de cercetare

1. EURROMMAT (European Integration of the Romanian Research Activity); director de proiect; în colaborare cu University Jean Monnet, Saint-Etienne, Franța, 2001-2004.

2. Schimburile Academiei cu CNRS, 2004-2005.

3. Proiect CERES 4-96/2004, în colaborare cu Institutul de Cercetări Metalurgice, 2004-2006, director de proiect.

4. Proiect CEx 189/2006-2008, participant la proiect.

5. Proiect CEx 320/2006-2008, participant la proiect.

6. Proiect Biomat/2006-2008, participant la proiect.

7. Proiect CEx 11-12/2006-2008, participant la proiect.

Membră în comisii de doctorat în străinatate

1. Interaction fluid structure and M.A.P.D.D : method of asymptotic partial domain decomposition for non newtonien flow, autor Nachit Abdesselam, University Jean Monnet, Saint-Etienne, Franța, 2010.

2. Méthodes asymptotiques et numériques pour les problèmes d'interaction fluide-solide et applications en science des matériaux et en science pour ingénieur, autor Irina Malakhova-Ziablova, University Jean Monnet, Saint-Etienne, Franța, 2015.

3. Multiscale modelling of viscous flows in domains of complex geometry, autor Rita Juodagalvytė, Vilnius University, Lituania, 2022.

Stagii de cercetare în străinătate (selectie)

Stagiu în Banach Center Warszawa, Polonia (2 săptamâni în 1984), bursă postdoctorală Tempra (6 luni în 1995) Jean Monnet University, Saint-Etienne, Franța; European Integration of the Romanian Research Activity project (2 săptămâni în 2001, 2 săptămâni în 2003) Jean Monnet University, Saint-Etienne, Franța; Schimburile Academia Română - CNRS (2 săptămâni în 2004, 2 săptămâni în 2005) Jean Monnet University, Saint-Etienne, Franța, profesor invitat la Jean Monnet University, Saint-Etienne, Franța (1 lună în 2006, 1 lună în 2007, 1 lună în 2008, 1 lună în 2009, 1 lună în 2010), profesor invitat la Institut Camille Jordan, UMR 5208, Franța (1 lună în 2011, 1 lună în 2012, 1 lună în 2013, 1 lună în 2014, 2 luni în 2016, 1 lună în 2017, 1 lună în 2018, 1 lună în 2019, 1 lună în 2023).

Participare la conferințe internaționale (selecție)

*Alexandra-Roxana Ciorogar, Ruxandra Stavre, Mathematical and numerical modeling of a given field of temperature influence on the pressure variation in a fluid-structure interaction problem, International Symposium on Applied Mathematics and Engineering, Istanbul, Turcia, ianuarie 21-23, 2022 (on line);

*Alexandra-Roxana Ciorogar, Ruxandra Stavre, A thermal fluid-structure interaction model; approximation methods and numerical algorithms, International Applied Mathematics, Modelling and Simulation Conference, Paris, Franța, iunie 17-19, 2022 (on line);

*Alexandra-Roxana Ciorogar, Ruxandra Stavre, Variational and numerical analysis for a thermal fluid-structure interaction problem, International Workshop "Multiscale Modeling & Methods", Vilnius, Lithuania, octombrie 24-26, 2022;

*I. Malakhova-Ziablova, G. Panasenko, R. Stavre, Asymptotic analysis of a thin rigid stratified elastic plate - viscous fluid interaction problem, 5th International Conference on the Multiscale Modeling and Methods - Upscaling in Engineering and Medicine, State Tech Univ, Bauman Moscova, Rusia, iunie 25 – 28, 2015;

*I. Malakhova-Ziablova, G. Panasenko, R. Stavre, Variational and asymptotic analysis of a viscous fluid-3D thin plate interaction problem, Colloque Inter'Actions, Lyon, Franța, 19-23 mai 2014;

*G. Panasenko, R. Stavre, Asymptotic expansion of the solution of the Kelvin-Voigt visco-elasticity equation for a thin stratified strip, XIIème Colloque Franco-Roumain de Mathématiques Appliquées, Lyon, Franța, 25-30 august 2014;

*G. Panasenko, R. Stavre, Asymptotic Analysis of a fluid-thin structure interaction problem, Joint International Meeting of the AMS and RMS, Alba Iulia, Romania, 27-30 iunie 2013;

*I. Malakhova-Ziablova, G.P. Panasenko, R. Stavre, Asymptotic analysis of a viscous fluid-3D thin plate interaction, Third Workshop of Thin Structures, Naples, Italia, 05-07 septembrie 2013;

*G. Panasenko, R. Stavre, Analyse asymptotique d'un problème de couplage fluide visqueux-plaque mince; écoulement périodique, XIème Colloque Franco-Roumain de Mathématiques Appliquées, Bucharest, Romania, 24-30 august 2012.

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