CURRICULUM VITAE

SURNAME: Govorukhin   **FIRST NAME(S):** Vasiliy

Affiliation: Dozent (Senior lecturer)

Official address: Department of Computational Mathematics, Southern Federal University, Milchakova str. 8 a, Rostov-on-Don, 344090, Russia.

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Date and place of birth: April 1962, Rostov-on-Don, Russia

Nationality: Russian

Education (degrees, dates, universities)

Master of science, 1984, Rostov State University

Kandidat of Physics and Mathematics, (Ph.D.), 1999, Rostov State University. Theme of dissertation: "Numerical analysis of convection in porous media". Supervisor: prof. Victor Yudovich.

Career/Employment (dates, employers and positions)

1984-1992, Researcher, Institute of Mechanics and Mathematics of Rostov University, Dept. of Mathematical modelling in ecology and economy.

1992-2002, Assistant professor, Department of Computational Mathematics, Rostov State University.

2002-present Dozent (Senior lecturer), Department of Computational Matematics, Southern Federal University (former Rostov State University).

Visits:

1996 February, 2000 April METU, Ankara, Turkey

1996 August-September, Researcher, Courant Institute, New York University, USA

1998 August, Univ. Paris Sud XI, Paris, France

2003 November, Gent University, Belgium

2005 January-April, Hull University, UK

2006 March-June, Visiting professor, University of York, UK

2008 Mai-June, Bar-Ilan University, Israel

2012 August, Technische Universiteit Eindhoven, Netherlands

Specialization

(i) main field

Mathematical modelling in fluid mechanics and biology, numerical analysis, scientific computing.

(ii) other fields

Investigations of ordinary and partial differential equations, dynamical systems, software developing.

(iii) current research interest

Computational fluid dynamics, Software developing for dynamical system investigation.

Honours, Awards, Fellowships, Membership of Professional Societies

Awards: Russian Engineer Academy, 1998.

Membership: Rostov Mathematical Society.

Publications

Number of papers in refereed journals: 32

Number of communications to scientific meetings: 23

Number of books: 2

Selected publications

Books

1. Govorukhin V.G., Tsybulin V.G. Introduction to Maple, Moscow, Mir, 1997, 208 p. (in Russian)

2. Govorukhin V.G., Tsybulin V.G. Computer in methamatical investigation: Maple, MATLAB, LaTeX., St.Pitersburg, Piter, 2001, 618 p. (In Russian)

Journals

1. Govorukhin, V. Computer experiments with cosymmetric models. (English) // Z. Angew. Math. Mech. 76, Suppl. 4, 559-562 (1996).

2. Govorukhin, V. Numerical simulation of the loss of stability for secondary steady regimes in the Darcy plane-convection problem. // Dokl. Physics. 43, No.12, 806-808 (1998); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk 363, No.6, 772-774 (1998).

3. Govorukhin, V.N.; Morgulis, A.B.; Senina, I.N.; Tyutyunov, Yu.V. Modelling of active migration of spatially-distributed populations. (Russian) // Obozr. Prikl. Prom. Mat. 6, No.2, 271-295 (1999).

4. Govorukhin, V.N.; Yudovich, V.I. Bifurcations and selection of equilibria in a simple cosymmetric model of filtrational convection // Chaos 9, No.2, 403-412 (1999).

5. Govorukhin, V.N. Analysis of families of secondary steady-state regimes in the problem of plane flow through a porous medium in a rectangular vessel. (Russian, English) // Fluid Dyn. 34, No.5, 652-659 (1999); translation from Izv. Akad. Nauk, Mekh. Zhidk. Gaza 1999, No.5, 53-62 (1999).

6. Govorukhin, V. N.; Morgulis, A.; Yudovich, V. I.; Zaslavsky, G. M. Chaotic advection in compressible helical flow. // Phys. Rev. E (3) 60 (1999), no. 3, 2788–2798.

7. Govorukhin, V.N.; Morgulis, A.B.; Tyutyunov, Yu.V. Slow taxis in a predator-prey model. (Russian, English) // Dokl. Math. 61, No.3, 420-422 (2000); translation from Dokl. Akad. Nauk, Ross. Akad. Nauk 372, No.6, 730-732 (2000).

8. Govorukhin, V.N.; Shevchenko, I.V. Numerical solution of the plane convection Darcy problem on a computer with distributed memory. (English. Russian summary) // Vychisl. Tekhnol. 6, No.1, 3-12 (2001).

9. Tyutyunov Yu.V., Sapukhina N.Yu., Morgulis A.B., Govorukhin V.N. Mathematical model of active migrations as feeding strategy in trophic communities. (Russian) // Journal of General Biology Volume 62 (2001). Number 3 p.253-262.

10. Govorukhin, V. N.; Tsybulin, V. G.; Karasozen, B. Dynamics of numerical methods for cosymmetric ordinary differential equations. (English) // Internat. J. Bifur. Chaos Appl. Sci. Engrg. 11 (2001), no. 9, 2339–2357.

11. Arditi, R.; Tyutyunov, Yu.; Morgulis, A.; Govorukhin, V.; Senina, I. Directed movement of predators and the emergence of density-dependence in predator-prey models. (English) // Theor. Popul. Biol. 59, No.3, 207-221 (2001).

12. Govorukhin, V.N.; Shevchenko, I.V. Numerical investigation of the second transition in the problem of plane convective flow through a porous medium. (Russian, English)// Fluid Dyn. 38, No.5, 760-771 (2003); translation from Izv. Akad. Nauk, Mekh. Zhidk. Gaza 2003, No.5, 115-128 (2003).

13. Govorukhin, V., Shevchenko, I. Scenarios of non-stationary regimes branching in a planar filtrational convection problem // Fluid Dynamics, Vol. 41, No. 6, 2006, pp. 967-975. Translated from Izv. Ros. Acad. Nauk, Mekh. Zhidk. i Gaza, No. 6, 2006, pp. 125-134.

14. Govorukhin, V., Morgulis, A., Yudovich, V. Computation of two-dimensional flows of inviscid incompressible fluid through a rectilinear duct // Doklady Physics, 2007, Vol. 52, No. 2, pp. 105-109. translation from Doklady Akademii Nauk, 2007, Vol. 412, No. 4, pp. 480-484.

15. Govorukhin V.N., Il'in K.I. Numerical study of an inviscid incompressible flow through a channel of finite length. // International Journal for Numerical Methods in Fluids, 2009, Vol.60, Iss. 12, pp.1315 - 1333.

16. Govorukhin, V.N.; Morgulis, A.B.; Vladimirov, V.A. Planar inviscid flows in a channel of finite length: washout, trapping and self-oscillations of vorticity // J. Fluid Mech. 2010. V. 659, pp. 420-472.

17. Govorukhin, V. N. A version of the vortex-in-cell method for computing two-dimensional flows of an ideal incompressible fluid. (Russian) // Zh. Vychisl. Mat. Mat. Fiz. 51 (2011), No. 6, 1133–1147; translation in Comput. Math. Math. Phys. 51 (2011), no. 6, 1061–1073

18. Govorukhin, V. N. Steady vortex structures in inviscid flows in channels // Fluid Dynamics, 2012, Vol. 47, No. 2, pp. 147-156.

19. Govorukhin, V. N.; Shevchenko, I.V. Selection of steady regimes of a one-parameter family in the problem of plane convective flow through a porous medium // Fluid Dynamics, 2013, Vol. 48, No. 4, pp. 523-532.

20. Govorukhin, V. N. On the choice of a method for integrating the equations of motion of a set of fluid particles // Computational Mathematics and Mathematical Physics, 2014, Vol. 54, Iss. 4, pp 706-718.

21. Govorukhin, V. N. On the action of internal heat sources on convective motion in a porous medium heated from below // Journal of Applied Mechanics and Technical Physics, 2014, Vol. 55, Iss. 2, pp 225-233.

22. Govorukhin, V. N. Numerical analysis of the dynamics of distributed vortex configurations // Computational Mathematics and Mathematical Physics, 2016, Vol. 56, Iss. 8, pp 1474-1487.

Proceedings and book chapters

1. Govorukhin V. Numerical investigation of the loss of stability on the one-parametric family of stationary regimes in planar Darcy convection problem in rectangular vessel (Russian)// In. Fundamental and applied problems of current technics, SKNC VSh, Rostov-on-Don, 1998, pp. 92-102

2. Govorukhin V. Tsybulin V. Numerical-analytical investigation of basins of equilibria of cosymmetric dynamical system. (Russian) /Preprint VINITI, N 3658-?97, (1997), pp.1-40.

3. Govorukhin V. Tsybulin V. Dynamics of the map with continuous family of fixed points. (English) // Proc. 4 Int. Conference on Difference Equations and Applications, Poznan, 1998, pp. 123-126.

4. Govorukhin, V. Calculation of one-parameter families of stationary regimes in a cosymmetric case and analysis of plane filtrational convection problem. (English) Henry, Daniel (ed.) et al., Continuation methods in fluid dynamics. Contributions to the ERCOFTAC/EUROMECH colloquium 383, Aussois, France, September 6-9, 1998. // Braunschweig: Vieweg. Notes Numer. Fluid Mech. 74, 133-144 (2000).

5. Govorukhin V. Numerical investigation of one-parameter families of equilibria and their bifurcations in a plane filtrational convection problem (English)// Proceedings of ACOMEN 2002, Liege (Belgium), May 28-31, 2002, ISBN: 2-930322-39-X, pp. 1-9.

6. Govorukhin, V.; Schevtschenko, I. Families of stationary regimes in filtration convection — their origin and evolution. Patterns and waves (Saint Petersburg, 2002), 2–14, (English)// AkademPrint, St. Petersburg, 2003.

7. Govorukhin V. Toolbox MATDS for the numerical analysis of dynamical systems. (Russian) // Proceeding of Conference 'Designing of scientific and ingenering applications in MATLAB', Moscow, 2004, ISBN 5201149715

8. Govorukhin V., Shevchenko I. Numerical investigation of convective regimes in a planar filtrational convection problem (English) // pp. 1-2, In "Mechanics of the 21st Century", Proceedings of the 21s International Congress of Theoretical and Applied Mechanics, Warsaw, Poland 15-21 August 2004; Gutkowski, W.; Kowalewski, T. (Eds.), Springer, 2005, ISBN: 1-4020-3456-3

9. Morgulis A., Govorukhin V., Vladimirov V., Yudovich V. Transport of vorticity through a finite channel. // pp. 1-6. Proceedings of: 18eme Congres Francais de Mecanique, Grenoble, France 27-30 August 2007.

10. Govorukhin V. Numerical analysis of ideal fluid flows through plane duct of finite length // pp. 1-5. Proceedings of: 18eme Congres Francais de Mecanique, Grenoble, France 27-30 August 2007.

11. Govorukhin V., Shevchenko I. The cosymmetric bifurcations in the planar filtrational convection problem: numerical results. PAMM V. 7, Iss. 1, December 2007, pp. 1030403-1030404.

12. Govorukhin V. A Meshfree Method for the Analysis of Planar Flows of Inviscid Fluids // Meshfree Methods for Partial Differential Equations VI, Lecture Notes in Comput. Sci. Engrg., V.89, pp. 171-180. Springer-Verlag, Berlin, 2013.

Software
1. DESIR - package for dynamical system investigation.
http://www.math.rsu.ru/mexmat/kvm/desir.en.html
2. MATDS - MATLAB-based program for dynamical system investigation.
http://www.math.rsu.ru/mexmat/kvm/matds/

Selected Conferences:
1993, 1994 "Dynamics Days"
1995 Hamburg, Germany "ICIAM-95"
1997 Helsinki, Finland, "NATO Linux workshop"
1998 Prague, Chech "PDE Prague 98"; Assois, France "Continuation methods in fluid dyanamics.
Euromech colloquium N383"
2000 Barselona, Spain "ECM 2000"
2002 Liege, Belgium "Advanced Computational Methods in Engineering 2002"
2003 Cargese, France "Summer School on Chaotic dynamics and transport"
2004 Warsaw, Poland "XXI International Congress of Theoretical and Applied Mechanics"
2006, 2012 Moscow, Russia, "NEZATEGIUS"
2007 Grenoble, France, 18eme Congres Francais de Mecanique
2009 Halle, Germany, NUMDIFF'12
2011 Bonn, Germany, VI Workshop Meshfree Methods for PDE
2013 Valladolid, Spain, SciCADE 2013
2015 Russia, Kazan, XI Russian Congress on Basic Problems of Theoretical and Applied Mechanics
2015 Turkey, Ankara, ENUMATH 2015