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Alexander Mikishev, PhD

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Curriculum Vitae

Academic Degrees

1983 M.Sc. in Physics (Five year program)
Perm State University, Perm, USSR.
1990 Ph.D. Perm State University, Perm, USSR.
Theses:
1983 "In uence of magnetic eld on thermohaline convection of electro-conductive binary uid". Adviser: Prof. G.Z. Gershuni.
1990 "Local structure of two-dimensional turbulent ows". Adviser: Prof. V.D. Zimin.

Positions

Oct. 1983 - Sept. 1985
Perm State University, Perm, USSR. Department of Theoretical Physics. Instructor, Assistant (1983).
Oct. 1985 - May 1991
Institute of Continuous Media Mechanics of the Ural Branch of the USSR Academy of Sciences, Perm, USSR. Doctorate (1985), Junior Scienti c Worker (1988-91).
Oct. 1991- June 1994
Tel-Aviv University, School of Mathematical Sciences, Tel-Aviv, Israel. Post-Doctorate in Applied Mathematics. Adviser: Prof. G. I. Sivashinsky.
Sept. 1994-Dec. 1994
College of Jordan Valley, Zemakh, Israel. Instructor in Physics.
Oct. 1996-June 2001
Di erent companies developing computer software. Israel: S/w engineer (Simula, 1996), Senior s/w engineer (Inverness, 1997), IT Manager (Virata, 2000).
Sept. 2005 -Sept. 2008
University Center, Department of Mathematics, Ariel, Israel. Lecturer
Oct. 2007-Sept. 2011
The Technion, Dept. of Mathematics, Haifa, Israel. Adjunct Professor (since 2007-till 2010), Research Fellow (since 2008-until 2011).
Aug. 2011-2013
Adjunct Professor of Mathematics, Katy Campus, Strayer University, Houston, TX.
Aug. 2012-Aug. 2015
Lecturer, Dept. of Physics, Sam Houston State University, Huntsville, TX.
June 2012-present
Adjunct Assistant Professor (online teaching), Embry-Riddle Aeronautical University-Worldwide,

Daytona Beach, FL .
Aug. 2015 - May 2018
Visiting Assistant Professor, Dept. of Physics, Sam Houston State University, Huntsville, TX.
Aug. 2018 - present
Lecturer, Dept. of Engineering Technology, Sam Houston State University, Huntsville, TX.

Visiting Positions

Short-Time Visits

June 2014, July 2015	TIPs - Fluid Physics, Universite Libre de Bruxelles, Belgium.
Sept. 2010	Institute of Mechanics, Chinese Academy of Science (National Microgravity Laboratory), Beijing, China.
Sept. 2010	State Key Laboratory of Multiphase Flow in Power Engineering, Xi'an Jiaotong University, Xi'an, China.

Research Fields

Nonlinear stability theory of viscous and convection ows. Pattern formation and stability. Generation of large-scale structures. Generation of chaos in distributed systems. Thermogravitational and thermocapillary convection in systems with interfaces. Microgravity phenomena. Application of wavelets in physics and uid mechanics.

Awards

2016	Winner of 2016-2017 ERAU Worldwide Research Award, ERAU-13373 ($2,500.00).
2014	Winner of 2014-2015 ERAU Worldwide Research Award, ERAU-13360 ($5,000.00).
2013	Winner of 2013-2014 ERAU Worldwide Research Award, ERAU-13353 ($4,046.00).
1989	Winner of the 3rd All-Union competition of young scientists "Modern problems of thermodynamics and hydrogasodynamics", Institute of Thermophysics SB of USSR AS, Novosibirsk.
1990	Prize of Institute of Continuous Media Mechanics.

Fellowships

1991	Shapiro Fellowship

Participating in Grants

2008-2010	Israeli Ministry of Science, Culture & Sport. Joint grant with RFFI, Russia (Co-investigator)
2009-2012	European Network \MULTIFLOW" (Co-investigator)
2013-2015, 2016-2017	ERAU Research Awards ERAU-13353, ERAU-13360, and ERAU-13373 (Principal investigator)

Invited Lectures / Oral Presentations

1. 5th EPS Liquid State Conference on Turbulence. Moscow, October 1989. Title: "Integral and local characteristics of large-scale turbulence in thin layers of uid".

2. Int. Symposium "Generation of large-scale structures in continuous media." Perm - Moscow, June 1990. Title: "Appearance of large-scale structures in turbulent rotating layers of uid".

3. Summer Research Conference on wavelets and its application of American Mathematical Society, Mt. Holyoke College, Sourth Hadley, MA, USA, 1992. Title: "Wavelets and turbulence".

16. The 6th Conference of the International Marangoni Association, Haifa, Israel, June 18-21, 2012. Title: "Marangoni Instability of a Liquid Layer with Insoluble Surfactant under Heat Flux Modulation" .

17. The 7th International Symposium on "Two-Phase Systems for Ground and Space Applications", Beijing, China, September 17-22 2012. Title: "On dynamic excitation of Marangoni instability of a liquid layer with insoluble surfactant".

18. The 65th Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Diego, CA, November 18-20 2012. Title: "Stability of evaporating liquid layer with insoluble surfactant".

19. The 5th International Symposium on Bifurcations and Instabilities in Fluid Dynamics, July 8 - 11, 2013, Haifa, Israel. Title "The in uence of heating conditions on the instabilities in an evaporating liquid layer with insoluble surfactant ".

20. The 66th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Pittsburgh, PA, November 24-26 2013. Title: "The in uence of evaporation on instabilities of liquid layer with insoluble surfactant".

21. The 7th Conference of the International Marangoni Association, Vienna, Austria, June 23-26, 2014. Title: "On dynamic excitation of Marangoni instability of deformable liquid layer with insoluble surfactant" .

22. The 67th Annual Meeting of the American Physical Society Division of Fluid Dynamics, San Francisco, CA, November 23-25 2014. Title: "Instabilities of evaporating non-isothermal ultra-thin lm with insoluble surfactant".

23. The 6th International Symposium on Bifurcations and Instabilities in Fluid Dynamics, July 15 - 17, 2015, Paris, France. Title "Parametric wave excitation in a nonisothermal liquid layer with insoluble surfactant".

24. The 68th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Boston, MA, November 22-24 2015. Title: "Vibrational instabilities of a nonisothermal liquid layer with insoluble surfactant".

25. The 8th Conference of the International Marangoni Association, Bad Honnef, Germany, June 12-16, 2016. Title: "Oscillatory Marangoni instability and capillary-gravity waves in a heated liquid layercovered by insoluble surfactant".

26. The 24th International Congress of Theoretic and Applied Mechanics (ICTAM), August 21-26 , 2016, Montreal, Canada. Title: "Waves in a heated liquid layer covered by insoluble surfactant".

27. The 69th Annual Meeting of the American Physical Society Division of Fluid Dynamics, Portland, OR, November 20-22 2016. Title: "High-frequency vibration of heated liquid layer covered by insoluble surfactant".

28. The 7th International Symposium on Bifurcations and Instabilities in Fluid Dynamics, July 11 - 14, 2017, The Woodlands, TX, USA. Title "Parametrically excited long-scale Marangoni convection in a liquid layer covered by insoluble surfactant".

Teaching Experience

Perm State University, Department of Physics: Courses and practical training on Di erential Equations, Calculus of variation, Complex variables, Theoretical Mechanics, Matrix and Tensor Analysis.

College of Jordan Valley: Course of high-school physics; Projects for high-school students on physical simulation.

University Center, Ariel: Courses "Mathematics for Economists", "Computing for Economists", Theory of Probability and Statistics.

Technion, Department of Mathematics: Courses, training and grading on Partial di erential equations, Ordinary di erential equations, Calculus I, Calculus II, Numerical methods.

Educere Tutoring Center, Houston, TX, USA. Individual tutoring in Mathematics, Physics and Chemistry (high school and college-level students).

Strayer University, Katy Campus, Houston, TX

MAT 090: Fundamentals of Mathematics
MAT 104: Algebra with Applications
SCI 110: Introduction to Physical Sciences
MAT 540: Quantitative Methods
MAT 300: Statistics

Embry-Riddle Aeronautical University-Worldwide (online teaching):

PHYS 102: Explorations in Physics
MATH112: College Mathematics for Aviation II
MATH111: College Mathematics for Aviation I
MATH250: Calculus & Analitycal Geometry I
PHYS250: Physics III for Engineers
PHYS253: Physics Lab for Engineers
MATH142: Trigonometry
PHYS150: Physics I for Engineers
PHYS 160: Physics II for Engineers

Sam Houston State University, Huntsville, TX

PHYS 1311: Introductory Astronomy
PHYS 1301: Physics-Mechanics and Heat
PHYS 1302: Physics: Electromagnetism and Optics
PHYS 1305:Classical Physics and Thermodynamics
PHYS 3391: Modern Physics
PHYS 1404: Solar system
PHYS 1403: Galaxies & Stars
ETEE 1340: Electronics Technology I

Professional Activity

- Member of the American Physical Society, Division of Fluid Dynamics, APS Texas Section

- Member of Society of Industrial and Applied Mathematics

Reviewer for:
- Physics of Fluids

- Journal of Biological Physics
- The Journal of the Franklin Institute
- Applied Mathematics and Computation

- Guest Editor of "Fluid Dynamics Research" (special issue, 2018)

- Founder and Coordinator of International Group of Amateur Astronomers (2000).

- Editor of \Astronomical Almanac" (2000, 2002).

26. Large-scale nonlinear evolution of parametrically excited Marangoni convection in a liquid layer covered by insoluble surfactant (with Nepomnyashchy A.), Fluid Dyn. Res., vol. 50, 051405 (2018), doi:https://doi.org/10.1088/1873-7005/aab1e8

Papers Submitted/Prepared to Refereed Journals

27. Large-scale nonlinear evolution of Marangoni convection in a liquid layer covered by insoluble surfactant: numerical analysis (with Nepomnyashchy A.).

Papers Published in Proceedings

1. Use of shell-model for calculation of local structure of two-dimensional turbulence, Proc. of All-Union School of Young Scientists: Numerical Methods of Continuous Media Mechanics, 85 - 97 (Krasnoyarsk 1987) (in Russian).

2. Local structure of turbulence in thin non-isothermal rotating layers of liquid, Proc. of Conference "Investigations of young scientists in physics and mathematics", Perm State Univ., 14 - 15 (Perm 1988) (in Russian).

3. Local structure of decaying two-dimensional turbulence. Preprint No. 111 of ICMM UB of USSR AS, 23 - 33 (Sverdlovsk 1988) (in Russian) (with Frick P.).

4. Turbulent convection in Hele-Shaw cell. in: Fluid Dynamics and Heat and Mass Transfer Processes, 82 - 85 (Sverdlovsk 1989) (in Russian).

5. Simulation of local structure of two-dimensional turbulence using the shell-model. in: Fluid Dynamics and Heat and Mass Transfer Processes, 74 - 81 (Sverdlovsk 1989) (in Russian) (with Frick P.).

6. On Kolmogorov constants in two-dimensional turbulent ow with linear friction. Proc. of All-Union Conference "Modern problems of heat physics and physical hydrodynamics", 26 - 27 (Novosibirsk 1989) (in Russian).

7. Integral and local characteristics of large-scale turbulence in thin layers of uids. Proc. of the 5th EPS Liquid State Conference, Moscow, 176 - 179 (Moscow 1989).

8. Self-similar gas jets in external force eld. in: Orientation e ects of dispersion systems. ed. K. Morozov, 38 - 44 (Sverdlovsk 1989) (in Russian) (with Aristov S.).

9. Investigation of local and integral characteristics of developed two-dimensional turbulence using the hierarchical model. Proc. of WCCM-II - World Congress of Computational Mechanics, 23nd, Universitaet Stuttgart, Germany, Aug. 27 - 31 (Stuttgart 1990) (with Frick P.).

10. Comprehensive analysis of Leonids in last 5 years. Proc. of International Science Symposium MAC-2002 (Tokyo 2002).

11. Parametric excitation of a longwave Marangoni convection. Proc. of International Conference "Chaos 2009" June 1-5 2009, article 127, 1-8 (Chania 2009) (with Nepomnyashchy A. and Smorodin B.)

Edited Books

1. "Astronomical Almanac 2000", 72 pp. ed. by Mikishev A.B. (FEL, Anwerp, Belgium, 2000).
2. "Astronomical Almanac 2002", 56 pp. ed. by Mikishev A.B. (FEL, Anwerp, Belgium, 2002).

Additional Information

Permanent resident of the United States.

List of Recommenders

1. Prof. Gregory Sivashinsky, Department of Applied Mathematics, School of Mathematical Sciences, Tel-Aviv University, Israel; e-mail: grishas@post.tau.ac.il
2. Prof. Alexander Nepomnyashchy, Department of Mathematics, Technion-Israel Institute