

# CURRICULUM VITAE

## PERSONAL DATA:

Name: Rachinskii Dmitrii I.  
Date and place of birth: March 1, 1969; Kharkov, Russia  
Nationality: Russia  
Marital status: married, 2 sons  
Address: Balaklavskii pr. 46 A – 48, Moscow 117461, Russia

LANGUAGES: Russian (native); English; German (fluent)

## ACADEMIC DEGREES:

- 2002 (Dr.Sci., Math.) Doctor of Sciences in Physics and Mathematics  
Dissertation “Mathematical methods for the study of oscillations in systems with complex hysteresis nonlinearities” defended at the Institute for Control Problems of the Russian Academy of Sciences
- 2002 Dozent of the Chair of Mathematical Analysis and Algebra at the State Classical Maimonid University, Moscow
- 1997 (Ph.D., Math.) Candidate of Sciences in Physics and Mathematics  
Dissertation “Multivalued guiding functions in problems on periodic solutions of differential equations” defended at the Russian University of Nations’ Friendship, Moscow  
Supervisor: Prof. Mark A. Krasnosel’skii
- 1994 (M.S., Math.) Diploma with distinction of the Moscow Institute of Physics and Technology  
Thesis: “Mathematical models of relay systems”  
Supervisor: Prof. Mark A. Krasnosel’skii

## EDUCATION:

- 1994 - 1997 Post-graduate at the Moscow Institute of Physics and Technology  
Main subjects: nonlinear analysis and its applications;  
state exam: mathematics (1995)
- 1986 - 1994 Faculty of Applied Mathematics and Control Theory of the Moscow Institute of Physics and Technology  
(military service 1987 - 1989)  
Main subjects: mathematics, physics, informatics;  
state exam: physics (1991)

## ACADEMIC POSITIONS:

- since 2005      Lecturer at the University College Cork, Department of Applied Mathematics (permanent post)
- since 2003      Leading Research Fellow at the Institute for Information Transmission Problems of the Russian Academy of Sciences, Laboratory “Mathematical Methods in Control Theory and Information Transmission Theory” (permanent post)
- 2003            Acting director of the research group “Mathematical Methods in Control Theory” at the Institute for Information Transmission Problems
- 2003 - 2005    Researcher at the Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Research group “Laser Dynamics” (18 months)
- 1993 - 2003    Assistant (1993 - 1994), Research Fellow (1994 - 1997), Senior Research Fellow (1997 - 2003) at the Institute for Information Transmission Problems of the Russian Academy of Sciences
- 1998 - 2000,    Humboldt Research Fellow at the Mathematical Faculty of the University  
2002 - 2003    Regensburg, Germany (18 months) and at the Faculty of Applied Mathematics of the Technical University Munich (6 months)

## TEACHING EXPERIENCE:

- 2000 - 2003    Dozent (Senior Lecturer) at the State Classical Maimonid University, Moscow, the Chair of Mathematical Analysis and Algebra of the Faculty of Mathematics and Informatics
- 1995 - 1998    Assistant (1995 - 1997), Lecturer (1997 - 1998) at the Faculty of Mathematics and Informatics of the State Classical Maimonid University, Moscow

*Lecture courses:* Mathematical Analysis, Complex Analysis, Linear Algebra, Introduction to Higher Algebra, Introduction to Logic and Set Theory, Mathematical Models in Natural Sciences

*Exercises:*      Ordinary Differential Equations, Mathematical Analysis, Complex Analysis, Linear Algebra

## SHORT-TERM RESEARCH VISITS:

- University College Cork, Ireland in 2004 (1 week)
- Weierstrass Institute for Applied Analysis and Stochastics, Berlin in 1997 (1 month), and in 1999 (2 weeks), 2001 (1 month), 2003 (2 weeks)
- Mathematical Institute of the Academy of Sciences of the Czech Republic in 2003 (1 week)
- University of Trento, Italy in 2000 (1 week)
- University of Queensland, Brisbane, Australia in 1998 (2 months)
- University Regensburg, Germany in 1997 (2 months)

PUBLICATIONS: 60 papers

AWARDS, FELLOWSHIPS:

- 2005 Heisenberg Fellowship of the Deutsche Forschungsgemeinschaft
- 2002 - 2004 Fellowship of the Russian Science Support Foundation
- 2001 Fellowship for Young Scientists of Russia
- 2000 Medal of the Russian Academy of Sciences with the Prize for Young Scientists for the Best Research Work in Informatics
- 1998 - 2000 Research Fellowship of the Alexander von Humboldt Stiftung
- 1994 - 1999 State Fellowship for Young Russian Scientists (2×3 years)
- 1993 - 1997 Student and post-graduate fellowships from the Deutsche Mathematiker-Vereinigung (L. Euler Fellowship, 1 year), Centre National de la Recherche Scientifique (3 years), J. Soros International Science Foundation (4 years)

RESEARCH INTERESTS, MAIN RESULTS:

- Nonlinear oscillations, bifurcations (existence and stability of periodic solutions and cycles of differential equations; bifurcations in systems with nonsmooth nonlinearities; Hopf bifurcations; resonance problems; boundary-value problems with delta-shaped perturbations)
- Hysteresis models (dynamics and long-term behavior of systems with hysteresis nonlinearities; operators of complex hysteresis nonlinearities; inverse hysteresis operators)
- Discrete systems and iteration methods (convergence of Gauss–Seidel iteration procedures; shuttle iterations; stability of systems with incomplete corrections and asynchronous systems)
- Abstract nonlinear functional analysis (fixed points of monotone operators and concave operators; continuous branches of solutions).

RESEARCH PROJECTS:

*Current projects:*

Grant of the President of Russia for Young Professors (MD-87.2003.01)

Research project: “Mathematical methods for the study of oscillation processes in complex data transmission and control systems”

Participation in research projects:

“Qualitative and quantitative investigations of mathematical models for semiconductor lasers” (research project of the Weierstrass Institute for Applied Analysis and Stochastics, Berlin)

“Methods to analyze processes in complex nonlinear systems with hysteresis and other nonsmooth nonlinearities and with a weak discipline of internal interaction of components” (Grant 03-01-00258 of the Russian Foundation for Fundamental Research);

“Periodic oscillations and bifurcations in control systems” (Grant 04-01-00339 of the Russian Foundation for Fundamental Research);

“Development of qualitative methods for the study of complex nonlinear systems” (Grant NS-1532.2003.1 of the President of Russia for Support of Leading Scientific Schools)

“New physical and structural solutions in telecommunications” (research project of the Russian Academy of Sciences)

“Mathematical methods and information stability of numerical modelling of control and data processing systems” (project 01.200.113794 of the Institute for Information Transmission Problems of the Russian Academy of Sciences)

*Former projects:*

Individual 1-year research projects 01-01-06372, 02-01-06577 of the Russian Foundation for Fundamental Research

Co-worker in 3-year projects 93-01-00-884, 96-15-96048, 97-01-00692, 00-01-00571, 00-15-96116, 01-01-00146 of the Russian Foundation for Fundamental Research and 5-year project 01.9.10007503 of the Institute for Information Transmission Problems

Main subjects of the research: Dynamics of systems with complex nonlinearities (systems with hysteresis, nonsmooth and discontinuous nonlinearities, impulse perturbations; discrete systems with asynchronous interaction of components); bifurcations; periodic solutions and cycles of differential equations and control systems.

MAILING ADDRESS:

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