

VILNIAUS UNIVERSITETAS
MATEMATIKOS IR INFORMATIKOS
FAKULTETAS

VILNIUS UNIVERSITY
FACULTY OF MATHEMATICS
AND INFORMATICS

Publications
Report

2010

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FACULTY OF MATHEMATICS AND INFORMATICS

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DEPARTMENT OF MATHEMATICAL ANALYSIS*

<http://www.mif.vu.lt/katedros/mak/en>

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Traditionally, the department gives courses in mathematical analysis (calculus) and related subjects. In recent years, the department, as responsible for bachelor and master programs in actuarial and financial mathematics, became more oriented toward applications and is offering main courses in actuarial and financial mathematics. The research areas of the department include heavy tailed distributions, time series, econometric and actuarial models, stochastic analysis.

G. Bakštys. Actuarial mathematics. gintaras.bakstys@mif.vu.lt

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Publications. Journals with ISI SC Index – 8; Intern. reviewed journals, books, and ISI proceedings – 0; Lithuanian licensed issues – 1; Other journals and proceedings – 2.

DEPARTMENT OF DIFFERENTIAL EQUATIONS AND NUMERICAL ANALYSIS

<http://www.mif.vu.lt/katedros/dlsm/homea>

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Professors of the department give courses on differential equations (ODEs and PDEs), numerical analysis, optimization methods, applied mathematics, calculus (at the faculties of Economics, Chemistry, and Natural Sciences), and various more specialized lectures. The main research fields of the department are ordinary and partial differential and integrodifferential equations, their numerical analysis, and applied mathematics.

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Publications. Journals with ISI SC Index – 6; Intern. reviewed journals, books, and ISI proceedings – 0; Lithuanian licensed issues – 2; Other journals and proceedings – 0.

DEPARTMENT OF PROBABILITY THEORY AND NUMBER THEORY

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Professors of the department give courses in algebra, number theory, probability theory, discrete mathematics, and various more specialized lectures in the directions mentioned. They also give lectures on calculus and probability theory at the Faculties of Physics and Communications. Their main scientific interests are related to the algebraic, analytic, and probabilistic number theories and combinatorics. A great attention is also paid to neighboring problems of probability theory, to the development of Lithuanian mathematical thought, and to popularization of mathematical sciences.

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Publications. Journals with ISI SC Index – 25; Intern. reviewed journals, books, and ISI proceedings – 1; Lithuanian licensed issues – 7; Other journals and proceedings – 1.

DEPARTMENT OF MATHEMATICAL STATISTICS

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The main research areas at the department: theoretical and applied mathematical statistics, reliability and survival analysis, stochastic analysis, limit theorems in probability theory and mathematical statistics.

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P. Vaitkus. Large-deviation probabilities. Neural networks. Nonlinear time series.

Publications. Journals with ISI SC Index – 1; Intern. reviewed journals, books, and ISI proceedings – 1; Lithuanian licensed issues – 3; Other journals and proceedings – 0.

DEPARTMENT OF COMPUTER SCIENCE

<http://www.mif.vu.lt/katedros/cs>Welcome>

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The department supervises the education in informatics for the students in bachelor, master, and doctor programs. Research areas: neural networks, software process, semantics of programs, artificial intelligence, retrieval of logical proofs, error-correcting codes, service oriented frameworks and cloud computing, national language support, numerical modelling and visualization.

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DEPARTMENT OF DIDACTICS OF MATHEMATICS AND INFORMATICS

<http://www.mif.vu.lt/katedros/mmk/index.html>

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The department supervises mathematics and informatics teachers training. The research areas of the department include the mathematics and informatics education at secondary school, college, and university levels.

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Publications. Journals with ISI SC Index – 1; Intern. reviewed journals, books, and ISI proceedings – 0; Lithuanian licensed issues – 3; Other journals and proceedings – 4.

DEPARTMENT OF COMPUTER SCIENCE II

<http://www.mif.vu.lt/katedros/cs2/katedhp>

Head Prof. Feliksas Ivanauskas

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The research areas at the department include methods and applications of nonlinear and computational modelling, computational geometry, methods of computer vision, speech and signal processing, data structures and algorithms, Internet technology and information systems. The results of research are to be applied to problems of computer software, physics and mathematics, natural sciences, as well as to topics of medicine, linguistics, and social sciences.

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<i>Publications.</i> Journals with ISI SC Index – 6; Intern. reviewed journals, books, and ISI proceedings – 2; Lithuanian licensed issues – 10; Other journals and proceedings – 4.	

DEPARTMENT OF SOFTWARE ENGINEERING

<http://www.mif.vu.lt/katedros/se/WelcomeSE>

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The department supervises the software engineering study program. The research areas of the department include software process, software engineering methods and tools, teaching software engineering, software quality management, business process modelling, information systems modelling, human-computer interaction, open queuing networks, message switching systems, computational modelling of physical-chemical processes, information security, electronic signature.

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Publications. Journals with ISI SC Index – 1; Intern. reviewed journals, books, and ISI proceedings – 4; Lithuanian licensed issues – 1; Other journals and proceedings – 11.

DEPARTMENT OF ECONOMETRIC ANALYSIS

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Research areas of the department include financial econometrics; macroeconomics; time series analysis, functional data analysis; limit theorems in probability and its applications to statistics and econometrics; bootstrap and other resampling methods in statistics and econometrics.

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V. Zemlys. Functional limit theorems for summation processes. vaidotas.zemlys@mif.vu.lt

D. Zuokas. Functional data analysis, text analytics. [danjas.zuokas@mif.vu.lt](mailto:danas.zuokas@mif.vu.lt)

Publications. Journals with ISI SC Index – 7; Intern. reviewed journals, books, and ISI proceedings – 0; Lithuanian licensed issues – 3; Other journals and proceedings – 1.

DEPARTMENT OF MATHEMATICAL COMPUTER SCIENCE

<http://www.mif.vu.lt/katedros/matinf/indexa>

Head Prof. Gediminas Stepanauskas

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2. **A. Birštunas.** Sequent Calculi with an Efficient Loop-Check for BDI Logics. Advisor prof. **R. Pliuškevičius**.
3. **J. Karaliūnaitė.** Value Distribution Theorems for the Periodic Zeta-Function. Advisor prof. **A. Laurinčikas**.
4. **A. Kisel.** Person Identification by Fingerprints and Voice. Advisor doc. **A. Bastys**.
5. **J. Kranauskas.** Person Identification by Face and Iris. Advisor doc. **A. Bastys**.
6. **R. Kybartas.** Multiclass Recognition Using Pair-wise Classifiers. Advisor prof. **Š. Raudys**.
7. **I. Masiulaitytė.** Regression and Degradation Models in Reliability Theory and Survival Analysis. Advisor prof. **V. Bagdonavičius**.
8. **V. Skorniakov.** Asymptotically Homogeneous Markov Chains. Advisor doc. **V. Kazakevičius**.
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PUBLICATIONS

Abbreviations:

<i>LMR</i>	<i>Lietuvos Matematikos Rinkinys</i>
<i>LMJ</i>	<i>Lithuanian Mathematical Journal*</i>

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1. **V. Čyras, K. Lapin, S. Dapkūnas, L. Savičienė, T. Plankis.** Development of an Innovative LIDAR Technology for New Generation ATM Paradigms (SKY-Scanner), July 2007–June 2010. EC Sixth Framework Programme, thematic priority 1.4 Aeronautics and Space, specific targeted research or innovation project. Workpackage 9 Aircraft Collision Probability and Decision Support Model Design and Development. 2007–2010.
2. **V. Čyras, K. Lapin.** VirtualLife, EU FP7 project “Secure, Trusted and Legally Ruled Collaboration Environment in Virtual Life,” DG InfSo, Theme 1.5 Networked Media, collaborative project - Small or medium scale focused research project (STREP), call FP7-ICT-2007-1. Coordinator NERGAL S.r.l, Italy, January 2008–December 2010.
3. **V. Dagienė.** Member of the editorial board of the International Journal of Instruction (<http://www.e-iji.net>).
4. **S. Dapkūnas.** Tempus Project PERSEUS – Plan to Establish Research–Science–Enterprise oriented Universities for the Benefit of Society, TEMPUS 145171-2008-ES-SMHES, 2009–2011.
5. **A. Juozapavičius.** Baltic GRID-II. (EC, FP7. Contract No. 223807). 2008–2010.
6. **A. Juozapavičius.** CERN–Lithuania Collaboration Project. 2007–2011.
7. **A. Juozapavičius.** EGI-InSPIRE, FP7 Project. 2010–2014.
8. **R. Kašuba.** A representative of the international commission on mathematical instruction (ICMI). <http://www.mathunion.org/ICMI/>
9. **R. Krasauskas.** SAGA FP7: Programme “People,” Marie Curie Action “Initial Training Networks.” 2008–2012.
10. **A. Mitašiūnas.** Advisory Board member, author, and reviewer of worldwide project Enterprise SPICE with participation of 108 experts from 30 countries and 5 continents.
11. **A. Mitašiūnas.** Project leader of the Partner – Vilnius University in the Consortium of Grant Contract for the implementation of the project #007, Baltic Organization and Network of Innovation Transfer Associations, BONITA of the Baltic Sea Region Programme 2007–2013.
12. **A. Mitašiūnas.** Participates in the PERSEUS project as an international expert in cooperation between teaching and research, adapting university curricula to the needs of industry and business. The PERSEUS project aims to extend regional cooperation within higher education, research, and business. This can imply strengthening relations between teaching and research, adapting university curricula to the needs of industry and business, and/or having businesses heighten investment in research.
13. **A. Mitašiūnas.** Represents the department in the Informatics Europe – association of computer science departments of universities and research laboratories, public and private, in Europe and neighboring areas. The mission

of Informatics Europe is to foster the development of quality research and teaching in information and computer sciences.

14. **A. Mitašiūnas.** Expert of Tempus IV Project “Plan to Establish Research-Science-Enterprise oriented Universities for the benefit of Society.”
15. **Š. Raudys, I. Žliobaitė, R. Kybartas, V. Dičiūnas.** A joint investigation with National Key Laboratory for Novel Software Technology, Nanjing University (People Republic of China) in a research project “Simulation of risk and society security problems by analysis of sequences of chaotically changing rare almost catastrophic events.” 2008–2010.
16. **V. Tumasonis.** Taking part in Unicode Consortium for developing the Unicode Standard.

Visits by staff

1. **V. Bagdonavičius.** Visiting professor, Victor Segalen university, Bordeaux 2, Bordeaux, France.
2. **G. Bareikis.** Noszvaj, Hungary. June 14–22.
3. **M. Bložnelis.** Erasmus visit Bielefeld University. May 24–29
4. **M. Bložnelis.** Research visit Heriot-Watt University, Edinburgh. June 20–27
5. **M. Bložnelis.** Conference in honor of the 70th birthday of Endre Szemerédi, Budapest. August 2–7.
6. **M. Bložnelis.** 3rd Polish Combinatorial Conference. Będlewo. September 23–30.
7. **M. Bložnelis.** Research visit Adam Mickiewicz University, Poznan. November 8–16.
8. **M. Bložnelis.** Research visit Adam Mickiewicz University, Poznan. December 1–21.
9. **P. Drungilas.** Visit to the University of Edinburgh, UK. September 5–19.
10. **P. Drungilas.** Visit to the University of Niigata, Japan. January 17–30.
11. **A. Dubickas.** Lithuanian team leader at International Mathematical Olympiad 2010, Almaty, Astana, Kazakhstan, July 2–14.
12. **A. Dubickas.** Visit to the University of Edinburgh, UK. September 5–19.
13. **J. Jankauskas.** Visit to IRMACS Centre, Simon Fraser University, Vancouver, Canada. 2010 September 1 – 2011 January 30.
14. **R. Eidukevičius.** A course on Statistics with Computer for students of the Faculty of Natural Sciences, Padova University.
15. **R. Krasauskas.** Research visit to the University of Hong Kong, China. April 6–15.
16. **V. Kurauskas.** (Pre-)Doc-Course in Probabilistic and Enumerative Combinatorics, Freie Universität/ Technische Universität, Berlin. October 4–November 26.
17. **V. Kurauskas.** Oxford University, Corpus Christi College. March 12–18. One Day Meeting in Combinatorics. March 16.
18. **V. Kvedaras.** 5th Advanced Summer School in Economics and Econometrics: Semiparametric and Nonparametric Econometrics, University of Crete, Rethymno, Greece. August 1–8.
19. **A. Laurinčikas.** Visit to Nagoya University, Japan. November 15–24.
20. **A. Laurinčikas.** Visit to Kinki University, Japan. November 26–28.
21. **A. Laurinčikas.** Visit to Tokyo University, Japan. December 19–23.
22. **A. Laurinčikas.** Visit to the Research Institute for Mathematical Sciences, Kyoto, Japan. 2010 September 10 – 2011 February 8.
23. **A. Mačiulis.** International Conference in Honor of the 70th Birthday of Endre Szemerédi, Budapest. August 2–7.
24. **M. Manstavičius.** 6th International Conference on Levy Processes: Theory

- and Applications, Dresden, Germany. July 26–30.
25. **J. Markevičiūtė**. Summer school in statistics, Örebro, Sweden. August 9–11.
 26. **D. Puplinskaitė**. Summer school in statistics, Örebro, Sweden. August 9–11.
 27. **V. Stakėnas**. International Conference in Honor of the 70th Birthday of Endre Szemerédi, Budapest. August 2–7.
 28. **G. Stepanauskas**. International Conference in Honor of the 70th Birthday of Endre Szemerédi, Budapest. August 2–7.
 29. **A. Skučaitė**. Participation in Biannual meeting of Social Security Committee (International Actuarial Association), Vienna, Austria. October 9–12.
 30. **V. Zacharovas**. Institute of Statistical Science, Academia Sinica, Taiwan. November 2, 2010 – January 30, 2011.

Foreign visitors

1. Prof. Yurii Davydov, Lille 1 University, France. June 28–July 2.
2. Prof. Anne Philippe, Nantes University, France. June 28–July 2.
3. Prof. Ross D. King. In charge of the Computational Biology research group at the Department of Computer Science in Aberystwyth University, visited Vilnius University and made a presentation of the main research interest, The Robot Scientist, at the faculty of Mathematics and Informatics. May 12–15.
4. Prof. Charles Suquet, Lille 1 University, France. June 28–July 2.
5. Prof. Marie-Claude Viano, Lille University, France. June 28–July 2.
6. Dr. Michael Weigend. Munster University.
7. Prof. Masumi Nakajima, Kagoshima University, Japan, September 2010–August 2011.

GRANTS, AWARDS

1. A. Augustinienė, S. Balčiūnas, **A. Elijio**, A. Lapienienė, G. Merkys, V. Rupainienė. Grant of Ministry of Education to support the research project “EA PIRLS 2006 Secondary Data Analysis.” 2010.
2. **A. Brilingaitė, L. Bukauskas, A. Čivilis**, G. Krušinskas. IT PRAKTIKA: Design and implementation of the model to organize student internship. 2009–2012.
3. **A. Brilingaitė, L. Bukauskas, A. Čivilis**, T. Lipnevičius, **L. Būtėnas**, R. Plėštys. MOBAS: Implementation of the information infrastructure for mobile and wireless services. 2010.
4. **L. Bukauskas**, A. Čepienė. Tuning national concept of European Credit Transfer System (ECTS): the development and implementation of credit harmonization and learning outcome based study programme methodologies. 2010–2012.
5. **V. Dagienė**. The Swiss medal for development of teaching informatics in secondary schools in Europe. January, 2010, Ciurich.
6. **R. Garunkštis**. Project of Research Council of Lithuania Investigation of zeta-functions. 2010–2011.
7. **F. Ivanauskas**. Development of Bioelectrocatalysis for Synthesis and Analysis. 2008–2010.
8. **A. Juozapavičius**. LitGRID: Parallel and Distributed Computation and e-Services Network. Financed by Ministry of Education and Science, investment program. 2007–2012.

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