

CV Georg Regensburger

Personal information

Name Georg Regensburger
 Address Institute for Algebra, Johannes Kepler University Linz (JKU)
 Altenbergerstr. 69, A-4040 Linz, Austria
 Web <http://gregensburger.com>

Career history

Sep 2016 – University Assistant, Institute for Algebra, Johannes Kepler University Linz
 Sep 2012 – Aug 2016 Senior Research Scientist in the Symbolic Computation Group of RICAM
 Dec 2010 – Aug 2012 Erwin Schrödinger Fellowship, FWF: J 3030-N18
 “Integro-Differential Operators and Algebraic Systems Theory”
 INRIA Saclay – Île-de-France, Host: A. Quadrat
 Nov 2004 – Nov 2010 Research Scientist in the Symbolic Computation Group of RICAM
 FWF SFB Subproject F1322 (Nov 2004 – Sep 2008)
 “Computer Algebra for Pure and Applied Functional Analysis”
 Project leaders: B. Buchberger and H. W. Engl
 Oct 2001 – Aug 2004 Teaching Assistant, Institute of Computer Science, University of Innsbruck
 Oct 2001 – Feb 2003 Research Assistant, FWF START Project of O. Scherzer,
 Institute of Computer Science, University of Innsbruck
 Apr 2001 – Sep 2001 Research grant from the University of Innsbruck
 Oct 1999 – Sep 2000 Civilian Service, Mobiler Hilfsdienst Innsbruck

Education

Oct 2000 – Apr 2004 University of Innsbruck, PhD Studies Mathematics,
 Supervisor Prof. Ulrich Oberst
 Promotion sub auspiciis praesidentis (Jun 2005)
 Oct 1993 – Sep 1999 University of Innsbruck, Studies in Mathematics, Magister (Master)
 Sep 1996 – Jul 1997 Universidad Complutense de Madrid, Mathematics, Erasmus Student

Research interests

Applied algebra, symbolic computation, and computer algebra systems
 Integro-differential algebras, operators, equations, and boundary problems
 Operator algebras and algebraic systems theory
 Reaction networks and applications in systems biology
 Positive solutions of generalized polynomial equations
 Polyhedral geometry and applications in metabolic networks
 Applications in actuarial sciences, construction of wavelets
 Reinforcement learning, Markov decision processes, and dynamic programming

Awards

- Jul 2012 Distinguished software presentation award at ISSAC 2012
(International symposium on symbolic and algebraic computation),
with A. Korporal and M. Rosenkranz
- Jun 2005 Promotion sub auspiciis praesidentis
- Dec 2004 “Würdigungspreis”, Bundesministerium für Bildung, Wissenschaft und Kultur
(award of the Ministry for Education, Science, and Culture)
- Jul 2003 “Preis für junge Wissenschaftler(innen)” (young scientists award),
Faculty of Natural Sciences, University of Innsbruck, with A. Matt
- Sep 2002 Award with A. Matt for “Mensch vs. Roboter”, ScienceWeek@Austria

Talks

Selected invited talks:

- “The fundamental theorem of calculus in differential algebra” with Clemens Raab. Differential algebra and related topics (DART VII), New York, USA, October 2016.
- “Symbolic computation with integro-differential operators”. Tutorial at the International Symposium on Symbolic and Algebraic Computation (ISSAC), Waterloo, Canada, July 2016.
- “Computational and algebraic aspects of integro-differential operators”. Workshop on Symbolic Combinatorics and Computational Differential Algebra, Fields Institute, Toronto, Canada, September 2015.
- “Parametrizing complex balancing equilibria of generalized mass-action systems”. Mathematical Trends in Reaction Network Theory, Copenhagen, Denmark, July 2015.
- “Generalized mass action systems and positive solutions of polynomial systems with real and symbolic exponents”. Plenary talk, Computer Algebra in Scientific Computing (CASC 2014) Warsaw, Poland, September 2014.
- “Generalized mass action systems and positive solutions of polynomial systems with parameters”. 9th European Conference on Mathematical and Theoretical Biology, Gothenburg, Sweden, June 2014.
- “Polynomial Solutions and Annihilators of Ordinary Integro-Differential Operators” with Alban Quadrat. 5th Symposium on System Structure and Control, Grenoble, France, February 2013.

Research projects

Running/Completed

- Jan 2015 – FWF Stand-alone Project P 27229
“Algebra and algorithms for integro-differential equations”
- Dec 2010 – Aug 2012 FWF Erwin Schrödinger Fellowship J 3030-N18
“Integro-Differential Operators and Algebraic Systems Theory”

As project co-leader:

- Jan 2016 – FWF Stand-alone Project P 28406 with Stefan Müller (project leader)
“Sign Vector Conditions in Chemical Reaction Network Theory”

Organization of scientific meetings

2017	Local Co-Organizer DART VIII , (Differential Algebra and Related Topics)
2016	Program Co-Chair ACA 2016 , (Applications of Computer Algebra)
2008–	Co-Organizer of AADIOS , Algebraic and Algorithmic Aspects of Differential and Integral Operators Session at ACA Kassel '16, Kalamata '15, New York '14, Malaga '13, Sofia '12, Houston '11, Vlora '10, Montréal '09, Hagenberg '08
2014–	Program Committee CASC 2017, '16, '15, '14 (Computer Algebra in Scientific Computing)
Feb 2013	Co-Organizer of Algebraic and Symbolic Methods in Mathematical Systems Theory Session at SSSC (5th Symposium on System Structure and Control)
2008–2012	Program Committee ADG 2012, '10, '08 (Automated Deduction in Geometry)
Oct 2011	Publicity Chair MACIS 2011 (Mathematical Aspects of Computer and Information Sciences)
Aug 2010	Program Committee ANB 2010 (Algebraic and Numeric Biology)
Aug 2008	Program Co-Chair and Local Organizer AB 2008 (Algebraic Biology)
Jun 2002	ScienceWeek@Austria 2002, “ Mensch vs. Roboter ” with A. Matt

Editorial work

Aug 2014– Nov 2015	Co-Editor, <i>Advances in Applied Mathematics</i> Special Issue on “Computational aspects of differential/difference algebra and integral operators”, with M. Barkatou, T. Cluzeau, A. Ovchinnikov, and M. Rosenkranz.
Jan 2013–Jan 2014	Co-Editor, post-proceedings on AADIOS '12.
Aug 2009–Feb 2011	Co-Editor, <i>Mathematics in Computer Science</i> Special Issue on AADIOS .
Sep 2007–Jun 2008	Co-Editor, AB 2008 (Algebraic Biology).
May 2006–Nov 2007	Co-Editor, “Gröbner Bases in Control Theory and Signal Processing”, Special Semester on Gröbner Bases, RICAM/RISC.

Software

- [GMAK](#) (Maple): Parametrizing special equilibria of generalized mass action systems
- [IntDiffOp](#) and [IntDiffOperations](#) (Maple): Ordinary integro-differential operators, linear ordinary boundary problems and Green’s operators, developed with A. Korporal
- [MaxLinearAlgebra](#) (Maple): Max-plus linear algebra and applications for constructing generalized solutions of nonlinear first-order boundary problems
- [MDP](#) (Maple): Markov decision processes
- [Scalgui](#) (MATLAB): GUI and functions for parametrized wavelets
- [SimRobo](#) (C++): Simulator for reinforcement learning, developed with A. Matt

Publications

Publications and DOI’s are available at <http://gregensburger.com>.

ORCID: <http://orcid.org/0000-0001-7735-3726>.