Curriculum Vitae

Name	**Georg REGENSBURGER**
Date of Birth	21.11.1974
Address	Institute for Algebra, Johannes Kepler University Linz (JKU) Altenbergerstr. 69, A-4040 Linz, Austria
Telephone/Email	+43 650 4560457, georg.regensburger@ricam.oeaw.ac.at
Web	http://gregensburger.com
Nationality	Austrian
Marital Status	Married, two children

Career history

Sep 2016 –	University Assistant Institute for Algebra, Johannes Kepler University Linz
Sep 2012 – Aug 2016	Senior Research Scientist Symbolic Computation Group at RICAM Johann Radon Institute for Computational and Applied Mathematics, Linz
Dec 2010 – Aug 2012	Erwin Schrödinger Fellowship (Marie Curie Fellow) from the Austrian Science Fund (FWF) INRIA Saclay – Île-de-France, France
Nov 2004 – Nov 2010	Research Scientist Symbolic Computation Group at RICAM
Oct 2001 – Aug 2004	Teaching Assistant Institute of Computer Science, University of Innsbruck
Oct 2001 – Feb 2003	Research Assistant 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, 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
Jan 1992 – Jun 1992	Babinda State School, Australia, AFS Exchange Student

Research interests

Applied algebra, symbolic computation, and computer algebra systems
Operator algebras and algebraic systems theory
Integro-differential algebras, equations, and boundary problems
Positive solutions of generalized polynomial equations
Reaction networks and applications in systems biology
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 for "Mensch vs. Robotor", ScienceWeek@Austria, with A. Matt

Research projects

Submitted/under revision

Mar 2018	FWF Stand-alone Project with Clemens Raab (co-project leader) Symbolic computations for identities of linear operators EUR 384.104

Running/Completed/Approved

Jan 2015 – Jun 2019	FWF Stand-alone Project P 27229 "Algebra and algorithms for integro-differential equations" EUR 435.645
Jan 2016 – Dec 2017	Scientific & Technological Cooperation Austria – France Austrian agency for international mobility and cooperation in education (OEAD) "Computer algebra for Functional Equations (CAFE)" with Thomas Cluzeau and Moulay Barkatou (University of Limoges) and Alban Quadrat (INRIA Lille–Nord Europe), EUR 6.720
Jan 2016 – Dec 2017	Scientific & Technological Cooperation with Serbia (OEAD) "Generalized inverses, symbolic computation and operator algebras" with Dragana Cvetkovic-Ilic (University of Niš), EUR 6.520
Dec 2010 – Aug 2012	FWF Erwin Schrödinger Fellowship J 3030-N18 "Integro-Differential Operators and Algebraic Systems Theory", EUR 64.050

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" EUR 328.177
Mar 2010	FWF Stand-alone Project P22322-N18 with Markus Rosenkranz (project leader) "Boundary Problems via Symbolic Integral Operators" EUR 107.289 was approved but withdrawn by the FWF due to affiliation change

Software

- `GMAK` (Maple): Parametrizing special equilibria of generalized mass action systems
- `IntDiffOp(erations)` (Maple): Ordinary integro-differential operators, linear ordinary boundary problems and (generalized) 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

Organization of scientific meetings

2008 –	Co-Organizer of AADIOS, Algebraic and Algorithmic Aspects of Differential and Integral Operators Session at ACA Santiago de Compostela 2018, Kassel '16, Kalamata '15, New York '14, Malaga '13, Sofia '12, Houston '11, Vlora '10, Montréal '09, Hagenberg '08
2014 –	Program Committee CASC 2018, '17, '16, '15, '14 (Computer Algebra in Scientific Computing)
2017	Local Co-Organizer DART VIII, (Differential Algebra and Related Topics)
2016	Program Co-Chair ACA 2016, (Applications of Computer Algebra)
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, *Advances in Applied Mathematics* Special Issue on "Computational aspects of differential/difference algebra and integral operators", with M. Barkatou, T. Cluzeau, A. Ovchinnikov, and M. Rosenkranz, see [52]
Jan 2013 – Jan 2014	Co-Editor, post-proceedings on AADIOS '12, see [53].
Aug 2009 – Feb 2011	Co-Editor, *Mathematics in Computer Science* Special Issue on AADIOS, see [54].
Sep 2007 – Jun 2008	Co-Editor, AB 2008 (Algebraic Biology), see [55, 56].
May 2006 – Nov 2007	Co-Editor, "Gröbner Bases in Control Theory and Signal Processing", Special Semester on Gröbner Bases, RICAM/RISC, see [57].

Languages

German (mother tongue), English, French, Spanish

Teaching

	University of Linz:
SS 2018	Einführung in die Algebra und Diskrete Mathematik und Algebra und Diskrete Mathematik (für Lehramt), lecture and tutorial Lineare Algebra und Analytische Geometrie 2, tutorial (Konversatorium)
WS 2017/18	Introduction to Gröbner Bases, lecture Lineare Algebra und Analytische Geometrie 1, tutorial (Konversatorium)
SS 2017	Einführung in die Algebra und Diskrete Mathematik und Algebra und Diskrete Mathematik (für Lehramt), lecture and tutorial
SS 2017	Algebra für Informatiker, tutorial
WS 2016/17	Introduction to Rings and Operator Algebras, lecture
WS 2015/16	Computational integro-differential algebra, lecture with C. Raab
WS 2013/14	Gewöhnliche Differentialgleichungen und Dynamische Systeme, tutorial
WS 2012/13	Gewöhnliche Differentialgleichungen und Dynamische Systeme, tutorial
SS 2010	Lineare Algebra 2, tutorial (Konversatorium)
WS 2009/10	Symbolic Integral Operators and Boundary Problems 2,
SS 2009	Symbolic Integral Operators and Boundary Problems lectures with M. Rosenkranz
WS 2008/09	Algorithmic $\mathscr{D}$-Modules, lecture with G. Landsmann and M. Rosenkranz Analysis, tutorial for computer scientists
SS 2008	$\mathscr{D}$-Module Theory II, lecture with G. Landsmann and M. Rosenkranz
Feb 2007	Solving and Manipulating Differential Equations with Maple and Mathematica, short course with M. Rosenkranz, RISC
WS 2007/08	$\mathscr{D}$-Module Theory I, lecture with G. Landsmann and M. Rosenkranz
SS 2007, 2006	Mathematik 1 (Analysis), tutorial for computer scientists
WS 2006/07	Manifolds and Differential Equations, lecture with M. Rosenkranz
	University of Innsbruck:
WS 2003/04, SS 2004 WS 2002/03, SS 2003	Software Entwicklung I und II, tutorial for computer scientists and organization of all tutorial groups Programming languages `Java` (2003/04) and `C/C++` (2002/03)
SS 2002	Algorithmische Mathematik II (Analysis), tutorial for computer scientists
WS 2001/02	Algorithmische Mathematik I (Linear Algebra), tutorial for computer scientists

(Co-)supervised theses

2015 –	Jamal Hossein Poor, PhD Thesis, University of Linz, with C. Raab
2009 – 2012	Anja Korporal, "Symbolic Methods for Generalized Green's Operators and Boundary Problems", PhD Thesis, University of Linz, with M. Rosenkranz
2007 – 2011	Loredana Tec, "A Symbolic Framework for General Polynomial Domains in Theorema: Applications to Boundary Problems", PhD Thesis, University of Linz, with B. Buchberger and M. Rosenkranz
2009	Le Wang, "Symbolic Computation for Parametrized Wavelets in SAGE", Master Thesis, University of Linz
2005	Martin Neururer, "Behavioral Systems", Bachelor Thesis, University of Innsbruck
2004	Martin Neururer, "The Khepera Robot Control System", Bachelor Thesis, University of Innsbruck, with A. Matt

Recent collaborations

International

- Hansjörg Albrecher, University of Lausanne, Switzerland.
- Moulay Barkatou and Thomas Cluzeau, University of Limoges, France.
- François Boulier and François Lemaire, University Lille I, France.
- Carsten Conradi, HTW Berlin, Germany.
- Corina Constantinescu, University of Liverpool, UK.
- Alicia Dickenstein, University of Buenos Aires, Argentina.
- Elisenda Feliu, University of Copenhagen, Denmark.
- Li Guo, Rutgers University at Newark, US.
- Steffen Klamt, MPI for Dynamics of Complex Technical Systems, Magdeburg, Germany.
- Anja Korporal, RWTH Aachen University, Germany.
- Alexey Ovchinnikov, The City University of New York, Queens College, US.
- Zbigniew Palmowski, University of Wroclaw, Poland.
- Alban Quadrat, INRIA Lille–Nord Europe, France.
- Anne Shiu, Texas A&M University, US.
- William Sit, The City University of New York, US.
- Ralf Steuer, Humboldt University of Berlin, Germany.
- Nelly Villamizar, Swansea University, UK.
- Andreas Weber, University of Bonn, Germany.
- Marie-Therese Wolfram, University of Warwick, UK.

National

- Balázs Boros, University of Vienna, Vienna.
- Bruno Buchberger, RISC (Research Institute for Symbolic Computation), Hagenberg.
- Matteo Gallet, RISC, Hagenberg.
- Josef Hofbauer, University of Vienna.
- Jamal Hossein Poor, RICAM, Linz.
- Christoph Koutschan, RICAM, Linz.
- Zijia Li, Joanneum Research, Klagenfurt.
- Stefan Müller, University of Vienna.
- Clemens Raab, JKU, Linz.
- Helene Ranetbauer, University of Vienna.
- Markus Rosenkranz, RISC, Hagenberg.
- Josef Schicho, RISC, Hagenberg.
- Loredana Tec, Software Competence Center Hagenberg, Hagenberg.
- Jürgen Zanghellini, University of Natural Resources and Life Sciences, Vienna.

Talks

40 invited and colloquium talks, and 59 contributed talks, *selected invited/colloquium talks:*

- "Computing sign-vector conditions for bounding the number of complex-balancing equilibria". 11th European Conference on Mathematical and Theoretical Biology, Lisbon, Portugal, July 2018.
- "Generalized mass-action systems and the bijectivity of exponential maps". Lectures on formal reaction kinetics and related questions, Budapest, Hungary, February 2018.
- "Symbolic Computation with (Integro-)Differential Operators". Workshop on introduction to computer algebra and applications. Douala, Cameroon, October 2017.
- "The fundamental theorem of calculus in differential algebra", DART VII, Differential algebra and related topics, New York, USA, October 2016.
- "Symbolic computation with integro-differential operators". Tutorial at the International Symposium on Symbolic and Algebraic Computation (ISSAC) 2016, 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.
- "Positive steady states and solutions of polynomial systems with real exponents". Functional Equations in LIMoges 2015 (FELIM), Limoges, France, March 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.
- "Polynomial Solutions and Annihilators of Ordinary Integro-Differential Operators" with Alban Quadrat. 5th Symposium on System Structure and Control, Grenoble, France, February 2013.
- "Generalized mass action systems" with Stefan Müller. Workshop on "Symbolic Methods for Chemical Reaction Networks", Dagstuhl, Germany, November 2012.
- "Algebraic Properties and Symbolic Aspects of Ordinary Integro-Differential Operators and Applications to Boundary Problems". Foundations of Computational Mathematics (FoCM) 2011, Budapest, Hungary, July 2011.
- "Algebraic and Algorithmic Aspects of Integro-Differential Operators". Constructive homological algebra methods, implementations and applications, Centre International de Rencontres Mathématiques (CIRM), Marseille, France, January 2011.
- "Integro-Differential Algebras, Operators, and Polynomials". Differential Algebra and Related Topics (DART IV), Beijing, China, October 2010.
- "Boundary Problems and the Gerber-Shiu Function". 45^e Journée de séminaires actuariels $\mathscr{L}2$, Université de Lausanne, Lausanne, Switzerland, March 2010.
- "Algebraic structures for boundary problems". Colloquium on the occasion of the retirement of Prof. Ulrich Oberst, University of Innsbruck, Innsbruck, Austria, July 2009.
- "Integro-Differential Algebras and the Monoid of Boundary Problems" with Markus Rosenkranz. Laboratoire Paul Painlevé, Université Lille 1, Lille, France, December 2008.
- "Optimal Filter Design with Parametrized Wavelets". Applications of Computer Algebra (ACA), Oakland University, Rochester, MI, USA, July 2007.
- "Construction of Parameterized Wavelets Using Gröbner Bases". Applications of Computer Algebra (ACA), Nara, Japan, August 2005.

Publications

Preprints and DOI's for all publications are available at http://gregensburger.com

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

Google Scholar: http://scholar.google.com/citations?user=cxGyk4YAAAAJ&hl
Scopus Author ID: https://www.scopus.com/authid/detail.uri?authorId=8602636800
ResearcherID: http://www.researcherid.com/rid/N-7732-2018

Submitted

[1] Stefan Müller, Josef Hofbauer, and Georg Regensburger. On the bijectivity of families of exponential/generalized polynomial maps. 26 pages, 2018. arXiv:1804.01851 [math.AG].

[2] Balázs Boros, Josef Hofbauer, Stefan Müller, and Georg Regensburger. Planar S-systems: Global stability and the center problem. *Discrete Contin. Dyn. Syst.*, 26 pages, 2018. Under revision. arXiv:1707.02104 [math.DS].

Journals, refereed proceedings and book chapters

[3] Matthias P. Gerstl, Stefan Müller, Georg Regensburger, and Jürgen Zanghellini. Flux tope analysis: studying the coordination of reaction directions in metabolic networks. *Bioinformatics*, 8 pages, 2018. In press. https://doi.org/10.1093/bioinformatics/bty550

[4] Thomas Cluzeau, Jamal Hossein Poor, Alban Quadrat, Clemens G. Raab, and Georg Regensburger. Symbolic computation for integro-differential-time-delay operators with matrix coefficients. In *14th IFAC Workshop on Time Delay Systems*, IFAC-PapersOnLine, 6 pages, 2018. To appear.

[5] Alban Quadrat and Georg Regensburger. Computing polynomial solutions and annihilators of integro-differential operators with polynomial coefficients. In *Algebraic Methods and Symbolic-Numeric Computation in Systems Theory*, Advances in Delays and Dynamics (ADD), 26 pages. Springer, 2018. To appear.

[6] Balázs Boros, Josef Hofbauer, Stefan Müller, and Georg Regensburger. The center problem for the Lotka reactions with generalized mass-action kinetics. *Qual. Theory Dyn. Syst.*, 17:403–410, 2018.

[7] Steffen Klamt, Stefan Müller, Georg Regensburger, and Jürgen Zanghellini. Theory and practice of yield (versus rate) optimization in constraint-based modeling and metabolic engineering. *Metab. Eng.*, 47:153–169, 2018.

[8] Jamal Hossein Poor, Clemens G. Raab, and Georg Regensburger. Algorithmic operator algebras via normal forms in tensor rings. *J. Symbolic Comput.*, 85:247–274, 2018.

[9] Steffen Klamt, Georg Regensburger, Matthias P. Gerstl, Christian Jungreuthmayer, Stefan Schuster, Radhakrishnan Mahadevan, Jürgen Zanghellini, and Stefan Müller. From elementary flux modes to elementary flux vectors: Metabolic pathway analysis with arbitrary linear flux constraints. *PLoS Comput. Biol.*, 13(4):e1005409, 2017.

[10] Matteo Gallet, Christoph Koutschan, Zijia Li, Georg Regensburger, Josef Schicho, and Nelly Villamizar. Planar linkages following a prescribed motion. *Math. Comp.*, 86:473–506, 2017.

[11] Christian Jungreuthmayer, Matthias P. Gerstl, Michael Hanscho, Govind Nair, Georg Regensburger, Stefan Müller, and Jürgen Zanghellini. Toward genome-scale metabolic pathway analysis. In *Industrial Biotechnology: Microorganisms*, pages 111–123. Wiley, 2017.

[12] Jamal Hossein Poor, Clemens G. Raab, and Georg Regensburger. Algorithmic operator algebras via normal forms for tensors. In Markus Rosenkranz, editor, *ISSAC '16: Proceedings of the 41th international symposium on Symbolic and algebraic computation*, pages 397–404, New York, NY, USA, 2016. ACM.

[13] Georg Regensburger. Symbolic computation with integro-differential operators. In Markus Rosenkranz, editor, *ISSAC '16: Proceedings of the 41th international symposium on Symbolic and algebraic computation*, pages 17–18, New York, NY, USA, 2016. ACM. Tutorial, extended abstract.

[14] Jamal Hossein Poor, Clemens G. Raab, and Georg Regensburger. Normal forms for operators via Gröbner bases in tensor algebras. In Gert-Martin Greuel, Thorsten Koch, Peter Paule, and Andrew Sommese, editors, *Mathematical Software – ICMS 2016*, volume 9725 of *Lecture Notes in Comput. Sci.*, pages 505–513. Springer International Publishing, 2016.

[15] Stefan Müller and Georg Regensburger. Elementary vectors and conformal sums in polyhedral geometry and their relevance for metabolic pathway analysis. *Front. Genet.*, 7(90):11 pages, 2016.

[16] François Boulier, François Lemaire, Joseph Lallemand, Georg Regensburger, and Markus Rosenkranz. Additive normal forms and integration of differential fractions. *J. Symbolic Comput.*, 77:16–38, 2016.

[17] Stefan Müller, Elisenda Feliu, Georg Regensburger, Carsten Conradi, Anne Shiu, and Alicia Dickenstein. Sign conditions for injectivity of generalized polynomial maps with applications to chemical reaction networks and real algebraic geometry. *Found. Comput. Math.*, 16:69–97, 2016.

[18] Christoph Koutschan, Helene Ranetbauer, Georg Regensburger, and Marie-Therese Wolfram. Symbolic derivation of mean-field PDEs from lattice-based models. In *Proceedings of the 17th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing (SYNASC)*, pages 27–33. IEEE Computer Society Conference Publishing Services (CPS), 2015.

[19] Stefan Müller, Georg Regensburger, and Ralf Steuer. Resource allocation in metabolic networks: kinetic optimization and approximations by FBA. *Biochem. Soc. Trans.*, 43:1195–1200, 2015.

[20] Anja Korporal and Georg Regensburger. On the product of projectors and generalized inverses. *Linear Multilinear Algebra*, 62:1567–1582, 2014.

[21] Stefan Müller and Georg Regensburger. Generalized mass-action systems and positive solutions of polynomial equations with real and symbolic exponents. In V. P. Gerdt, Wolfram Koepf, E. W. Mayr, and E. H. Vorozhtsov, editors, *Computer Algebra in Scientific Computing. Proceedings of the 16th International Workshop (CASC 2014)*, volume 8660 of *Lecture Notes in Comput. Sci.*, Berlin/Heidelberg, pages 302–323, 2014. Springer.

[22] Stefan Müller, Georg Regensburger, and Ralf Steuer. Enzyme allocation problems in kinetic metabolic networks: Optimal solutions are elementary flux modes. *J. Theoret. Biol.*, 347:182–190, 2014.

[23] Li Guo, Georg Regensburger, and Markus Rosenkranz. On integro-differential algebras. *J. Pure Appl. Algebra*, 218:456–473, 2014.

[24] Anja Korporal and Georg Regensburger. Composing and factoring generalized Green's operators and ordinary boundary problems. In M. Barkatou, T. Cluzeau, G. Regensburger, and M. Rosenkranz, editors, *AADIOS 2012*, volume 8372 of *Lecture Notes in Comput. Sci.*, pages 116–134, Berlin/Heidelberg, 2014. Springer.

[25] François Boulier, François Lemaire, Georg Regensburger, and Markus Rosenkranz. On the integration of differential fractions. In M. Kauers, editor, *ISSAC '13: Proceedings of the 38th international symposium on Symbolic and algebraic computation*, pages 101–108, New York, NY, USA, 2013. ACM.

[26] Alban Quadrat and Georg Regensburger. Polynomial solutions and annihilators of ordinary integro-differential operators. In *5th IFAC Symposium on System Structure and Control*, *IFAC Proceedings Volumes*, 42(2):308–313, 2013.

[27] Hansjörg Albrecher, Corina Constantinescu, Zbigniew Palmowski, Georg Regensburger, and Markus Rosenkranz. Exact and asymptotic results for insurance risk models with surplus-dependent premiums. *SIAM J. Appl. Math.*, 73:47–66, 2013.

[28] Anja Korporal, Georg Regensburger, and Markus Rosenkranz. Symbolic computation for ordinary boundary problems in Maple. *ACM Commun. Comput. Algebra*, 46:154–156, 2012. Software presentation at ISSAC 2012.

[29] Stefan Müller and Georg Regensburger. Generalized mass action systems: Complex balancing equilibria and sign vectors of the stoichiometric and kinetic-order subspaces. *SIAM J. Appl. Math.*, 72:1926–1947, 2012.

[30] Markus Rosenkranz, Georg Regensburger, Loredana Tec, and Bruno Buchberger. Symbolic analysis for boundary problems: From rewriting to parametrized Gröbner bases. In U. Langer and P. Paule, editors, *Numerical and Symbolic Scientific Computing: Progress and Prospects*, Texts and Monographs in Symbolic Computation, pages 273–331. SpringerWienNew York, Vienna, 2012.

[31] Anja Korporal, Georg Regensburger, and Markus Rosenkranz. Regular and singular boundary problems in Maple. In V. Gerdt, W. Koepf, E. Mayr, and E. Vorozhtsov, editors, *Computer Algebra in Scientific Computing. Proceedings of the 13th International Workshop (CASC 2011)*, volume 6885 of *Lecture Notes in Comput. Sci.*, pages 280–293, Berlin/Heidelberg, 2011. Springer.

[32] Anja Korporal, Georg Regensburger, and Markus Rosenkranz. A Maple Package for Integro-Differential Operators and Boundary Problems. *ACM Commun. Comput. Algebra*, 44:120–122, 2010. Poster presentation at ISSAC '10.

[33] Loredana Tec, Georg Regensburger, Markus Rosenkranz, and Bruno Buchberger. An automated confluence proof for an infinite rewrite system parametrized over an integro-differential algebra. In K. Fukuda, J. van der Hoeven, M. Joswig, and N. Takayama, editors, *Mathematical Software – ICMS 2010*, volume 6327 of *Lecture Notes in Comput. Sci.*, pages 245–248. Springer, 2010.

[34] Hansjörg Albrecher, Corina Constantinescu, Gottlieb Pirsic, Georg Regensburger, and Markus Rosenkranz. An algebraic operator approach to the analysis of Gerber-Shiu functions. *Insurance Math. Econom.*, 46:42–51, 2010.

[35] Markus Rosenkranz, Georg Regensburger, Loredana Tec, and Bruno Buchberger. A symbolic framework for operations on linear boundary problems. In V. P. Gerdt, E. W. Mayr, and E. H. Vorozhtsov, editors, *Computer Algebra in Scientific Computing. Proceedings of the 11th International Workshop (CASC 2009)*, volume 5743 of *Lecture Notes in Comput. Sci.*, pages 269–283, Berlin, 2009. Springer.

[36] Georg Regensburger, Markus Rosenkranz, and Johannes Middeke. A skew polynomial approach to integro-differential operators. In J. P. May, editor, *ISSAC '09: Proceedings of the 2009 international symposium on Symbolic and algebraic computation*, pages 287–294, New York, NY, USA, 2009. ACM.

[37] Georg Regensburger and Markus Rosenkranz. An algebraic foundation for factoring linear boundary problems. *Ann. Mat. Pura Appl. (4)*, 188:123–151, 2009.

[38] Markus Rosenkranz and Georg Regensburger. Integro-differential polynomials and operators. In D. Jeffrey, editor, *ISSAC '08: Proceedings of the twenty-first international symposium on Symbolic and algebraic computation*, pages 261–268, New York, NY, USA, 2008. ACM.

[39] Bruno Buchberger, Georg Regensburger, Markus Rosenkranz, and Loredana Tec. General polynomial reduction with Theorema functors: Applications to integro-differential operators and polynomials. *ACM Commun. Comput. Algebra*, 42:135–137, 2008. Poster presentation at ISSAC '08.

[40] Markus Rosenkranz and Georg Regensburger. Solving and factoring boundary problems for linear ordinary differential equations in differential algebras. *J. Symbolic Comput.*, 43:515–544, 2008.

[41] Georg Regensburger. Max-plus linear algebra in Maple and generalized solutions for first-order ordinary BVPs via max-plus interpolation. In M. Moreno Maza and S. M. Watt, editors, *Milestones in Computer Algebra MICA 2008*, pages 177–182, Stonehaven Bay, Trinidad and Tobago, 2008. University of Western Ontario. A conference in honor of Keith Geddes' 60th birthday.

[42] Georg Regensburger. Applications of filter coefficients and wavelets parametrized by moments. In H. Park and G. Regensburger, editors, *Gröbner Bases in Control Theory and Signal Processing*, volume 3 of *Radon Series Comp. Appl. Math.*, pages 191–214. de Gruyter, Berlin, 2007.

[43] Georg Regensburger. Parametrizing compactly supported orthonormal wavelets by discrete moments. *Appl. Algebra Engrg. Comm. Comput.*, 18:583–601, 2007.

[44] Georg Regensburger and Otmar Scherzer. Symbolic computation for moments and filter coefficients of scaling functions. *Ann. Comb.*, 9:223–243, 2005.

[45] Herwig Hauser and Georg Regensburger. Explizite Auflösung von ebenen Kurvensingularitäten in beliebiger Charakteristik (German) [Explicit resolution of plane curve singularities in arbitrary characteristic]. *Enseign. Math. (2)*, 50:305–353, 2004.

[46] Andreas Matt and Georg Regensburger. An adaptive clustering method for model-free reinforcement learning. In *Proceedings of IEEE INMIC 2004 (8th International Multitopic Conference)*, pages 362–367, Lahore, Pakistan, 2004.

[47] Andreas Matt and Georg Regensburger. Approximate policy iteration for several environments and reinforcement functions. In A. Dutech and O. Buffet, editors, *Proceedings of the 6th European Workshop on Reinforcement Learning (EWRL-6)*, pages 15–17, Nancy, France, 2003.

[48] Andreas Matt and Georg Regensburger. Generalization over environments in reinforcement learning. *IberoAmerican Journal of Artificial Intelligence*, 7:47–53, 2003.

[49] Andreas Matt and Georg Regensburger. Generalization over environments in reinforcement learning. In J. M. Santos and A. Zapico, editors, *Proceedings of the 4th Argentine Symposium on Artificial Intelligence (ASAI 2002)*, pages 100–109, Santa Fe, Argentina, 2002.

[50] Johannes Otepka and Georg Regensburger. Hybride 3D Ausgleichung von GPS-, Tachymeter-, und Nivellementbeobachtungen. *Österreichische Zeitschrift für Vermessung und Geoinformation (VGI)*, 2/02:46–52, 2002.

[51] Andreas Matt and Georg Regensburger. Policy improvement for several environments. In M. A. Wiering, editor, *Proceedings of the 5th European Workshop on Reinforcement Learning (EWRL-5)*, pages 30–32, Utrecht, Netherlands, 2001.

Edited volumes

[52] Moulay Barkatou, Thomas Cluzeau, Alexey Ovchinnikov, Georg Regensburger, and Markus Rosenkranz. Special issue on computational aspects of differential/difference algebra and integral operators [Preface]. *Adv. in Appl. Math.*, 72:1–3, 2016.

[53] Moulay Barkatou, Thomas Cluzeau, Georg Regensburger, and Markus Rosenkranz, editors. *Algebraic and Algorithmic Aspects of Differential and Integral Operators, 5th International Meeting, AADIOS 2012, held at ACA 2012, Selected and Invited Papers*, volume 8372 of *Lecture Notes in Comput. Sci.*, Berlin/Heidelberg, 2014. Springer.

[54] Georg Regensburger, Markus Rosenkranz, and William Sit. Foreword, Special Issue on "Algebraic and Algorithmic Aspects of Differential and Integral Operators". *Math. Comput. Sci.*, 4(2–3):139–141, 2010.

[55] Katsuhisa Horimoto, Georg Regensburger, Markus Rosenkranz, and Hiroshi Yoshida, editors. *Algebraic Biology, Third International Conference, AB 2008, Castle of Hagenberg, Austria, July 31-August 2, 2008, Proceedings*, volume 5147 of *Lecture Notes in Comput. Sci.* Springer, 2008.

[56] Katsuhisa Horimoto, Georg Regensburger, Markus Rosenkranz, and Hiroshi Yoshida, editors. *Algebraic Biology, Third International Conference, AB 2008, Castle of Hagenberg, Austria, July 31-August 2, 2008, Invited Talks and Short Communications*, 2008.

[57] Hyungju Park and Georg Regensburger, editors. *Gröbner bases in control theory and signal processing*, volume 3 of *Radon Series on Computational and Applied Mathematics*. Walter de Gruyter GmbH & Co. KG, Berlin, 2007. Papers from the D3 Workshop held in Linz, May 18–19, 2006.

Theses

[58] Andreas Matt and Georg Regensburger. *Reinforcement Learning for Several Environments: Theory and Applications*. PhD thesis, University of Innsbruck, 2004.

[59] Georg Regensburger. Auflösung von "ebenen" Kurvensingularitäten. Master's thesis, University of Innsbruck, 1999.