

**Invited Conference Presentations:**

ISSAC = *International Symposium on Symbolic and Algebraic Computation*

IMACS ACA = *Intern. Assoc'n for Math. and Computers in Simulation Applicns. of Computer Algebra*

IMA = Institute of Mathematics and its Applications.

Approximate Commutative Algebra 2008 (ApCoa'08), Talk: Towards Geometric Completion of Differential Systems by Points, Research Institute on Symbolic Computation (RISC), Castle Hagenburg, Linz, July 24-26, 2008.

Approximate Commutative Algebra 2008 (ApCoa'08), Talk: Geometric Involutive Bases and their Applications to the Numerical Computation of Groebner Bases, Research Institute on Symbolic Computation (RISC), Castle Hagenburg, Linz, July 24-26, 2008.

Canadian Applied and Industrial Mathematics (CAIMS) Mini-Symposium, Canada France Congress, Talk: Geometric Algorithms for PDAE and DAE, Université du Québec a Montréal, June 3, 2008.

Geometry and Algebra of PDE (PDEs2007). Talk: Numerical Jet Geometry and its Applications, University of Tromso, Sommaray, Norway, August 16, 2007.

ISSAC'07, Talk: Symbolic-numeric Computation of Implicit Riquier Bases for PDE, Kitchener-Waterloo, July 30, 2007.

Applications of Computer Algebra (ACA) 2007, Talk: New Extensions and Applications for Numerical Algebraic Geometry, Oakland University, Michigan, July 21, 2007.

Applications of Computer Algebra (ACA) 2007, Talk: Symbolic Symmetry Analysis of Differential Equations, Oakland University, Michigan, July 21, 2007.

CMS-MITACS Joint Conference 2007, Talk: Symbolic-Numeric Completion of Differential Systems by Homotopy Continuation, Winnepeg, June 1, 2007.

Workshop in Differential Algebra and Rewriting Techniques (DART), Talk: Introduction to Symbolic-Numeric Completion Methods for PDE, April 9, 2007, Rutgers at Newark, Newark, NJ, USA.

IMA Workshop: Software for Algebraic Geometry, Application of numerical algebraic geometry to partial differential equations, October 23-27, 2006, Video of the Talk available at:

<http://www.ima.umn.edu/recordings/Workshop/2006-2007/W10.23-27.06/reid10.27.06.ram>

IMA Workshop: Software for Algebraic Geometry, Talk: Software for partial differential equations, with associated Maple worksheet for the tutorial available at: <http://www.ima.umn.edu/2006-2007/W10.23-27.06/abstracts.html>

IMA Workshop: Symmetries and Overdetermined Systems of PDE, "Algorithmic Symmetry Analysis and Overdetermined Systems of PDE", Institute of Mathematics and its Applications, University of Minnesota, Minneapolis, August 1, 2006.

Special Semester on Groebner Bases, Research Institute for Symbolic Computation, "Existence and Uniqueness Theory for Analytic PDE", 10 May 2006.

Conference: Formal Theory of PDEs and their Applications, "Symbolic-Numeric Methods for Intrinsic PDE Systems", University of Joensuu, Mekkijarvi Research Station, Finland, April 4, 2006.

Application of Numerical Algebraic Geometry to PDE, Special Session: Symbolic Numeric Computation and Applications, AMS/SIAM Joint Mathematics Meetings San Antonio, Texas, Jan. 15, 2006

ISSAC'05, Beijing, China, July 24-27, 2005.

Int'l Workshop on Symbolic Numeric Computation SNC 2005, Xi'an China, July 19-21, 2005.

Foundations of Computational Mathematics 2005 (FOCM'05), "Progress on Symbolic and Numeric Differential Elimination Methods for Differential Systems", Symbolic Analysis Workshop, Santander, Spain, July 5, 2005.

CASA'2005, ISCCS 2005, Advanced Science through Computation, Atlanta, USA May, 22-25, 2005.

AMS Special Session on Solving Polynomial Systems (Northwestern Univ.). Invited Speaker: "Numerical Geometry of Partial Differential Equations", Oct 24, 2004.

International Workshop on Geometric Invariance and Applications in Engineering 2004 (Xian, China), Invited Speaker: "Hybrid Symbolic-Numeric Methods for Differential Equations and Geometric Invariance", May, 2004.

Constructive and Invariant Methods in Algebraic and Differential Equations IWMM04 (Shanghai, China) May, 2004, Invited Speaker: "Determining Linearizable DE Close to a Given DE".

Asian Symposium on Computer Mathematics 2003, Beijing Institute for Mathematics Mechanization, Chinese Academy of Science, Invited Speaker: "Exploration of Homotopy Solving", Oct 24, 2003.

Auckland Numerical Ordinary Differential Equations Meeting 2003, Auckland University, Auckland, July 14-18, 2003.

ISSAC 2003 (Drexel Univ., Philadelphia), August 3-6, 2003. Invited speaker.

ICIAM 2003 International Congress of Industrial and Applied Mathematics 2003 (Sydney, Australia). Invited symposium speaker. July 7-11, 2003.

Workshop on Group Theory and Numerical Analysis (Montreal), May 26-31 (2003). Invited speaker.

Differential invariants and invariant differential equations, Banff International Research Station (BIRS) Workshop, July 19 - 24, 2003. Invited funded participant.

ASCM 2003. Asian Symposium on Computer Mathematics, Beijing, Oct. 23-25, 2003. Invited speaker (postponed due to the SARS outbreak).

Foundations of Computational Mathematics (FoCM 2002). Minneapolis, 5-14 Aug '02. Invited Speaker.

Funded speaker to the Workshop: Computer Algebra in Applications to Integrable Systems. Isaac Newton Institute for Mathematical Sciences in Cambridge, Nov 16-17, 2001.

IMACS '2001 Conference on Computer Algebra, Albuquerque, New Mexico.

Funded speaker to the AMS Special Session on Differential Algebra and Related Topics November 4-5, 2000, Columbia University, New York, NY, USA.

ISSAC 2000, St. Andrews, Scotland, August 6-9, 2000.

EPSRC-funded speaker to the London Mathematical Society Durham Symposium on Geometric Integration, Durham University, July 13-23, 2000.

NSF-funded speaker to the AMS-IMS-SIAM Joint Research Conference on “Symbolic Computation: Solving Equations in Algebra, Geometry and Engineering”, June 11-16, 2000, at Mount Holyoke College, Massachusetts.

Winter Meeting of the Canadian Mathematical Society, Dec 11-13, 1999, Université de Montréal.

ISSAC 1999, Vancouver, 25-28 July 1999.

Foundations of Computational Mathematics (FoCM'99), Oxford University, 18-25 July 1999.

Conference on Gröbner Bases, funded by NSF and CONACYT, February 8-12, 1999, Guaranjuato, Mexico, organised by Eisenbud, Sturmfels and Gomez-Mont.

Invited speaker and member to MSRI, Berkeley, Aug'98-Nov'98.

ISSAC 1997 (Maui).

IMACS'97 conference on computer algebra (Maui).

IMACS'96 conference on computer algebra (Castle Hagenburg, Austria).

ISSAC 1995 (Concordia, Montreal).

IMACS'95 conference on computer algebra (University of New Mexico).

Workshop on Exterior Systems and their Applications (Centre de Recherches Mathématiques, Université de Montréal, 1994).

1994 meeting of the Canadian Mathematics Society (University of Alberta, Edmonton).

IMACS'94 conference (Georgia Institute of Technology, Atlanta).

Twenty-second AMS-SIAM Summer Seminar, Exploiting Symmetry in Applied and Numerical Analysis (Colorado State University, 1992).

ISSAC 1992 (University of California, Berkeley, 1992).

Invited speaker to the course: Partial Differential Equations and Group Theory: New Perspectives in computer algebra and engineering sciences (GMD, Bonn, Germany, 1992).

ISSAC 1991 (Bonn).

Fifth Gregynog Symposium on differential equations (Gregynog, Wales, 1991).

### **Selected Seminars:**

Institute for Mathematics Mechanization, Chinese Academy of Science (Beijing, China). Invited seminar, “Implicit Differential Bases for PDE – their Discretizations and Applications. I” December 20, 2007.

Institute for Mathematics Mechanization, Chinese Academy of Science (Beijing, China). Invited seminar, “Implicit Differential Bases for PDE – their Discretizations and Applications. II” December 21, 2007.

Mathematics Department, University of Otago, “Introduction to Numerical Algebraic Geometry for PDE: A strange story of Analysis and Algebra”, 3 pm, 14 June, 2006.

Dept. of Math. and Statistics, Univ. of Canberra, "Introduction to Numerical Algebraic Geometry and its Applications", May 20, 2005.

Mathematics Department, University of Otago, "Non-Commutative Groebner Theory for Analytic PDE", April 12, 2005.

University of Illinois at Chicago, Math Dept. 28 Oct. 2004. Invited seminar "Approximate Geometry of PDE: Determining Linearizable DE close to a given DE".

Institute for Mathematics Mechanization, Chinese Academy of Science (Beijing, China). Invited seminar, "Algorithmic Formal Solvability of PDE", June 2, 2004.

Dalian University of Technology (Dalian, China). Invited seminar to the Mathematics Dept., May 28, 2004.

France 2004: Invited seminar. "Non-commutative existence and uniqueness theory for analytic systems of PDE", National de Recherche en Informatique et en Automatique, Sophia Antipolis, France. Sept 20, 2004.

England 2004, University of Kent at Canterbury, Sept 18, 2004. Invited seminar to the Institute of Mathematics, Statistical Actuarial Science, "Non-commutative existence and uniqueness theory for analytic systems of PDE".

New Zealand 2003: invited seminar "Numerical Jet Geometry". Mathematics Dept, University of Canterbury. Jan 21, 2003.

France 2002: invited seminar. "Approximate differential elimination methods". Institut National de Recherche en Informatique et en Automatique, Sophia Antipolis, France. June 27, 2002.

Finland 2002: invited Seminar. "Geometric completion of differential systems using continuation." Helsinki University of Technology, Finland, June 19, 2002.

France 2002, University of Lille, January 25, 2002. Invited seminar to the Computer Science Department. Geometric Completion of Differential Systems using Numerical Continuation.

New Zealand 2001: invited seminar speaker at the University of Canterbury and the University of Otago.

MSRI, Berkeley, 1998: delivered two formal seminars and several informal seminars during my period as invited member at MSRI, Aug'98-Nov'98.

Australia 1997: invited seminar speaker at University of Canberra, University of Sydney, University of Queensland, and the University of Wollongong.

New Zealand 1997: invited seminar speaker at University of Canterbury and University of Otago.

United Kingdom 1996: invited seminar speaker at Oxford University, the University of Kent at Canterbury, Queen Mary Westfield College, and the University of Lancaster.

France 1996: invited seminar to the Mathematics Department at the University of Lille. Delivered a seminar series on Differential algebra and infinite Lie pseudo-groups to the Computer Science Department at the University of Lille.