CURRICULUM VITAE

NAME: Ilias S. Kotsireas Erdös number: 3

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Personal web page: http://web.wlu.ca/science/physcomp/ikotsireas/

DEGREES

- 1995-1998, Ph.D. Department of Computer Science, Université Paris 6, French National Bureau of Standards, (Bureau des Longitudes) Paris, France. *Dissertation Title* : "Algorithms for solving polynomial systems: application to central configurations in the N-body problem of celestial mechanics.".
  Advisor : Prof. Daniel Lazard
- 1994-1995, M.Sc. Department of Computer Science, Université Paris 6, French National Bureau of Standards, Paris, France. *Dissertation Title* : "Central configurations in the N-body problem".
  Advisors : Prof. Daniel Lazard, Dr. Alain Albouy, Dr. Pierre-Vincent Koseleff
- 1992-1994 B.Sc. Department of Computer Science, Université Paris 6, Paris, France.
- 1986-1990 B.Sc. Department of Mathematics, University of Athens, Athens, Greece.

EMPLOYMENT HISTORY

- July 2011 - present, Professor, Wilfrid Laurier University, Department of Physics and Computer Science, Waterloo, Ontario, Canada.
- December 2005 - July 2011, Associate Professor, Wilfrid Laurier University, Department of Physics and Computer Science, Waterloo, Ontario, Canada.
- July 2001 - December 2005, Assistant Professor, Wilfrid Laurier University, Department of Physics and Computer Science, Waterloo, Ontario, Canada.
- October 1999 - June 2001, Post-Doctoral Fellow, Ontario Research Centre for Computer Algebra, (ORCCA) University of Western Ontario, London, Ontario, Canada.
- 1998-99 Lecturer (Attaché Temporaire Enseignement Recherche, ATER), Department of Computer Science, Université Paris 6, Paris, France.
- 1997-98 Laboratory Assistant (Travaux Dirigés, TD), Lycée Saint-Louis, Paris, France.
- 1994-98 Teaching Assistant (Formation Permanente) Department of Computer Science, Université Paris 6, Paris, France.
- 1995-96 Laboratory Assistant (Travaux Dirigés, TD), Université de Versailles Saint-Quentin-en-Yvelines, Versailles, France.

AFFILIATIONS (8)

- Affiliated Faculty: Center for Applied Optimization, University of Florida http://www.ise.ufl.edu/cao/
- Associate Member: Ontario Research Centre for Computer Algebra http://www.orcca.on.ca/
- Adjunct Appointment: University of Waterloo, Computer Science http://www.cs.uwaterloo.ca/
- Faculty Member: Centre for Women in Science http://www.wlu.ca/cwis
- Core Faculty: Centre for Coupled Dynamics & Complex Systems http://www.mmcs.wlu.ca/centre/
- Laboratory of Algebraic and Geometric Algorithms, $E\rho\Gamma A$, http://erga.di.uoa.gr/
- Collaborator: Computational Intelligence lab, http://cilab.math.upatras.gr/
- OPTImization, Modelling and Applications, OPTIMA, http://optima.cs.uoi.gr/

HONOURS AND AWARDS (14)

- 2020 AAECC Best Paper Award in Memory of Jacques Calmet
- GeNeDis 2016 Award, October 21, 2016, Sparta, Greece
- Long Service (15 years) Award, September 28, 2016, Wilfrid Laurier University
- Merit Award, July 2016, Wilfrid Laurier University
- Best Poster Award, with M. Mohamedtaki et al. ACMES Conferences 2016 on Computationally Assisted Mathematical Discovery and Experimental Mathematics, Western University, London Ontario
- Merit Award, August 2012, Wilfrid Laurier University
- Merit Award, July 2009, Wilfrid Laurier University
- Merit Award, December 2005, Wilfrid Laurier University
- FTICA, Fellow of the Institute of Combinatorics and its Applications, January 28, 2004
- Best Poster Award, with D. Butcher, SHARCnet Power Partnership Performance event, January 2004, UWO, London ON, Canada
- ACM Web Assistant Award, ISSAC 2001 London, Ontario, Canada
- Best Poster Award, with A. Galligo, R. Corless, S. Watt, ISSAC 2001 London, Ontario, Canada
- Ontario Research Centre for Computer Algebra Post-Doctoral Fellowship, 1999-2001
- French Ministry of National Education Research and Technology Doctoral Scholarship, 1995-1998

SCHOLARLY AND PROFESSIONAL ACTIVITIES

- Chair, ACM SIGSAM, (Association for Computing Machinery Special Interest Group on Symbolic and Algebraic Manipulation) July 1, 2013 - July 1, 2017, http://www.sigsam.org/

i. Editorial Activities (13)

- Section Editor, **SN Computer Science section on CT** (Combinatorial Testing), May 30, 2022 -
- Senior Editor, **Maple Transactions**, Maplesoft and Western Libraries, June 1, 2021 -
- Managing Editor, **Operations Research Forum** (ORFO), published by Springer, May 1, 2019 -
- Editor-in-Chief, **Journal of Algebraic Combinatorics** (JACO), Springer, October 15, 2017 -
- Managing Editor, **Mathematics in Computer Science** (MCS), Birkhäuser/Springer, January 1, 2017 -
- Editorial Board, **Journal of Combinatorial Designs** (JCD), Wiley, 2014 – 2020
- Editorial Board, **SpringerPlus**, published by Springer (discontinued)

- Editorial Board, **Journal of Algebra Combinatorics Discrete Structures and Applications**, published by Yildiz Technical University, Turkey
- Editorial Board, **Mathematics in Computer Science** (MCS), published by Birkhäuser/Springer, 2007 -
- Editorial Board, **Journal of Computational Science** (JoCS), published by Elsevier
- Editorial Board, **Optimization Letters** (OPTL), published by Springer
- Editorial Board, **Special Matrices** (SPMA), published by De Gruyter
- Editor, July 2003 - July 2013, **Communications in Computer Algebra** (CCA), published by ACM SIGSAM

ii. Memberships (past and present)

- ACM/SIGSAM (Association for Computing Machinery, Special Interest Group on Symbolic and Algebraic Manipulation)
- AMS (American Mathematical Society)
- HMS (Hellenic Mathematical Society)
- CMS (Canadian Mathematical Society)
- ICA (Institute of Combinatorics and its Applications)

iii. Guest Editor for Special Issues of Journals (34)

1. **Mathematics and Computers in Simulation**, Elsevier, Special Issue on *Applications of Computer Algebra in Science, Engineering, Simulation and Special Software*, 67, 2004, no. 1–2. Guest Editors: M. Wester, E. A. Arnold, P. Gianni, I. S. Kotsireas, E. Roanes-Lozano, S. Steinberg
2. **Journal of Symbolic Computation**, Elsevier, Special Issue on *Applications of Computer Algebra*, 40, 2005, no. 4-5. Guest Editors: I. S. Kotsireas, A. G. Akritas, S. Steinberg, M. Wester
3. **Mathematics in Computer Science**, Birkhäuser/Springer, Special Issue on *Modeling and Analysis of Complex Systems*, 1, 2007, no. 3. Guest Editor: I. S. Kotsireas
4. **Journal of Statistical Planning and Inference**, Elsevier, Special Issue on *Metaheuristics, Combinatorial Optimization and Design of Experiments*, 139, 2009, Issue 1. Guest Editors: C. Koukouvinos, I. S. Kotsireas
5. **Journal of Computational and Applied Mathematics**, Elsevier, Special Issue with papers from *NumAn 2007*, 227, 2009, no. 1. Guest Editors: E. Gallopoulos, A. Hadjidimos, I. S. Kotsireas, D. Noutsos, M. N. Vrahatis
6. **Applied Numerical Mathematics**, Elsevier, Special Issue with papers from *NumAn 2008*, Volume 60, Issue 4, Pages 293–512 (April 2010) Guest Editors: G. Akrivis, E. Gallopoulos, A. Hadjidimos, I. S. Kotsireas, D. Noutsos, M. N. Vrahatis
7. **Journal of Symbolic Computation**, Elsevier, Special Issue on *Groebner Bases and Applications*, Volume 46, 2011, Guest Editors: E. Arnold, I. S. Kotsireas, M. Rosenkranz
8. **Theoretical Computer Science**, Elsevier, Special Issue on *Symbolic Numeric Computation*, Volume 412, Issue 16, Pages 1443–1543, (April 2011), Guest Editors: I. Kotsireas, B. Mourrain, V. Pan
9. **Mathematics in Computer Science**, Birkhäuser/Springer, Special Issue on Matroids in Coding Theory and Related Topics, Guest Editors: I. S. Kotsireas, I. Márquez-Corbella, E. Martínez-Moro 2012, Volume 6, Number 2, Pages 107–108

10. **Journal of Computational Science**, Elsevier, Special Issue on Computational Methods for Hyperbolic Problems, Guest Editors: J.-H. Jung, I.S. Kotsireas, R. Melnik, A. Tesdall, 2013, Volume 4, Issues 1–2, Pages 1–124
11. **Theoretical Computer Science**, Elsevier, Special Issue on *Symbolic Numeric Computation 2011*, Guest Editors: I. Kotsireas, B. Mourrain, V. Pan, L. Zhi, 2013, Volume 479, April 2013, Pages 1–3.
12. **Applied Numerical Mathematics**, Elsevier, Special Issue with papers from *NumAn 2010*, Guest Editors: V. Dougalis, E. Gallopoulos, A. Hadjidimos, I. S. Kotsireas, D. Noutsos, Y. Saridakis, M. N. Vrahatis Volume 67 (2013), Pages 1-3.
13. **Journal of Computational Science**, Elsevier, High performance computing theory and applications - Proceedings of SHARCNET Research Day 2012 (Guelph, Ontario). Guest Editors: I. Kotsireas, L. Krivodonova, S. McConnell, E. Schnetter Volume 5, Issue 3, (2014) Pages 497–498.
14. **Designs, Codes and Cryptography**, Springer, Computer Algebra in Coding Theory and Cryptography, Guest Editors: I. S. Kotsireas, E. Martínez-Moro, Volume 76 (2015), no. 1, Pages 1–2.
15. **Applied Numerical Mathematics**, Elsevier, A. Hadjidimos, I. Kotsireas, D. Noutsos, M. Vrahatis [Special issue: NumAn 2012] Volume 104 (2016), Pages 1–2.
16. **Applied Numerical Mathematics**, Elsevier, G. Akrivis, V. Dougalis, E. Gallopoulos, A. Hadjidimos, I. Kotsireas, D. Noutsos, Y. Saridakis, M. Vrahatis [Special issue: NumAn 2014] Volume 104 (2016), Pages 99–102.
17. **Mathematics in Computer Science**, Birkhäuser/Springer, Thierry Dana-Picard, Wolfram Koepf, Ilias Kotsireas, Zoltan Kovacs, Alexander Prokopenya, Werner Seiler [Special issue: ACA 2016, Kassel, Germany] Volume 11 (2017) Issues 3-4, pp. 251–540.
18. **Complexity**, Hindawi, P. Vlamos, I. Kotsireas, D. Vlachakis, Special Issue on "Complexity in Medical Informatics," vol. 2019, Article ID 8658124, 2019.
19. **Theoretical Computer Science**, Elsevier, Special Issue with papers from CAI 2017 Kalamata, Greece, Guest Editors: Manfred Droste (Germany), Ilias Kotsireas (Canada), Robert Rolland (France), TCS 800 (2019), pp. 1–2.
20. **Annals of Mathematics and Artificial Intelligence**, Guest editorial: revised selected papers from the LION 12 conference, Ilias S. Kotsireas, Panos M. Pardalos, Ann. Math. Artif. Intell. 88, pp. 1–2, 2020. `https://link.springer.com/journal/10472/88/1`
21. **Mathematics in Computer Science** 13, issues 1-2, pp. 1–328, 2019 **Mathematics in Computer Science**, Special Issue with papers from ACA 2017 Jerusalem, Israel, Guest Editors: Michel Beaudin (Montreal), Noah Dana-Picard (Israel), Alexander Levin (USA), Christoph Koutschan (Austria), Ilias Kotsireas (Canada), Daniel Robertz (United Kingdom).
22. **Mathematics in Computer Science** 12, December 2018, Issue 4, pp. 371–490 Special Issue with papers from the 5th Workshop on Real and Complex Hadamard Matrices and Applications, Budapest, Hungary, Guest Editors: Dardo Goyeneche (Poland), Padraig O'Cathain (United States), Ilias Kotsireas (Canada).
23. **AAECC**, Special Issue: "Computer Algebra and Application to Combinatorics, Coding Theory and Cryptography" ACA 2019, Montreal, Canada, July 16–20, 2019, Guest Editors: Kenza Guenda, Iiro Honkala, Ilias Kotsireas, Teo Mora, Qiang Wang, AAECC, vol. 31 Issue 3-4, June 2020, pp. 171–172.
24. **Mathematics in Computer Science**, Special Issue with papers from ACA 2018 Santiago de Compostela, Spain, Guest Editors: Anna Maria Bigatti, Francisco Botana, Thierry Dana-Picard, Felipe Gago, Ilias Kotsireas, Manuel Ladra, Wei Li. MCS, vol. 14, 2020, no. 2, pp. 191–192.
25. **Annals of Mathematics and Artificial Intelligence**, LION 14 conference, Guest Editors: Ilias S. Kotsireas, Panos M. Pardalos, Preface, Ann. Math. Artif. Intell. vol 90, issue 7: pp. 677 (2022)

26. **Annals of Mathematics and Artificial Intelligence**, LION 15 conference, Guest Editors: Dimitris E. Simos, Panos M. Pardalos, Ilias S. Kotsireas
27. **Mathematics in Computer Science**, Special Issue with papers from ACA 2021 conference Guest Editors: Ilias Kotsireas, Dimitris E. Simos, Ali Kemal Uncu
28. **Applicable Algebra in Engineering, Communication and Computing**, Special Issue with papers from ACA 2021 conference Guest Editors: Michela Ceria, Ilias Kotsireas, Teo Mora, Dimitris Simos.
29. ON-GOING **ORFO** DOD 2021 conference, Guest Editors: Ilias S. Kotsireas, Anna Nagurney, Panos M. Pardalos, Chrysafis Vogiatzis
30. **J. Global Optim.** Preface, The World Congress on Global Optimization (WCGO) held in Athens, Greece, (on-line) July 7-–10, 2021, Kotsireas, Ilias; Pardalos, Panos; Zilinskas, Julius vol. 88 (2024), no. 3, pp. 531-–532.
31. ON-GOING Springer Nature Computer Science
    Section: Combinatorial Methods and Models in System Testing
    Topical Issue on Combinatorial Testing and its Applications
    Guest Editors:

    - Dimitris Simos, SBA Research & Graz University of Technology, Austria (Lead Guest Editor)
    - Franz Wotawa, Graz University of Technology, Austria,Rick Kuhn, NIST, USA
    - Angelo Gargantini, University of Bergamo, Italy
    - Raghu Kacker, NIST, USA
    - Ilias Kotsireas, Wilfrid Laurier University, Canada
    - Jeff Lei, University of Texas at Arlington, USA
32. **Applicable Algebra in Engineering, Communication and Computing** Preface, Special issue: 27th International Conference on Applications of Computer Algebra, Istanbul, August 15-–19, 2022 Ceria, Michela; Kotsireas, Ilias; Mora, Teo; Zafeirakopoulos, Zafeirakis vol. 35 (2024), no. 1, pp. 1-–2.
33. **Distributed Ledger Technologies**, Special Issue on Mathematical Research for Blockchain Economy, Guest Editors: Elise Alfieri, William Knottenbelt, Ilias Kotsireas, Stefanos Leonardos, Panos Pardalos Preface, vol. 3, number 1, 2024, Article 1
34. **Annals of Mathematics and Artificial Intelligence**, LION 16 conference, Guest Editors: Ilias S. Kotsireas, Panos M. Pardalos, Preface, Ann. Math. Artif. Intell. Nov 2024, TO APPEAR

iv. Selected research visits & stays

- Research Institute for Symbolic Computation, RISC-Linz, November 1999, Linz, Austria.
- Center for Nonlinear Phenomena and Complex Systems, Université Libre de Bruxelles, CENOLI, ULB, February 2001, Brussels, Belgium.
- Intensive Summer School in Computer Algebra, July 2001, Queen's University, Kingston, Ontario, Canada.
- ZIB-Berlin, Germany.
- MMRC, Beijing, P.R. China.
- EAGER - EMS Summer School on Computational Algebraic Geometry and Applications Eilat, Israel, February 2002.
- School of Mathematical Sciences, South China Normal University, Guangzhou, P. R. China, 2007.
- CAO, University of Florida, December 2008.
- Claude Shannon Institute, University College, Dublin, Ireland, July 2009.
- University of Athens, ERGA lab, Athens, Greece, March 15, 2015 - April 15, 2015.

v. Conference Referee (8)

- ISSAC, SNC, SYNASC, CASC, MEGA, ADG, MACIS, GECCO

vi. External Grant Referee

- South Africa National Research Foundation (NRF), 2024
- Czech Science Foundation 2023
- April/May 2022, Springer Japan
- FRQNT, 2002, Fonds de Recherche de Québec-Nature et Technologies
- MITACS Accelerate program, October 2011
- GEAR (Grants to Enhance and Advance Research) University of Houston, February 2010
- MITACS ERC (Elevate Review Committee), January/February 2010
- NSERC CRC (Canadian Research Chairs) Program, April 2007
- National Science Foundation (NSF) Panel member, May 2001, Arlington VA, USA
- National Science Foundation (NSF) Panel member, May 2007, Arlington VA, USA
- SHARCnet[1] Resource Allocation Committee, Round VI, May 2007, London ON, Canada
- SHARCnet Resource Allocation Committee, Round VII, December 2007, London ON, Canada

vii. Tenure and Promotion Committees Evaluator (4)

- University of Ioannina, Grecce
- Technical University of Chania, Crete, Greece
- Aristotle University of Thessaloniki, Greece
- University of Thessaly, Volos, Greece

[1] SHARCnet stands for Shared Hierarchical Academic Research Computing Network

vii. Journal Referee (61)

Journal of Symbolic Computation
Discrete Mathematics
Journal of Combinatorial Designs
Numerical Algorithms
Journal of Combinatorial Optimization
Linear Algebra and Its Applications
Special Matrices
Journal of Integer Sequences
Journal of Parallel and Distributed Computing
Mathematical and Computer Modelling
Journal of Geodesy
Applied Numerical Mathematics
Computational Optimization and Applications
Journal of Statistical Planning and Inference
Journal of Applied Statistics
Journal of Mathematical Physics
Communications in Computer Algebra
Crux Mathematicorum
Mathematical Problems in Engineering
Applied Soft Computing
Linear and Multilinear Algebra
SN Operations Research Forum
Heliyon
Soft Computing
Mathematics (MDPI)
Energy Systems
Operational Research An International Journal
Malaysian Journal of Mathematical Sciences
The Art of Discrete and Applied Mathematics
Mathematics of Computation
Theoretical Computer Science
Cryptography and Communications
SIAM Journal on Scientific Computing
Optimization Letters
Australasian Journal of Combinatorics
Canadian Journal of Physics
Journal of Computational Science
Mathematics and Computers in Simulation
Mathematics in Computer Science
Applied Mathematics Letters
Applied Mathematics and Computation
Statistics and Computing
Journal of Statistical Theory and Practice
Journal of Computational and Applied Mathematics
Journal of Optimization Theory and Applications
TEST/SEIO, Spanish Society of Statistics and OR
Journal of Computer Science and Technology
Journal of Applied Mathematics and Computing
International Journal of Bio-Inspired Computation (IJBIC)
Journal of Algebraic Combinatorics
Discrete Mathematics Algorithms and Applications (DMAA)
European Journal of Operational Research
Journal of Algebraic Combinatorics
Cryptography (MDPI)
Engineering Applications of Artificial Intelligence
Springer Nature Computer Science (SNCS)
Computational Management Science

Applicable Algebra in Engineering, Communication and Computing
International Journal of Computers and Mathematics With Applications
International Journal on Computational Geometry and Applications
IEEE Communications Letters

viii. Conference Organization (100)

1. ICECA 2025, Haifa, Israel, (virtual) August 25-27, 2025, Organizing Committee
2. LION 19, The 19th Learning and Intelligent OptimizatioN Conference June 15–19, 2025, Prague, Czech Republic, Technical Program Committee
3. 5th Pythagorean Coonference, Kalamata, Greece, Organizing Committee
4. ACA 2025, 30th Applications of Computer Algebra, Heraklion, Crete, Greece, Proceedings co-Editor
5. ICECA 2024, Haifa, Israel, (virtual) August 26-28, 2024, Organizing Committee
6. DIS 2024, 7th International Conference on the Dynamics of Information Systems, General co-Chair June 2-7, 2024, Kalamata, Greece
7. ICECA 2023, Haifa, Israel, (virtual) Sep 4-6, 2023, Organizing Committee
8. CASC 2023, Havana, Cuba, co-general chair
9. LION 17, Nice, France, Program Committee
10. DIS 2023, Prague, Czech Republic, Program Committee
11. DOD 2023, Athens, Greece, Local Organizer
12. WCGO 2023, Athens, Greece, Local Organizer, (The 2023 World Congress on Global Optimization)
13. ACA 2022, Instabul, Turkey, Special Session: "Algorithmic and Experimental Combinatorics" co-organized with Ali Kemal Uncu (Bath), Miklos Bona (Florida)
14. 7th SC-Square Workshop, August 12th, 2022, Program Committee
15. LION 16, Milos Island, Cyclades, Greece, Local Organizer
16. COCOA 2020, 14th Conference on Combinatorial Optimization and Applications Dallas, Texas, USA, December 11-13, 2020, TPC member
17. ACA 2020, Athens, Greece, General Chair (moved to ACA 2021, Athens, Greece, due to COVID-19 pandemic)
18. ICCS 2020, Amsterdam, Holland, Program Committee member
19. ISSAC 2020, Kalamata, Greece, July 20-23, 2020, Local Organizer (moved on-line, due to COVID-19 pandemic)
20. LION 14, Athens, Greece, Local Organizer
21. IEEE ICBC 2020, Toronto, ON, Canada, May 4-7, 2020, Publication Chair
22. Decentralized 2019, Oct 30, 2019 - Nov 1, 2019, Athens, Greece, Academic Track Program Committee Member
23. Maple User Conference, October 2019, Waterloo, Ontario, Canada, General Chair
24. ICANN2019, 28th International Conference on Artificial Neural Networks, September 17-19, 2019, Munich, Germany, PC member
25. ArasuFest, Kalamata, Greece, General Chair
26. ACA 2019, Montreal, July 2019, co-organizer: "Special Session on Computer Algebra and application to combinatorics, coding theory and cryptography"
27. AIST 2019 8th International Conference - Analysis of Images, Social networks and Texts 17-19 JULY Kazan, Russia, PC member
28. DOD 2019 Kalamata, Greece, General Chair

29. SEA 2019, Kalamata, Greece, General Chair
30. IEEE ICBC 2019, Seoul, Korea, Technical Program Committee, (TPC)
31. The First International Conference on Mathematical Research for Blockchain Economy, MARBLE 2019, 06-10 May 2019, Santorini, Greece, Local Chair
32. 4th International Conference on Numerical and Symbolic Computation Developments and Applications, SYMCOMP2019, 11-12 April 2019, Porto, Portugal, Scientific Committee
33. INTERNATIONAL CONFERENCE ON COMPUTATIONAL SCIENCE, Wuxi, China, 11-13 June, 2018
34. LION12, Learning and Intelligent OptimizatioN Conference, Kalamata, Greece, June 10-15, 2018
35. AIST 2017 6th International Conference on Analysis of Images, Social Networks, July 27 - 29, 2017, Moscow, Russia, Program Committee
36. MCA 2017 Montreal, Canada, Special Session "Finite Algebraic Combinatorics and Applications" co-organizer
37. ACA 2017 Jerusalem, Israel, General Chair
38. DOD 2017 Kalamata, Greece, General Chair
39. CAI 2017 Kalamata, Greece, General Chair
40. Computational Discovery 2016 London, ON, Canada, Program Committee
41. COCOA 2015 Houston, Texas, United States, Program Committee
42. MACIS 2015 Berlin, Germany, General Chair
43. Workshop on Symbolic Combinatorics and Computational Differential Algebra Fields Institute, Toronto, Canada, Program Committee
44. ACA 2015, Kalamata, Greece, General Chair
45. DOD 2015, Kalamata Greece, General Chair
46. ICCS 2015, Reykjavik, Iceland, Program Committee
47. COCOA 2014, Maui, Hawaii, USA, Program Committee
48. Quantum Optimization Workshop, October 2014, Fields Institute, Toronto, Organizing Committee.
49. NUMAN 2014 Chania, Greece, Organizing Committee
50. AISC 2014 Seville, Spain, Programme Committee
51. GECCO 2014 Vancouver, Canada, ACO-SI PC Member
52. ICCS 2014 Cairns, Australia, Programme Committee
53. SNC 2014 Shanghai, China, Programme Committee
54. ICWIP 2014 Waterloo, ON, Canada, Local Organizing Committee
55. ACA 2014 New York City, USA, Programme Chair
56. AMMCS 2013, Waterloo, ON, Canada, General Chair
57. ACA 2013, Malaga, Spain, Session Organizer, Programme Committee
58. ANODE 2013 Auckland, New Zealand, Organising Committee
59. NUMAN 2012, Ioannina, Greece, Organizing Committee
60. MACIS 2011, Beijing, China, Program Committee Chair
61. AMMCS 2011, Waterloo, ON, Canada, General Chair

62. SNC 2011, San Jose, CA, USA, General Chair
63. ISSAC 2011, San Jose, CA, USA, Fundraiser
64. WWCA 2011, W80, Waterloo, ON, Canada, Organizer
65. SEA 2011, Crete, Greece, Program Committee
66. PCA 2011, St. Petersburg, Russia, Program Committee
67. COCOA 2010, Hawaii, USA, Program Committee
68. ISSAC 2010 Munich, Germany, Poster Committee Chair
69. DMBIO 2010 Chania, Greece, Advisory Committee
70. SNC 2009 Kyoto, Japan, Program Committee Chair
71. CICM 2009/MKM 2009/Calculemus 2009 Grand Bend, ON, Canada, Program Committee, Publicity Chair
72. COCOA 2009 Yellow Mountains, China, Program Committee
73. SSGC 2009, 2nd SHARCnet Symposium on GPU and CELL Computing, UW, Organizing Committee
74. LSRS 2009, Laurier SHARCnet Research Symposium Waterloo, Ontario, Canada, Organizer
75. ACA 2008 Session on Grobner Bases and their Applications webpage Linz, Austria
76. SSGC 2008, SHARCnet Symposium on GPU and CELL Computing, UW, Organizing Committee
77. NumAn 2008 Kalamata, Greece, Organizing Committee, Local Organizing Committee
78. WWCA 2008 Waterloo, Ontario, Canada, General Chair
79. MICA 2008 Stonehaven Bay, Trinidad and Tobago, Publicity Chair
80. HPCS 2008 Quebec City, Canada, Program Committee
81. NumAn 2007 Kalamata, Greece, Organizing Committee, Local Organizing Committee
82. MC06 Maple Conference 2006, Waterloo, Ontario, Canada, General Chair
83. MACIS 2006 Beijing, China, Program Committee
84. WWCA 2006 Waterloo, Ontario, Canada, General Chair
85. ISSAC 2006 Genova, Italy, Publicity Chair
86. HPCS 2006 St. John's, Newfoundland, Canada, Program Committee
87. CASC 2005 Kalamata, Greece, General Chair
88. ACA 2005 Session on Computer Algebra and Coding Theory, Nara, Japan,
89. ECCAD 2005 Ashland, Ohio, USA, Advisory Council
90. ISSAC 2005 Beijing, China, Publicity Chair
91. MC05 Maple Conference 2005, Waterloo, Ontario, Canada, General Chair
92. HPCS 2005 Guelph, Ontario, Canada, Scientific Committee Chair and Steering Committee Member
93. ISSAC 2004 University of Cantabria, Santander, Spain, Poster Committee
94. ECCAD 2004 Waterloo, Ontario, Canada, General Chair
95. ICPSS 2004 Paris, France, Program Committee
96. ACA 2002 Volos, Greece, General Chair
97. ISSAC 2001 London, Ontario, Canada, Local Arrangements
98. CASC 2000 Samarkand, Uzbekistan, Program Committee
99. ECCAD 2000/SONAD 2000 London, Ontario, Canada, Local Arrangements
100. Permanent member of the ACAWG (Applications of Computer Algebra Working Group) since 2000.

STUDENT SUPERVISION (60)

1. Tyler Lumsden, USRA, University of Windsor, 2023/2024
2. Goutham Yadav Erram, CP680 Capstone Project, Fall 2024
3. Owen West, MA485 directed study, Fall 2024
4. Menghao Wu, Directed Research, Fall 2024
5. Goutham Yadav Erram, CP680 Capstone Project, Summer 2024
6. Owen West, MA485 directed study, Summer 2024
7. Menghao Wu, Directed Research, Summer 2024
8. Nausher Rao MA485J, Nausher Rao, Winter 2024
9. Memet Rysinowski, Directed Research, Winter 2023
10. Shaumya Patel, Directed Research, Winter 2023
11. Bilal Naeemuddin, Directed Research, Winter 2023
12. Taha Khurram, Directed Research, Winter 2023
13. Nadeem Ahmad, Directed Research, Winter 2023
14. Hatim Khan, Directed Research, Winter 2023
15. Matthew Borkowski, Directed Research, Winter 2023
16. Yousef El-Qawasmi, Directed Research, Winter 2023
17. Moman Malik, Directed Research, Winter 2023
18. Ali Zaidi, Directed Research, Winter 2023
19. Dan Butcher, SHARCnet Round III Graduate Fellowship
20. Jason Cousineau, Research Assistant
21. Cris Frusina, Directed Research Course
22. Alexei Karpenko, Research Assistant
23. Derek Knapp, SHARCnet Round VI Undergraduate Fellowship, Research Assistant
24. Edmond Lau, Research Assistant
25. Chris Odorjan, Research Assistant
26. Gil Pinheiro, Directed Research Course, Research Assistant
27. Dimitra Rentas, co-op Student

28. Michael Sukman, Research Assistant
29. Paul Walrath, Directed Research Course, Research Assistant
30. Noor Hadi, Research Assistant
31. Mike Koldychev, Research Assistant
32. Kyrylo Stepanchuk, Directed Research Course
33. Seanachi Dillon, Directed Research Course
34. Joel Hobson, Research Assistant, co-supervised with Eugene Zima
35. Yuzhen Xie, Post-doctoral Fellow, MITACS Elevate, co-supervised with Marc Moreno Maza
36. Fei Wang, MSc (University of Waterloo, Computational Mathematics) co-supervised with Mark Giesbrecht
37. Kelvin Chung, MSc (University of Waterloo, Computer Science) co-supervised with Mark Giesbrecht
38. Dalibor D. Dvorski, Directed Research Course
39. Harold Hodgins, Directed Research Course
40. Lawrence Barrett, MSc (University of Waterloo, Computational Mathematics) co-supervised with Arne Storjohann)
41. George Lifchits, Directed Research Course, co-supervised with Shohini Ghose
42. Lara Jeftic, Directed Research Course
43. Scott King, Directed Research Course, NSERC RA, CARGO Lab
44. Ian Li, Directed Research Course, NSERC RA
45. Mohamed Mohamedtaki, Directed Research Course, co-supervised with Barbara Collignon (IBM)
46. Giacinto Romano, Directed Research Course, currently employed at Loblaw
47. Michael Roher, Directed Research Course
48. Christian McFarland, Directed Research Course
49. Daniel Berezovski, Directed Research Course, RA, CARGO Lab
50. Noora Al-Dabbagh, MSc, MAC program, September 2018
51. Ryan Kazmerik, CP682 Special Topics, Natural Language Processing, September 2018
52. Emils Matiss, RA, CARGO Lab
53. Tejasvi Pal, Directed Research Course, Spring 2019
54. Min Kang, Directed Research Course, Spring 2019
55. Mohamed Al-Thibeh, Directed Research CP494, Fall 2019

56. Virackdara Chhom, Directed Research CP494, Fall 2019
57. Shuaib Reeyaz, Directed Research CP494, Fall 2019
58. Andrew Chua, Directed Research CP494, Fall 2019
59. Muzammil Elahi, Directed Research CP494, Fall 2019
60. Rishhi Balakrishnan, Directed Research CP494, Fall 2019

TEACHING (9)

1. CP102 Information Processing with Microcomputer Systems, Fall 2004, Winter 2006, Winter 2007.
2. CP114 Data Structures I, Winter 2005.
3. CP315 Introduction to Scientific Computation, Fall 2004, Fall 2005, Winter 2012, Winter 2013, Winter 2018
4. CP363 Databases I, Winter 2002, Winter 2003, Winter 2004, Winter 2005, Winter 2006, Winter 2007.
5. CP400N Introduction to Parallel Programming, Winter 2012, Winter 2013, Winter 2014, Fall 2017.
6. CP411 Computer Graphics, Fall 2002, Fall 2005, Fall 2015.
7. CP463 Discrete Event Simulation, Winter 2002, Winter 2003, Winter 2004, Winter 2007, Winter 2009, Fall 2011.
8. CP465 Databases II, Fall 2002, Winter 2007, Winter 2009, Winter 2010, Fall 2013.
9. CP468 Artificial Intelligence, Winter 2010, Winter 2013, Fall 2015, Fall 2017.

INTERNAL RESEARCH FUNDING

Year	Source	Type	Amount	Purpose
2002	WLU	Conference/Workshop Grant	$ 3000	ACA 2002
Fall 2003	WLU	Course Remission Grant	$ 10000	Research
2004	WLU	Conference/Workshop Grant	$ 3000	ECCAD 2004
2004	WLU	Laurier Lecture co-sponsorship Fund	$ 1100	CSASM
2004	WLU	STEP	$ 5000	CSASM
2004	WLU	Academic Development Fund	$ 1100	ICPSS 2004
2005	WLU	Academic Development Fund	$ 1500	CASC 2005
2005	WLU	Merit Award	$ 3000	Research
2006	WLU	Academic Development Fund	$ 3000	WWCA 2006
2008	SHARCnet & WLU	Funding	$ 8000	CSASM
2009	WLU	Merit Award	$ 3000	Research
2010	WLU	Special Initiatives Fund	$ 3000	Centenary AMMCS
2011	WLU	Conference/Workshop Grant	$ 4800	WWCA 2011
2012	WLU	Merit Award	$ 3000	Research

EXTERNAL RESEARCH FUNDING

Year	Source	Type	Amount	Purpose
2010-2011	SHARCnet	Site Leader Grant	$ 8000	Research
2002-2006	NSERC	Individual Research Grant	$ 64000	Research
2006-2010	SHARCnet	Site Leader Grant	$ 32000	Research
2002	SHARCnet	Round III Graduate Fellowship	$ 22000	Grad. Fell.
2006-2011	NSERC	Individual Research Grant	$ 75000	Research
2007-2008	EU	ENTER	€ 96000	Research
2007	SHARCnet	Round VI Undergraduate Fellowship	$ 7000	Undergrad. Fell.
2008	Fields Institute	Conference Organization	$ 11000	WWCA 2008
2011	Fields Institute	Conference Organization	$ 16000	WWCA 2011
2011	Fields Institute	Conference Organization	$ 16000	AMMCS 2011
2011	MITACS	Elevate Postdoctoral Fellowship	$ 55000	Research
2011-2016	NSERC	Individual Research Grant	$ 70000	Research
2012	Fields Institute	Conference Organization	$ 12000	AMMCS 2013
2017-2019	NSERC	Individual Research Grant	$ 30000	Research

PUBLICATIONS

PAPERS IN REFEREED JOURNALS (88)

1. I. S. Kotsireas. Central configurations in the Newtonian N-body problem of Celestial Mechanics. **Contemporary Mathematics**, AMS, vol. 286, 2000, pp. 71–98

2. I. S. Kotsireas. Homotopies and polynomial system solving I. Basic Principles. SIGSAM Bulletin, March 2001, vol. 35, no. 1, issue 135, pp. 19-32

3. I. S. Kotsireas and D. Lazard. Central Configurations of the 5-body problem with equal masses in three-dimensional space. **J.Math. Sci. (New York)**, vol. 108, 2002, no. 6, pp. 1119–1138

4. K. Karamanos, I. Kotsireas. Thorough numerical entropy analysis by lumping of some substitutive sequences. **Kybernetes** 2002, Volume 31, no. 9/10, pp. 1409–1417

5. H. Evangelaras, I. Kotsireas, C. Koukouvinos. Applications of Groebner bases to the analysis of certain two or three level factorial designs. **Advances and Applications in Statistics** 3, no. 1, 2003 pp. 1–13.

6. I. Kotsireas, K. Karamanos. Exact computation of the Bifurcation point B4 of the logistic map and the Bailey-Broadhurst conjectures. **International Journal of Bifurcation and Chaos** Volume 14, no. 7, 2004, pp. 2417–2423

7. I. S. Kotsireas, C. Koukouvinos, Inequivalent Hadamard matrices with buckets, **J. Discrete Math. Sci. Cryptogr.** 7, 2004, no. 3, pp. 307–317.

8. I. Kotsireas, C. Koukouvinos and M.P. Rogantin, Inequivalent Hadamard matrices via indicator functions. **Int. J. Applied Math.** 16, 2004, no. 3, pp. 355–363.

9. K. Karamanos, I. Kotsireas, Statistical analysis of the first digits of the binary expansion of Feigenbaum constants α and δ, **Journal of the Franklin Institute**, Volume 342 (2005) pp. 329–340.

10. I. S. Kotsireas, C. Koukouvinos, Genetic Algorithms for the construction of Hadamard matrices with two circulant cores **J. Discrete Math. Sci. Cryptogr.** 8, 2005, no. 2, pp. 241–250.

11. I. S. Kotsireas, C. Koukouvinos, G. Pinheiro, Metasoftware for Hadamard matrices. **Int. J. Appl. Math.** 18, 2005, no. 2, pp. 263–278.

12. I. Z. Emiris, I. S. Kotsireas, Implicitization exploiting sparseness. Geometric and algorithmic aspects of computer-aided design and manufacturing, pp. 281–297, **DIMACS Ser. Discrete Math. Theoret. Comput. Sci.**, 67, AMS Providence, RI, 2005.

13. K. Karamanos, I. Kotsireas, Addendum: On the statistical analysis of the first digits of the Feigenbaum constants, **Journal of the Franklin Institute**, Volume 343 (2006) pp. 759–761.

14. I. S. Kotsireas, C. Koukouvinos. J. Seberry. Hadamard ideals and Hadamard matrices with circulant core **J. Combin. Math. Combin. Comput.** 57, 2006, pp. 47–63.

15. I. S. Kotsireas, C. Koukouvinos, J. Seberry. Hadamard ideals and Hadamard matrices with two circulant cores. **European Journal of Combinatorics** 27, 2006, no. 5, pp. 658–668.

16. J. Cousineau, I. Kotsireas, C. Koukouvinos, Genetic Algorithms for Orthogonal Designs **Australasian J. Combin.** 35, 2006, pp. 263–272.

17. I. S. Kotsireas, C. Koukouvinos Orthogonal designs via computational algebra. **Journal of Combinatorial Designs** 14, 2006, Issue 5, pp. 351–362.

18. I. Kotsireas and C. Koukouvinos, Constructions for Hadamard matrices of Williamson type, **J. Combin. Math. Combin. Comput.** 59, 2006, pp. 17–32.

19. I. Kotsireas, C. Koukouvinos and D. E. Simos, Large orthogonal designs via amicable sets of matrices. **Int. J. Appl. Math.** 19, 2006, no. 2, pp. 217–232.

20. I. Kotsireas and C. Koukouvinos, A computational algebraic approach for saturated D-optimal designs with $n \equiv 2 \pmod 4$ observations. **Util. Math.** 71, 2006, pp. 197–207.

21. I. Kotsireas and C. Koukouvinos, Hadamard ideals and Hadamard matrices from two circulant submatrices. **J. Combin. Math. Combin. Comput.** 61, 2007, pp. 97–110.

22. I. Kotsireas, C. Koukouvinos, Orthogonal Designs of Order 32 and 64 via Computational Algebra. **Australasian J. Combin.** 39, 2007, pp. 39–48.

23. S. Georgiou, I. Kotsireas, C. Koukouvinos, Inequivalent Hadamard matrices of order $2n$ from Hadamard matrices of order n. **J. Combin. Math. Combin. Comput.** 63, 2007, pp. 65–79.

24. I. Kotsireas, C. Koukouvinos, J. Seberry, New orthogonal designs from weighing matrices. **Australasian J. Combin.** 40, 2008, pp. 99–104.

25. F.A. Chishtie, K.M. Rao, I.S. Kotsireas, S.R. Valluri, An investigation of uniform expansions of large order Bessel functions in Gravitational Wave Signals from Pulsars. **Int. J. Mod. Phys. D.** Vol. 17, No. 8 (2008) pp. 1197–1212.

26. I. S. Kotsireas, C. Koukouvinos, New skew-Hadamard matrices via computational algebra. **Australas. J. Combin.** 41 (2008), pp. 235–248

27. M. Chiarandini, I.S. Kotsireas, C. Koukouvinos, L. Paquete, Heuristic algorithms for Hadamard matrices with two circulant cores, **Theoretical Computer Science** 407 (2008) pp. 274–277.

28. I. S. Kotsireas, C. Koukouvinos, Periodic complementary binary sequences of length 50, **Int. J. Appl. Math.** 21, No. 3, (2008), pp. 509–514.

29. I. S. Kotsireas, C. Koukouvinos, Inequivalent Hadamard matrices of order 100 constructed from two circulant submatrices, **Int. J. Appl. Math.** 21, No 4, (2008), pp. 685–689.

30. I. Kotsireas, C. Koukouvinos, Hadamard matrices of Williamson type: a challenge for Computer Algebra **Journal of Symbolic Computation** 44, (2009), pp. 271–279.

31. I. Kotsireas, C. Koukouvinos, D. Simos, Inequivalent Hadamard matrices from base sequences **Util. Math.** 78, (2009), pp. 3–9.

32. R. M. Corless, K. Gatermann, I. S. Kotsireas, Using symmetries in the eigenvalue method for polynomial systems **Journal of Symbolic Computation** 44, (2009) pp. 1536–1550.

33. I. Kotsireas, C. Koukouvinos, New weighing matrices of order $2n$ and weight $2n - 5$ **J. Combin. Math. Combin. Comput.** 70, (2009) pp. 197–205

34. I. Kotsireas, C. Koukouvinos, J. Seberry, Weighing Matrices and String Sorting **Annals of Combinatorics** 13, (2009) pp. 305–313

35. I. Kotsireas, C. Koukouvinos, D. Simos, MDS and near-MDS self-dual codes over large prime fields **Advances in Mathematics of Communications** 3, No. 4, (2009) pp. 349–361

36. I. S. Kotsireas, C. Koukouvinos, P. M. Pardalos, An efficient string sorting algorithm for weighing matrices of small weight **Optimization Letters** 4, (2010) pp. 29–36

37. I. S. Kotsireas, C. Koukouvinos, J. Seberry, D. E. Simos, New classes of orthogonal designs constructed from complementary sequences with given spread **Australasian Journal of Combinatorics** 46, (2010), pp.67–78

38. I. Kotsireas, C. Koukouvinos, J. Seberry, New weighing matrices of order $2n$ and weight $2n-9$ **J. Combin. Math. Combin. Comput.** 72 (2010), pp. 49–54.

39. I. S. Kotsireas, C. Koukouvinos, P. M. Pardalos, O. V. Shylo, Periodic complementary binary sequences and Combinatorial Optimization algorithms **Journal of Combinatorial Optimization** 20 (2010), pp. 63–75.

40. K.T. Arasu, I. S. Kotsireas, C. Koukouvinos, J. Seberry, On circulant and two-circulant weighing matrices **Australasian Journal of Combinatorics** 48 (2010), pp. 43–51.

41. I. Kotsireas, C. Koukouvinos, D. Simos, Inequivalent Hadamard matrices from near normal sequences **J. Combin. Math. Combin. Comput.** 75 (2010), pp. 105–115.

42. I. S. Kotsireas, C. Koukouvinos, P. M. Pardalos, A modified power spectral density test applied to weighing matrices with small weight **Journal of Combinatorial Optimization** 22 (2011), Issue 4, pp. 873–881.

43. I. S. Kotsireas, C. Koukouvinos, D. E. Simos, A meta-software system for orthogonal designs and Hadamard matrices. **Journal of Applied Mathematics and Informatics** 29 (2011), No 5–6, pp. 1571–1581.

44. M. N. Syed, I. S. Kotsireas, P. M. Pardalos, D-Optimal Designs: A Mathematical Programming Approach using Cyclotomic Cosets **Informatica** 22 (2011), No. 4, pp. 577–587.

45. I. S. Kotsireas, C. Koukouvinos, J.Seberry, New weighing matrices constructed from two circulant submatrices **Optimization Letters** 6, (2012) Number 1, pp. 211–217.

46. D. Z. Djokovic, I. S. Kotsireas, New results on D-optimal matrices, **Journal of Combinatorial Designs** Volume 20, Issue 6, June 2012, pp. 278–289.

47. I. S. Kotsireas, C. Koukouvinos, P. M. Pardalos and D. E. Simos, Competent genetic algorithms for weighing matrices **Journal of Combinatorial Optimization** 24 (2012), Number 4, pp. 508–525.

48. I. S. Kotsireas, P. M. Pardalos, D-optimal Matrices via Quadratic Integer Optimization, **Journal of Heuristics** 19 (2013) pp. 617–627.

49. Dragomir Z. Djokovic, Oleg Golubitsky, Ilias S. Kotsireas, Some new orders of Hadamard and skew-Hadamard matrices, **Journal of Combinatorial Designs** 22 (2014), no. 6, pp. 270–277.

50. Dragomir Z. Djokovic, Ilias S. Kotsireas, Compression of Periodic Complementary Sequences and Applications, **Designs Codes and Cryptography** 74 (2015), no. 2, pp. 365–377.

51. Dragomir Z. Djokovic, Ilias S. Kotsireas, Daniel Recoskie, Joe Sawada, Charm bracelets and their application to the construction of periodic Golay pairs, **Discrete Applied Mathematics** 188 (2015), pp. 32–40.

52. Dragomir Z. Djokovic, Ilias S. Kotsireas, Some new periodic Golay pairs, **Numerical Algorithms** 69 (2015), no. 3, pp. 523–530.

53. Ioannis Haranas, Ioannis Gkigkitzis, Omiros Ragos, Ilias Kotsireas, Quantum and Post-Newtonian Effects in the Anomalistic Period and the Mean Motion of Celestial Bodies, **Astrophysics and Space Science** (2015), 358:12

54. Olivia Di Matteo, Dragomir Z. Djokovic, Ilias S. Kotsireas, Symmetric Hadamard matrices of order 116 and 172 exist, **Special Matrices** 3 (2015), pp. 227–234.

55. Ioannis Haranas, Ioannis Gkigkitzis, Ilias Kotsireas, Maria K. Haranas, Ioannis Rekkas, The effect of gravitational acceleration in the streaming potential on the surface of a planetary body and in orbit around it, **Advances in Space Research** 56 (2015), pp. 1714–1725.

56. Circulant Weighing Matrices: A Demanding Challenge for Parallel Optimization Metaheuristics, D. Souravlias, K.E. Parsopoulos, I.S. Kotsireas, **Optimization Letters** 10 (2016), no. 6, pp. 1303–1314.

57. Yukawa effects on the mean motion of an orbiting body, Haranas, Ioannis; Kotsireas, Ilias; Gómez, Guillem; Fullana, Màrius J.; Gkigkitzis, Ioannis; **Astrophys. Space Sci.** 361 (2016), no. 11, 361:365.

58. A class of cyclic $(v; k_1; k_2; k_3; \lambda)$ difference families with $v = 3 \pmod 4$ a prime. Dragomir Z. Djokovic, Ilias S. Kotsireas, **Special Matrices** 4 (2016), Art. 29.

59. Hard satisfiable 3-SAT instances via autocorrelation. Srinivasan Arunachalam, Ilias Kotsireas. **Journal of Satisfiability** 10 (2016) pp. 11–22.

60. Combining SAT Solvers with Computer Algebra Systems to Verify Combinatorial Conjectures
Edward Zulkoski Curtis Bright Albert Heinle Ilias Kotsireas Krzysztof Czarnecki Vijay Ganesh
Journal of Automated Reasoning 58 (2017), Issue 3, pp. 313–339.

61. Space time geometry in the atomic hydrogenoid system. Approach to a dust relativistic model from Causal Quantum Mechanics. G. Gómez, I. Kotsireas, I. Gkigkitzis, I. Haranas, M. J. Fullana. **Revista Mexicana de Física** 64 (2018) pp. 18–29

62. A feasibility approach for constructing combinatorial designs of circulant type. Francisco J. Aragón Artacho, Rubén Campoy, Ilias Kotsireas, Matthew K. Tam. **Journal of Combinatorial Optimization** May 2018, Volume 35, Issue 4, pp. 1061–1085.

63. Goethals-Seidel difference families with symmetric or skew base blocks.
Dragomir, Djokovic, Ilias Kotsireas. **Math. Comput. Sci.** 12 (2018), no. 4, pp. 373–388.

64. Yukawa potential orbital energy: its relation to orbital mean motion as well to the graviton mediating the interaction in celestial bodies. Martz, Connor; Van Middelkoop, Sheldon; Gkigkitzis, Ioannis; Haranas, Ioannis; Kotsireas, Ilias **Adv. Math. Phys.** 2019, Art. ID 6765827, 10 pp.

65. Computational methods for difference families in finite abelian groups.
Dragomir, Djokovic, Ilias Kotsireas. **Spec. Matrices** 7 (2019) pp. 127–141

66. **Optimization Methods and Software** Parallel Algorithm Portfolios with Performance Forecasting for the Detection of Circulant Weighing Matrices. D. Souravlias, I.S. Kotsireas, P.M. Pardalos, K. E. Parsopoulos Volume 34, Issue 6, (2019) pp. 1231–1250

67. **Information and Control Systems**
Hadamard matrices from Goethals–Seidel difference families with a repeated block. L. V. Abuzin, N. A. Balonin, D. Z. Djokovic I. S. Kotsireas. Issue 5, (2019) pp. 2–9.

68. **Annals of Mathematics and Artificial Intelligence (AMAI)**
The SAT+CAS Method for Combinatorial Search with Applications to Best Matrices.
Curtis Bright, Dragomir Djokovic, Ilias Kotsireas, Vijay Ganesh volume 87(4): pp. 321–342 (2019)

69. **Annals of Mathematics and Artificial Intelligence (AMAI)**
Constructing Orthogonal Designs in Powers of Two.
Ilias Kotsireas, Temur Kutsia, Dimitris Simos volume 88, pages 213–236 (2020)

70. **Journal of Symbolic Computation (JSC)**
Applying Computer Algebra Systems wth SAT Solvers to the Williamson Conjecture.
Curtis Bright, Ilias Kotsireas, Vijay Ganesh
Special Issue on Symbolic Computation and Satisfiability Checking
Edited by James H. Davenport, Matthew England, Alberto Griggio, Thomas Sturm, Cesare Tinelli
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71. **Appl. Algebra Engrg. Comm. Comput. (AAECC)**
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72. **IEEE Transactions on Information Theory**
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Curtis Bright, Ilias Kotsireas, Vijay Ganesh volume 66, issue 12, pp: 7739–7751, 2020

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Assaf Goldberger, Ilias Kotsireas
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Complex Golay Pairs up to Length 28: A Search via Computer Algebra and Programmatic SAT.
Curtis Bright, Ilias Kotsireas, Albert Heinle, Vijay Ganesh volume 102, pp. 153–172, 2021.

75. **Designs, Codes and Cryptography**
Legendre pair of length 77 using complementary binary matrices with fixed marginals.
Jonathan S. Turner, Ilias S. Kotsireas, Dursun A. Bulutoglu, Andrew J. Geyer volume 89, no. 6, pp. 1321–1333, 2021.

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O. E. Martinez-Durive, I. Kotsireas, R. Mulet, A. Lage-Castellanos volume 38, pp. 25–31, 2021.

77. **Journal of Combinatorial Designs**
Legendre pairs of lengths $\ell \equiv 0 \pmod 3$.
Ilias Kotsireas, Christoph Koutschan Volume 29, Issue 12, Dec 2021, pp. 870–887

78. **Optimization Methods and Software**
A Primer on the Application of Neural Networks to Covering Array Generation
Ludwig Kampel, Michael Wagner, Ilias S. Kotsireas, Dimitris E. Simos vol. 37 (2022), no.3, pp. 1165-–1202

79. **Communications of the ACM (CACM)** **Impact Factor: 22.7**
When Satisfiability Solving Meets Symbolic Computation: The Science of Less-Than-Brute Force
Curtis Bright, Ilias Kotsireas, Vijay Ganesh
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80. **Journal of Combinatorial Designs (JCD)**
Balanced Covering Arrays: A classification of covering arrays and packing arrays via exact methods
Ludwig Kampel, Irene Hiess, Ilias S. Kotsireas, Dimitris E. Simos
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81. **Special Matrices**, vol. 11, no. 1, 2023, pp. 20230105 Legendre pairs of lengths $\ell \equiv 0 \pmod 5$.
Ilias S. Kotsireas, Christoph Koutschan, Dursun A. Bulutoglu, David M. Arquette, Jonathan S. Turner, Kenneth J. Ryan

82. **J. Global Optim.**, vol 88 (2024), no. 3, pp. 685-–705. Parallel Algorithm Portfolios with Adaptive Resource-Allocation Strategy
Konstantinos E. Parsopoulos, Vasileios A. Tatsis, Ilias S. Kotsireas, Panos M. Pardalos

83. **J. Symbolic Comput.** An algorithmic approach based on generating trees for enumerating pattern-avoiding inversion sequences Ilias Kotsireas, Toufik Mansour, Gokhan Yildirim, vol 120 (2024), Paper No. 102231, 18 pp.

84. **Discrete Mathematics** 347 (2024), no. 5, Paper no. 113908.
New weighing matrices via partitioned group actions
Radel Ben-Av, Giora Dula, Assaf Goldberger, Ilias Kotsireas, Yossi Strassler

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85. SUBMITTED: DEC 31, 2021, AAECC, ACCEPTED: JAN 2023
Algebraic and SAT models for SCA Generation
Marlene Koelbing, Bernhard Garn, Enrico Iurlano, Ilias S. Kotsireas, Dimitris E. Simos

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86. Structured matrices approaches for Legendre Pairs
Shirani Perera, Ilias Kotsireas
submitted: 2024

87. Quaternary Legendre Pairs II
Ilias Kotsireas, Arne Winterhof, Christoph Koutschan submitted: Feb 28, 2024

88. New Results on Periodic Golay Pairs
Tyler Lumsden, Ilias Kotsireas, Curtis Bright submitted: August 27, 2024

BOOKS EDITED (35)

1. Mathematical Research for Blockchain Economy 4th International Conference MARBLE 2023, London, United Kingdom, Panos Pardalos, Ilias Kotsireas, William J. Knottenbelt, Stefanos Leonardos, (Editors)

2. Proceedings of CASC 2023, Havana, Cuba, August 28-September 1, 2023, Springer LNCS 14139, François Boulier, Matthew England, Ilias Kotsireas, Timur M. Sadykov, Evgenii V. Vorozhtsov (Editors)

3. Proceedings of LION 16 (2022), Milos Island, Greece, June 5–10, 2022, Springer LNCS 13621, https://link.springer.com/book/10.1007/978-3-031-24866-5 Dimitris E. Simos, Varvara A. Rasskazova, Francesco Archetti, Ilias S. Kotsireas, Panos M. Pardalos (Editors)

4. ACA 2022 Book of Abstracts, August 15-19, Gebze, Instabul, Turkey, https://scale.gtu.edu.tr/aca.html. Edited by Zafeirakis Zafeirakopoulos, Veronika Pillwein, Ilias Kotsireas, Michael Wester, Hadi Alizadeh, Aslihan Gür, Muhammed Ergen

5. ACA 2021 Book of Abstracts, July 23-27, 2021 (online) https://aca2021.sba-research.org/. Edited by Bernhard Garn, Ludwig Kampel, Ilias Kotsireas, Dimitris Simos, Michael Wester

6. Proceedings of LION 15 (2021), 15, Athens, Greece, June 20–25, 2021, (held on-line) Springer LNCS https://link.springer.com/book/10.1007/978-3-030-92121-7#about Dimitris E. Simos, Panos M. Pardalos, Ilias S. Kotsireas (Editors)

7. PAAR+SC-Square 2020, Practical Aspects of Automated Reasoning and Satisfiability Checking and Symbolic Computation Workshop 2020 Paris, France, June-July, 2020 (Virtual). Edited by Pascal Fontaine, Konstantin Korovin, Ilias S. Kotsireas, Philipp Rümmer, Sophie Tourret, http://ceur-ws.org/Vol-2752/

8. Dynamics of Disasters, DOD 2019 Book of Proceedings, Ilias Kotsireas, Anna Nagurney, Panos Pardalos (Editors).

9. Mathematical Research for Blockchain Economy, MARBLE 2020, Springer, Vilamoura, Portugal, Panos Pardalos, Ilias Kotsireas, Yike Guo, William Knottenbelt (Editors)

10. Proceedings of LION 14 (2020), Springer LNCS 12096, Ilias S. Kotsireas, Panos M. Pardalos (Editors)

11. Maple Conference 2019, Waterloo, ON, Canada, Maple in Mathematics Education and Research, Communications in Computer and Information Science, Springer J$\check{}$rgen Gerhard, Ilias Kotsireas (Editors)

12. Mathematical Research for Blockchain Economy, MARBLE 2019, Springer, Santorini, Greece, Santorini, Greece, Panos Pardalos, Ilias Kotsireas, Yike Guo, William Knottenbelt (Editors)

13. Proceedings of LION 12 (2018), Springer LNCS 11353, Roberto Battiti, Mauro Brunato, Ilias Kotsireas, Panos Pardalos (Editors)

14. ACMES conference proceedings, Fields Institute Communications 82, New York, NY: Springer (ISBN 978-1-4939-9050-4), (2019), Nicolas Fillion, Robert M. Corless, Ilias Kotsireas.

15. Dynamics of Disasters, Algorithmic Approaches and Applications, Springer Optimization and its Applications 140, (2019) (DOD 2017 Book of Proceedings), Ilias Kotsireas, Anna Nagurney, Panos M. Pardalos.

16. Lecture Notes in Computer Science, (LNCS 10693, Springer, 2017) MACIS 2017 Book of Proceedings, Johannes Blömer, Ilias S. Kotsireas, Temur Kutsia, Dimitris E. Simos (Editors)

17. ACA 2017 Book of Abstracts, Thierry Dana-Picard, Ilias Kotsireas, Aharon Naiman, 319 pp. online: `http://www.aca2017.jct.ac.il/`

18. CAI 2017 Book of Abstracts, Scott King, Ilias Kotsireas, 173 pp. online: `http://www.cargo.wlu.ca/CAI2017/`

19. ACA 2015 Book of Proceedings, Ilias Kotsireas and Edgar Martinez-Moro, Proceedings in Mathematics & Statistics 198. Springer (ISBN 978-3-319-56932-1)

20. ON-GOING Quantum Optimization, Fields Institute Communications, Tom Coleman, Ilias Kotsireas, Michele Mosca, Panos Pardalos, Rolando Somma.

21. Dynamics of Disasters, DOD 2015 Book of Proceedings, Ilias S. Kotsireas, Anna Nagurney, Panos M. Pardalos, Springer Proceedings in Mathematics & Statistics 185. Cham: Springer (ISBN 978-3-319-43707-1)

22. Lecture Notes in Computer Science, (LNCS 9582, Springer, 2016) MACIS 2015 Book of Proceedings, Ilias S. Kotsireas, Siegfried Rump, Chee K. Yap (Editors)

23. AMMCS 2013 Book of Proceedings, Interdisciplinary Topics in Applied Mathematics, Modeling and Computational Science, M. Cojocaru, I. Kotsireas et al. Springer Proceedings in Mathematics & Statistics, (PROMS) Vol. 117, 2015.

24. Advances in Combinatorics: In Memory of Herbert S. Wilf, Ilias S. Kotsireas and Eugene V. Zima Springer 2013.

25. Advances in Applied Mathematics, Modeling, and Computational Science Series. Fields Institute Communications, Vol. 66. R. Melnik, I. Kotsireas, 2013.

26. AMMCS 2011 Book of Proceedings, AIP 1368. Advances In Mathematical And Computational Methods: Addressing Modern Challenges of Science, Technology, and Society. Editors: I. Kotsireas, R. Melnik, B. West.

27. NumAn 2010 Book of Proceedings, September 2010. Editors: V. Dougalis, E. Gallopoulos, A. Hadjidimos, I.S. Kotsireas, D. Noutsos, Y.G. Saridakis, M.N. Vrahatis

28. Advances in Combinatorial Mathematics. Proceedings of the Waterloo Workshop in Computer Algebra 2008 Kotsireas, I. S.; Zima, E. V. (Eds.) Springer, 2010.

29. NumAn 2008 Book of Proceedings, September 2008. Editors: A. Akrivis, E. Gallopoulos, A. Hadjidimos, I. S. Kotsireas, D. Noutsos, M. N. Vrahatis, 209 pages.

30. NumAn 2007 Book of Proceedings, September 2007. Editors: E. Gallopoulos, E. Houstis, I. S. Kotsireas, D. Noutsos, M. N. Vrahatis, 172 pages.

31. Computer Algebra 2006. Latest Advances in Symbolic Algorithms. World Scientific Press, Editors: I. S. Kotsireas, E. V. Zima. 220 pages.

32. Maple Conference 2006, Maplesoft, Waterloo, Canada, Proceedings, Editors: I. S. Kotsireas, F. Kohandani, 371 pages.

33. Maple Conference 2005, Maplesoft, Waterloo, Canada, Proceedings, Editor: I. S. Kotsireas (with the assistance of I. J. Sinclair, J. Duketow, R. M. Kalbfleisch), 515 pages.

34. High Performance Computing Systems and Applications, HPCS 2005, Guelph, Canada, Conference Proceedings, IEEE, Editors: I. S. Kotsireas and D. Stacey, 362 pages.

35. Applications of Computer Algebra, ACA 2002, Volos, Greece, Book of Abstracts, Editors: A. G. Akritas, I. S. Kotsireas, 148 pages.

PAPERS IN REFEREED CONFERENCE PROCEEDINGS (49)

1. J.-C. Faugère and I. Kotsireas. Symmetry theorems for the Newtonian 4- and 5-body problems with equal masses. CASC 1999 Proceedings, Springer Verlag, LNCSE, V. Ganzha, et al. (Eds). pp. 81–92

2. I. Kotsireas. The Erdos-Straus conjecture on Egyptian Fractions. Paul Erdos and his mathematics (Budapest 1999) Janos Bolyai Math. Soc. A. Sali, M. Simonovits, V. Sos, eds. pp. 140–144

3. R. M. Corless, M. W. Giesbrecht, I. S. Kotsireas, S. M. Watt. Numerical implicitization of parametric hypersurfaces with linear algebra. AISC 2000 Proceedings, Springer Verlag, LNAI 1930, E. Roanes-Lozano, ed. pp. 174–183

4. R. M. Corless, M. W. Giesbrecht, M. van Hoeij, I. S. Kotsireas, S. M. Watt. Towards Factoring Bivariate Approximate Polynomials. ISSAC 2001 Proceedings, ACM Press, B. Mourrain ed. pp. 85–92

5. R. M. Corless, A. Galligo, I. S. Kotsireas, S. M. Watt. A Geometric-Numeric Algorithm for Absolute Factorization of Multivariate Polynomials. ISSAC 2002 Proceedings, ACM Press, T. Mora ed. pp. 37–45

6. K. Karamanos, Ilias S. Kotsireas, Towards Large-Scale Entropy Computations CASYS 2003 Proceedings, AIP, pp. 385–391

7. Ilias S. Kotsireas, Edmond Lau. Implicitization of Polynomial Curves, IPCurves. ASCM 2003 Proceedings, Beijing, China, Z. Li, W. Sit (Eds) pp. 217–226

8. Ioannis Z. Emiris, Ilias S. Kotsireas. Implicit Polynomial Support Optimized for Sparseness ICCSA'2003, Proceedings, LNCS 2669 Montreal, Canada, V. Kumar et al. (Eds) pp. 397–406

9. Ilias S. Kotsireas, Edmond Lau, Richard Voino. Implicitization of Polynomial Surfaces, IPSurfaces. CASC 2003 Proceedings, Passau, Germany, E. W. Mayr et al. (Eds) pp. 241–247

10. Ilias S. Kotsireas, Gil Pinheiro, A Meta-Software System for the Discovery of Hadamard Matrices, HPCS 2005 Proceedings, IEEE Guelph ON, Canada, I. Kotsireas, D. Stacey (Eds) pp. 17–23

11. I. S. Kotsireas, C. Koukouvinos, K. E. Parsopoulos, M. N. Vrahatis Unified Particle Swarm Optimization for Hadamard Matrices of Williamson Type MACIS 2006 Proceedings, Beijing, China pp. 113–121

12. I. S. Kotsireas, C. Koukouvinos, D. E. Simos Inequivalent Hadamard Matrices via Orthogonal Designs MACIS 2006 Proceedings, Beijing, China pp. 280–286

13. A. Kaltchenko, I. Kotsireas, N. Timofeeva, E. Yang, Entropy Rate Estimators with a Near-Optimal Upper Bound on Variance, Proceedings of the XI International Symposium on Problems of Redundancy In Information and Control Systems, Saint-Petersburg, Russia, July 2-6, 2007, pp. 18–21

14. I. S. Kotsireas, C. Koukouvinos, Inequivalent Hadamard Matrices from Orthogonal Designs, Proceedings of the 2007 International Workshop on Parallel Symbolic Computation, PASCO'07, ACM, July 27-28, 2007, London ON, Canada, pp. 95–97

15. I. S. Kotsireas, K.E. Parsopoulos, G. Piperagkas, M.N. Vrahatis Ant-Based Approaches for Solving Autocorrelation Problems, ANTS 2012, September 12-14, 2012, Brussels, Belgium. Lecture Notes in Computer Science (LNCS), Vol. 7461, pp. 220–227, Springer (2012)

16. I. S. Kotsireas, Structured Hadamard Conjecture, Number Theory and Related Fields, In Memory of Alf van der Poorten, Springer Proceedings in Mathematics & Statistics, Vol. 43 Borwein, Jonathan M.; Shparlinski, Igor; Zudilin, Wadim (Eds.) pp. 215–227 (2013)

17. I. S. Kotsireas, A short introduction to Gröbner bases, CMS Notes Volume 46 No. 1, February 2014, pp. 18-19 `http://cms.math.ca/notes/`

18. I. S. Kotsireas, P. M. Pardalos, A new existence condition for Hadamard matrices with circulant core, Learning and Intelligent Optimization, LNCS 8426 (2014), pp. 383–390

19. Dragomir Z Djokovic, Ilias S. Kotsireas, D-optimal matrices of orders 138, 150, 154 and 174. Algebraic Design Theory and Hadamard Matrices, Springer Proceedings in Mathematics & Statistics 133, edited by C. Colbourn, (2015), pp. 71–82

20. Ilias S. Kotsireas, Jennifer Seberry, Yustina S. Suharini, Inner Product Vectors for skew-Hadamard Matrices. Algebraic Design Theory and Hadamard Matrices, Springer Proceedings in Mathematics & Statistics 133, edited by C. Colbourn, (2015), pp. 171–187

21. Dragomir Z Djokovic, Ilias S. Kotsireas, Periodic Golay pairs of length 72. Algebraic Design Theory and Hadamard Matrices, Springer Proceedings in Mathematics & Statistics 133, edited by C. Colbourn, (2015), pp. 83–92

22. Ilias Kotsireas, Temur Kutsia, Dimitris E. Simos, Constructing Orthogonal Designs in Powers of Two: Gröbner Bases Meet Equational Unification. 26th International Conference on Rewriting Techniques and Applications (RTA 2015), Warsaw, Poland, Leibniz International Proceedings in Informatics (LIPIcs) pp. 241–256

23. Ilias S. Kotsireas, Panos M. Pardalos, Konstantinos E. Parsopoulos, Dimitris Souravlias, On the Solution of Circulant Weighing Matrices Problems Using Algorithm Portfolios on Multi-Core Processors. Andrew V. Goldberg, Alexander S. Kulikov (Eds.), 15th International Symposium on Experimental Algorithms (SEA 2016), St. Petersburg, Russia, Springer, Lecture Notes in Computer Science 9685, (2016) pp. 184–200

24. Bright, Curtis; Ganesh, Vijay; Heinle, Albert; Kotsireas, Ilias; Nejati, Saeed; Czarnecki, Krzysztof, MATHCHECK2: a SAT+CAS verifier for combinatorial conjectures. Gerdt, Vladimir P. et al. (Eds), Computer Algebra in Scientific Computing. Proceedings of the 18th international workshop, CASC 2016, Bucharest, Romania, Springer, Lecture Notes in Computer Science 9890, (2016) pp. 117–133

25. Ioannis Haranas, Ioannis Gkigkitzis, Ilias Kotsireas, Carlos Austerlitz, Neuronal Correlation Parameter and the Idea of Thermodynamic Entropy of an N-Body Gravitationally Bounded System. P. Vlamos (Ed.), GeNeDis 2016 Proceedings, Advances in Experimental Medicine and Biology 987, pp. 35–44

26. Ioannis Gkigkitzis, Ioannis Haranas, Ilias Kotsireas, Biological Relevance of Network Architecture. P. Vlamos (Ed.), GeNeDis 2016 Proceedings, Advances in Experimental Medicine and Biology 988, pp. 1–29

27. Ioannis Z. Emiris, Christos Konaxis, Ilias S. Kotsireas, Clément Laroche, Matrix representations by means of interpolation. ISSAC 2017, Kaiserlautern, Germany, Proceedings of the 2017 ACM International Symposium on Symbolic and Algebraic Computation, pp. 149–156, 2017.

28. Curtis Bright, Vijay Ganesh, Ilias Kotsireas, A SAT+CAS Method for Enumerating Williamson Matrices of Even Order, Sheila A. McIlraith, Kilian Q. Weinberger (Eds.): Proceedings of the 32nd AAAI Conference on Artificial Intelligence, New Orleans, Louisiana, USA, February 2-7, 2018. AAAI Press 2018, pp. 6573–6580

29. Curtis Bright, Ilias Kotsireas, Albert Heinle, Vijay Ganesh, Enumeration of Complex Golay Pairs via Programmatic SAT, ISSAC 2018, New York City, USA, Proceedings of the 2018 ACM International Symposium on Symbolic and Algebraic Computation, pp. 111–118, 2018.

30. Kristoffer Kleine, Ilias Kotsireas, Dimitris E. Simos, Evaluation of tie-breaking and parameter ordering for the IPO family of algorithms used in covering array generation. C. Iliopoulos, H. W. Leong, W. K. Sung (Eds.): Combinatorial algorithms. 29-th International Workshop on Combinatorial Algorithms, IWOCA 2018, Singapore, July 16–19, 2018. Proceedings. Lecture Notes in Computer Science 10979, Springer pp. 189–200

31. Ilias S. Kotsireas, Jing Yang, Autocorrelation via Runs, Jacques Fleuriot, Dongming Wang, Jacques Calmet (Eds.): Proceedings of AISC 2018, Suzhou, China, LNAI 11110, pp. 195–205

32. Aristidis G. Vrahatis, Ilias S. Kotsireas, Panayiotis Vlamos, Detecting common pathways and key molecules of Neurodegenerative Diseases from the topology of molecular networks. GeNeDis 2018. Advances in Experimental Medicine and Biology, vol 1194. Springer, Cham, pp. 409–421.
`https://link.springer.com/chapter/10.1007/978-3-030-32622-7_38`

33. Aristidis G. Vrahatis, Ilias S. Kotsireas, Panagiotis Vlamos, A Systems Biology Approach for the Identification of active molecular pathways during the progression of Alzheimer's Disease. GeNeDis 2018. Advances in Experimental Medicine and Biology, vol 1194. Springer, Cham, pp. 303–314.
`https://link.springer.com/chapter/10.1007/978-3-030-32622-7_28`

34. Curtis Bright, Dragomir Djokovic, Vijay Ganesh, Ilias Kotsireas, A SAT+CAS Approach to Finding Good Matrices: New Examples and Counterexamples, Proceedings of the 33rd AAAI Conference on Artificial Intelligence, Honolulu, Hawaii, USA. AAAI Press 2019.
acceptance rate: 16.2%

35. ACCEPTED: (2019)
Ludwig Kampel, Dimitris E. Simos, Bernhard Garn, Ilias Kotsireas and Evgeny Zhereshchin
Algebraic Models for Arbitrary Strength Covering Arrays over v-ary Alphabets
Conference in Algebraic Informatics (CAI 2019), Nis, Serbia

36. ACCEPTED: (2019)
13th Learning and Intelligent Optimization Conference (LION 13) Chania, Crete, Greece. How to use Boltzmann Machines and Neural Networks for Covering Array Generation
Ludwig Kampel, Michael Wagner, Ilias Kotsireas and Dimitris E. Simos

37. ACCEPTED: (2019)
CASCON 2019, IBM, Toronto SAT Solvers and Computer Algebra Systems: A Powerful Combination for Mathematics
Curtis Bright, Ilias Kotsireas, Vijay Ganesh

38. ACCEPTED: SPRINGER CCIS SERIES, (2019)
Proceedings of the Maple Conference 2019, Waterloo, ON, Canada

Curtis Bright, Ilias Kotsireas, Vijay Ganesh
Effective problem solving using SAT solvers

39. CASC 2019, Moscow
Ilias Kotsireas, Youtong Liu, Jing Yang PAF reconstruction with the orbits method

40. CASC 2019, Moscow
Remi Imbach, Victor Y. Pan, Chee Yap, Ilias Kotsireas, Vitaly Zaderman
Root-finding with Implicit deflation

41. MC 2019, Maple in Mathematics Education and Research,
Curtis Bright, Jurgen Gerhard, Ilias Kotsireas, Vijay Ganesh
Effective Problem Solving Using SAT Solvers

42. ACCEPTED: FEB 2020, ACA 2019, MONTREAL, AAECC SPECIAL ISSUE
A SAT Certification of the Nonexistence of Projective Planes of Order Ten Containing Weight 15 Codewords
Curtis Bright, Kevin Cheung, Brett Stevens, Dominique Roy, Ilias Kotsireas, Vijay Ganesh

43. Curtis Bright, Kevin K. H. Cheung, Brett Stevens, Ilias Kotsireas and Vijay Ganesh
Nonexistence Certificates for Ovals in a Projective Plane of Order Ten, IWOCA 2020, Bordeaux, France, pp. 97–111

44. Curtis Bright, Kevin K. H. Cheung, Brett Stevens, Ilias Kotsireas and Vijay Ganesh
Unsatisfiability Proofs for Weight 16 Codewords in Lam's Problem
Proceedings of the Twenty-Ninth International Joint Conference on Artificial Intelligence, IJCAI 2020, Yokohama, Japan
pp. 1460–1466, (acceptance rate: 12.6%)

45. Curtis Bright, Kevin K. H. Cheung, Brett Stevens, Ilias S. Kotsireas, Vijay Ganesh
A SAT-based Resolution of Lam's Problem, AAAI-21
Thirty-Fifth Conference on Artificial Intelligence, AAAI 2021, pp. 3669–3676, AAAI Press, 2021.

46. (accepted)
E Bartzos, I. Emiris, I. Kotsireas, C. Tzamos
Bounding the number of Roots for Multi-Homogeneous Systems
ISSAC 2022 Lille, France

47. (submitted)
Curtis Bright, Kevin K. H. Cheung, Brett Stevens, Ilias Kotsireas and Vijay Ganesh
Solving Lam's Problem via SAT and Isomorph-Free Exhaustive Generation
KR2022 Haifa, Israel

48. Ilias S. Kotsireas, Arne Winterhof, (2024). Quaternary Legendre Pairs. In: Colbourn, C.J., Dinitz, J.H. (eds) New Advances in Designs, Codes and Cryptography. NADCC 2022. Stinson66, Toronto, Canada, June 13–17, 2022, Fields Institute Communications, vol 86. pp. 289–304

49. Profiting Off the High Correlation of Cryptocurrency Pairs Using Statistical Arbitrage, Maxwell Dann and Ilias Kotsireas, S. Leonardos et al. (eds.), Mathematical Research for Blockchain Economy, Lecture Notes in Operations Research, 2024, pp. 327–335

COLLECTIONS EDITED (4)

1. PAAR+SC^2 Proceedings, 2020, CEUR, Pascal Fontaine, Ilias Kotsireas, Konstantin Korovin, Philipp Rümmer, Sophie Tourret (Editors)

2. Laurier SHARCnet Research Symposium, LSRS 2009, Collection of Abstracs, 8 pages.

3. International Symposium on Symbolic and Algebraic Computation, ISSAC 2004, University of Cantabria, Santander Spain. Collection of Poster Abstracts, 55 pages.

4. East Coast Computer Algebra Day, ECCAD 2004, Waterloo, Canada, Collection of Abstracs, 22 pages.

REVIEWS (2)

1. Kotsireas, I.S. Review of "Handbook of Heuristics". Oper. Res. Forum (ORFO) Volume 3, Article number: 34, (2022)

2. Kotsireas, I.S. "Personal Recollections of Prof. Vladimir P. Gerd". Math. Comp. Sci. (MCS), November 2022

CHAPTERS IN BOOKS and HANDBOOKS (4)

1. Konstantinos E. Parsopoulos1, Ilias S. Kotsireas, Panos M. Pardalos Algorithm Portfolios, Encyclopedia of Optimization, 2nd ed. 2023

2. I. Kotsireas. Algorithms and Meta-heuristics for Combinatorial Matrices. Handbook of Combinatorial Optimization, 2nd Edition, 2013, Panos Pardalos, Ding-Zhu Du, Ronald Graham (Editors) pp 283–309.

3. I. Kotsireas. Panorama of methods for exact implicitization of algebraic curves and surfaces. Geometric Computation, World Scientific, 2003, Dongming Wang, Falai Chen (Editors) pp 126–155.

4. I. Kotsireas. Central Configurations in the Newtonian N-body problem of Celestial Mechanics. Computer Algebra Handbook, Springer Verlag, 2002, Johannes Grabmeier, Erich Kaltofen, Volker Weispfenning (Editors) pp 176–180.

BOOK (1)

1. Dimitris Souravlias, Konstantinos E. Parsopoulos, Ilias S. Kotsireas, Panos M. Pardalos
Algorithm Portfolios: Advances, Applications and Challenges,
SpringerBriefs in Optimization, 2021
https://link.springer.com/chapter/10.1007/978-3-030-68514-0_2

HANDBOOK (1)

1. Panayiotis Vlamos, Ilias S. Kotsireas, Ioannis Tarnanas (Editors)
Handbook of Computational Neurodegeneration (2020)
https://link.springer.com/referencework/10.1007/978-3-319-75479-6

TECHNICAL REPORTS (9)

1. I. S. Kotsireas. A Survey on Solution Methods for Integral Equations June 2008, Technical Report TR-08-03 ORCCA

2. K. Karamanos, I. Kotsireas. Fractal structure of the block-complexity function April 2008, Technical Report M/08/24 Prépublication I.H.E.S. Bures-sur-Yvette France

3. I. Z. Emiris, I. S. Kotsireas. On the Support of the Implicit Equation of Rational Parametric Hypersurfaces. August 2002, Technical Report TR-02-01 ORCCA

4. I. Kotsireas and G. Reid. Alternative Ways of Solving Polynomial Systems. 2001, Technical Report TR-01-03 ORCCA

5. I. S. Kotsireas. Homotopy and polynomial system solving. 2000, Technical Report TR-00-23 ORCCA

6. R. M. Corless, M. Giesbrecht, I. Kotsireas and S. Watt Symbolic-Numeric Algorithms for Polynomials 2000, Technical Report TR-00-21 ORCCA

7. Robert M. Corless, Mark W. Giesbrecht, Ilias S. Kotsireas and Stephen M. Watt. Numerical implicitization of parametric hypersurfaces with linear algebra. 2000, Technical Report TR-00-03 ORCCA

8. I. Kotsireas and J. Schicho. *A Computer Algebra solution to a planar newtonian 4-body problem with unequal masses.* Technical Report 00-16/2000 RISC-Linz.

9. I. Kotsireas. *Configurations centrales dans le problème des N Corps*. M.Sc. Thesis, 1995, LIP6, Université Paris 6, (in french)

PLENARY & INVITED & KEYNOTE & SEMINAR TALKS (64)

1. The Second International Congress in Algebras and Combinatorics (ICAC 2007), Xian University of Architectural Technology and Science, July 2007, Xian, China, plenary speaker.
2. Applications of Computer Algebra (ACA 2013), Malaga, Spain, plenary speaker.
3. Compute Ontario Research Day (CORD 2014), Perimeter Institute for Theoretical Physics, Waterloo, ON, Canada, May 7, 2014, plenary speaker.
4. Algebraic Design Theory and Hadamard Matrices (ADTHM 2014), University of Lethbridge, Lethbridge, AB, Canada, July 8–11, 2014, invited speaker.
5. 7th International Week Dedicated to Mathematics, Thessaloniki, Greece, March 18–22, 2015, invited speaker.
6. Algebraic Combinatorics and Applications, the first annual Kliakhandler Conference Michigan Technological University, Houghton, Michigan, USA August 26–30, 2015, invited speaker.
7. Workshop on Linear Computer Algebra and Symbolic-Numeric Computation, Thematic Program in Computer Algebra, Fields Institute, Toronto, ON, Canada, October 26–31, 2015, invited speaker.
8. International Conference on Coding theory and Cryptography (ICCS 2015), Algiers, Algeria, Université des Sciences et de la Technologie Houari Boumediene, November 2–5, 2015, invited speaker.
9. 8th International Week Dedicated to Mathematics, Thessaloniki, Greece, March 30, 2016 – April 3, 2016, invited speaker.
10. April 26, 2016, PageRank seminar at Google Waterloo.
11. International Industrial Mathematics Conference-I, I^2MC-I, 2016, University of Sri Jayewardenepura, Sri Lanka, June 3–5, 2016, plenary speaker.
12. Nordic Combinatorial Conference 2016, Levi, Kittilä, Finland, June 13–15 2016, plenary speaker.
13. 9th International Week Dedicated to Mathematics, Thessaloniki, Greece, March 15–19 2017, invited speaker.
14. April 2017, Perifereia Ioniwn Nisiwn (PIN) meeting, Ionian University, Corfu, Greece, invited speaker.
15. April 2017, Series of talks on MPI, Institute of Physical Chemistry, National Center for Scientific Research "Demokritos", Athens, Greece.
16. May 10-14, 2017, Summer School on Operational Research and Applications, Nizhny Novgorod, Russia, invited speaker.
17. May 17, 2017, LATNA Seminar Series, Nizhny Novgorod, Russia, invited speaker.
18. June 29-30, 2017, Conference on Approximation and Optimization: Algorithms, Complexity, and Applications, National and Kapodistrian University of Athens (NKUA), invited speaker.
19. November 3, 2017, Data Mining seminar at the Bank of Canada HQ in Ottawa.
20. 10th International Week Dedicated to Mathematics, Thessaloniki, Greece, April 25-29, 2018, invited speaker.

21. July 09, 2018, 25th Summer School on Dynamical Systems and Complexity, National Center for Scientific Research "Demokritos", Athens, Greece, invited speaker.

22. July 11, 2018, SC^2 workshop, Oxford, United Kingdom (part of the FLoC 2018 conferences)

23. July 14-16, 2018, Charles J. Colbourn 65th birthday conference, Singapore

24. Athens Conference on Algorithms and Complexity, ACAC 2018, National Technical University of Athens, (NTUA), Athens, Greece, August 23-24, 2018, plenary invited speaker

25. 12th international conference on Automated Deduction in Geometry, ADG 2018, Nanning, China, September 11-14, 2018, plenary invited speaker

26. 13th international conference on Artificial Intelligence and Symbolic Computation, AISC 2018, Suzhou, China, September 16-19, 2018, invited tutorial speaker

27. CADGME 2020, Jerusalem, Israel, Keynote Speaker (moved to 2021)

28. ESCO 2020, Pilsen, Chech Republic, Keynote Speaker (moved on-line)

29. IEEE Computer Society Seminar, "Big Data and Combinatorics", invited by Dr. Ahmed Farouk, held on-line on: March 24, 2020

30. Summer School on Operations Research, Data and Decision Making May 19-20, 2020, LATNA, Nizhny Novgorod, Russia, invited lecture

31. Fujitsu Lab Toronto, August 25, 2020, invited seminar

32. GeNeDis 2020, Heraklion, Crete (moved on-line) October 8-11, 2020, keynote speaker "Constraint Satisfaction Problems"

33. 5th Winter School on Data Analytics, November 20-22, 2020, LATNA, Nizhny Novgorod, Russia, invited lecture

34. 22nd Workshop on Computer Algebra in memory of Professor Vladimir Gerdt. May 24–25, 2021, Dubna, Russia.

35. NET 2021 conference, October 18-20, 2021, LATNA, Nizhny Novgorod, Russia, invited lecture

36. LATNA seminar, March 09, 2022, Nizhny Novgorod, Russia

37. 12th International Week Dedicated to Mathematics, Thessaloniki, Greece, May 12, 2022, invited speaker.

38. 6th Workshop on Algebraic Designs, Hadamard Matrices & Quanta, Jagiellonian University, Krakow, Poland, June 27 -– July 2, 2022, invited speaker

39. Doug Stinson's 66th birthday, Fields Institute, Toronto, June 13-17, 2022, invited speaker

40. International Conference on Enumerative Combinatorics and Applications (Virtual) ICECA 2022 (September 6-7, 2022), University of Haifa, Israel, invited speaker

41. CADGME 2022, Jerusalem, Israel, Keynote Speaker (Virtual)

42. International Virtual Courses: Combinatorics Perspective, September 5-–16, 2022, Institut Teknologi Bandung, Indonesia, invited speaker (Virtual)

43. 5th GeNeDis conference, October 2022, Zakynthos Island, Greece, Keynote address (Virtual)

44. MacMaster University, Hamilton, Ontario, Mathematics Department, Wed Nov 23 2022, Seminar talk

45. Holon Institute of Technology, Israel, Thursday Dec 1, 2022, Seminar talk (Virtual)

46. Western University, London, Ontario, Canada, Thursday March 23, 2023, Department of Mathematics, Seminar talk

47. Beijing Jiaotong University, April 12, 2023, Beijing, P. R. China, Seminar talk

48. Capital Normal University, April 13, 2023, Beijing, P. R. China, Seminar talk

49. Chinese Academy of Sciecnes, April 14, 2023, Beijing, P. R. China, Seminar talk

50. International Conference on Mathematical Models, Engineering, and Environment, May 26–28, 2023, Thessaloniki, Municipal Amphitheater, Plenary,Invited speaker

51. University of Primorska, Slovenia, 1-day workshop talk

52. University of Pristina, Kosovo, Seminar talk

53. Demokritos, Athens, Greece, December 21, 2023, COSA Seminar talk

54. University of Havana, Concepts and Algorithms in Data Mining, February 22, 2024, Seminar

55. 55^{th} Southeastern International Conference on Combinatorics, Graph Theory, and Computing, March 4-8, 2024, Plenary Invited talk

56. University of Windsor, Concepts and Algorithms in Data Mining, March 15, 2024, CS Colloquium Series

57. Georgia Tech, Atlanta, United States, April 12, 2024, CS Invited Seminar

58. 14th EME Maths Week, Thessaloniki, April 2024, Invited Speaker

59. CODESCO 2024 conference, Sevilla, Spain, Invited Speaker

60. Optimization, Analytics, and Decisions in the Big Data Era, In Honor of the 70-th Birthday of Panos Pardalos, June 16–21, 2024, Halkidiki, Greece, Invited Speaker

61. NATO Advanced Research Workshop Isogeny based post-quantum cryptography Hebrew University of Jerusalem, (HUJI), July 29-31, 2024, Jerusalem, Israel, Invited Speaker

62. 135th foundation anniversary of the Faculty of Mathematics and Informatics – Sofia University "St. Kliment Ohridski", WMI 2024: Week of Mathematics and Informatics, Burgas, Bulgaria, September 23–27, 2024, Plenary/Invited Speaker

63. RAMA 2024, International Workshop on Recent Advances in Mathematics Nov. 2–3, 2024, Hangzhou International Campus of Beihang University, Hangzhou, China, Invited speaker

64. 2nd International Conference on Mathematical Models, Engineering and Environment, December 11–13, 2024, Thessaloniki, Greece, Invited/Plenary speaker

WINTER/SUMMER SCHOOLS, INTENSIVE TRAINING (8)

1. Instructor: Winter School, Beihang University, Beijing, China, December 2019
2. January 2018, Intensive Maple training event in Waterloo, Instructors: Jürgen Gerhard (Maplesoft), Ilias Kotsireas (Laurier), Erik Postma (Maplesoft)
3. Saturday, March 25, 2017, Intensive Maple training event at The Fields Institute in Toronto, Instructors: Jürgen Gerhard (Maplesoft), Ilias Kotsireas (Laurier), Erik Postma (Maplesoft)
4. Saturday, November 12, 2016, Intensive Maple training event at Wilfrid Laurier University, Waterloo campus, Instructors: Jürgen Gerhard (Maplesoft), Ilias Kotsireas (Laurier), Erik Postma (Maplesoft)
5. Instructor: Winter School, Intensive training in Data Mining, GXUN, Nanning, China
6. Instructor: Winter School, Intensive training in high-performance computing, School of Mathematical Sciences, South China Normal University, (SCNU) Guangzhou, China, December 14-25, 2015.
7. Instructor: Summer School, Intensive training in high-performance computing, GXUN, Nanning, China
8. Instructor: Summer School, Intensive training in high-performance computing, XNU, Henan, China

SEMINAR SERIES ORGANIZATION (3)

1. CSASM seminar series 2004-2014, with Roderick Melnik
   CSASM stands for "Computational Science & Applied & Staistical Modelling"
2. Department of Physics and Computer Science seminar series, with Marek S. Wartak
3. Journal of Algebraic Combinatorics Webinar Series, 2023, 2024, 2025
   `https://cassyni.com/s/algebraic-combinatorics`

CONFERENCE PRESENTATIONS AND PARTICIPATION

1. Troisième Rencontre Mathématique Internationale, 28 Septembre - 2 Octobre 1989, Centre Culturel Europeen de Delphes, Delphes, Grece
2. 1er Conseil de Grecs a l'Etranger, 1st Council of Greeks Abroad, (SAE), 4-5 Decembre 1995, Thessaloniki, Greece. (participant au forum Internet)
3. PoSSo Workshop On Software, March 1-4, 1995, Universite Pierre et Marie Curie, Paris 6, Campus de Jussieu, Paris, France
4. AAECC-11, July 17-22, 1995, Ancienne Ecole Polytechnique, Paris, France.
5. World Wide Web 5 (WWW5), May 6-10, 1996, CNIT, Paris La Defense, France. (participant presse)
6. Groupe de Travail, Equipe du Calcul Formel du Paris 6 31 mai 1996, Paris, France (TALK)
7. Journee sur l'enseignement du Calcul Formel, June 19, 1996, Universite de Rennes I, Campus de Beaulieu, IRMAR, Rennes, France.
8. AAECC-12, June 23-27, 1997, Universite Paul Sabatier, Toulouse, France.
9. 33 Years of Gröbner Bases, (33YGB) February 2-4, 1998, RISC, Linz, Austria.
10. CASC 1998 April 22, 1998, EIMI Saint-Petersburg, Russia. (TALK)
11. Seminaire Mathematiques Effectives May 26, 1998, IGD, Universite Claude Bernard Lyon-I, Lyon, France. (TALK)
12. Seminaire Calcul Formel May 28, 1998, LMC, IMAG, Grenoble, France. (TALK)
13. Seminaire Astronomie et Systemes Dynamiques June 18, 1998, Bureau des Longitudes, Paris, France. (TALK)
14. MEGA-98 June 22-27, 1998, Universite de Rennes I, St-Malo, France.
15. ACA 1998 August 9-11, 1998, Prague, Czech Republic. (TALK)
16. ISSAC 1998 August 13-15, 1998, University of Rostock, Rostock, Germany.
17. Journees Nationales de Calcul Formel 26-30 Octobre 1998, CIRM, Luminy, Marseille, France (TALK)
18. ALGORITHMES DE RESOLUTION DES SYSTEMES POLYNOMIAUX : APPLICATION AUX CONFIGURATIONS CENTRALES DU PROBLEME DES N CORPS EN MECANIQUE CELESTE. December 16, 1998, Ph. D. Thesis, Universite Pierre et Marie Curie, Paris 6, Paris, France.
19. Seminaire Calcul Formel et Complexite February 5, 1999, IRMAR, Campus de Beaulieu, Universite de Rennes I, Rennes, France. (TALK)
20. Ecole Jeunes Chercheurs en Algorithmique et Calcul Formel March 22-26, 1999, LaBRI, Universite Bordeaux 1, Bordeaux, France. (TALK)
21. FRISCO (an Esprit-LTR European Commission Project) Closing Workshop April 28-29, 1999, NAG , Corporation , Oxford, England. (TALK)
22. Groupe de travail de l'equipe Calcul formel May 19, 1999, LIFL, Université de Lille I, Lille, France. (TALK)
23. CASC 1999 May 31 - June 4, 1999, TUM, Munchen, Germany. (TALK)
24. IMACS-ACA'99 June 24-27, 1999, Madrid, Spain. (TALK), co-organizer of the session Computer Algebra for Dynamical Systems and Mechanics
25. PAUL ERDOS Memorial Conference July 4-11, 1999, Budapest, Hungary. (short communication, poster) Satellite conference of the UNESCO-ICSU World Conference on Science
26. Seminar in Symbolic Mathematical Computing October 8, 1999, UWO, CSD, London, Ontario, Canada. (TALK)
27. IBM CASCON November 8-11, 1999, Toronto, Canada. (ORCCA posters)

28. RISC-LINZ November 27-30, 1999, Linz, Austria.
29. ECCAD 2000 SONAD 2000 May 12-13, 2000, London, Ontario, Canada. (posters)
30. SCL/SCG/ORCCA joint lab meeting June 2, 2000, Waterloo, Ontario, Canada. (TALK)
31. MITACS Annual General Meeting The Legacy of John Charles Fields, The Fields Institute June 6-7, 2000, Toronto, Canada.
32. AMS Summer Research Conference in Symbolic Computation June 11-15, 2000, Mt Holyoke, MA, USA. (TALK)
33. MEGA-2000 June 20-24, 2000, Bath, England. (TALK)
34. ACA 2000 June 25-28, 2000, St. Petersburg, Russia. (TALK) Program Comm.
35. Classical Combinatorics FoataFest July 7-9, 2000, Temple University, Philadelphia, PA, USA.
36. AISC 2000 July 17-19, 2000, Madrid, Spain. (TALK)
37. SCL/SCG/ORCCA joint lab meeting October 6, 2000, Waterloo, Ontario, Canada. (TALK)
38. ECCAD 2001 May 5, 2001, Talahassee, FL, USA.
39. Large Class Teaching Workshop, Educational Development Office May 15-May 16, 2001, London, Ontario, Canada.
40. ACA 2001 Albuquerque, New Mexico
41. CAIMS 2001 Victoria, British Columbia, Canada
42. SONAD 2001 Waterloo, Ontario, Canada
43. Intensive Summer School in Computer Algebra, Kingston, Ontario
44. ISSAC 2001 London, Ontario, Canada.
45. ISAAC 2001 ZIB, Freie Universität, Berlin, Germany. (TALK)
46. ADCOG21, City University of Hong Kong, Hong Kong, China. (TALK)
47. Joint Mathematics Meetings, San Diego, CA. (TALK)
48. EAGER - EMS Summer School on Computational Algebraic Geometry and Applications Eilat, Israel, February 2002.
49. Mathematics Mechanization Research Center, MMRC Beijing, China, April, 2002. (TALK)
50. USTC Seminar on Geometric Computation Hefei, Anhui Province, China, April, 2002. (TALK)
51. TICAM, Center for Computational Visualization May 2002, Austin, TX
52. ECCAD 2002, LaGuardia Community College Saturday, May 18, 2002, Long Island City, NY, NY
53. CBMS Lectures, Texas A&M University: Solving Systems of Polynomial Equations May 20-24, 2002, College Station, TX
54. CBMS Lectures, Eastern Illinois University: N-Body Problem June 9-15, 2002, Charleston, IL, USA
55. ACA 2002 June 25-28, 2002, Volos, Greece
56. ISSAC 2002 July 7-10, 2002, Lille, France
57. FoCM 2002 August 8-11, 2002, Minneapolis, MN, USA
58. Midwest Dynamical Systems Seminar October 4-6, 2002, Cincinnati, OH, USA
59. LMCS 2002 October 20-22, 2002, RISC-Linz, Austria
60. UOA/NTUA Kounias conference June/July 2003
61. ACA 2003 July 2003, Raleigh NC, USA
62. ISSAC 2003 August 2003, Drexel, Philadelphia, USA
63. CASC 2003 October 2003, CASC 2003 Passau, Germany
64. DIMACS workshop Rutgers, NJ, USA, 2003
65. ASCM 2003 , 2003, Beijing, P. R. China

66. ICPSS 2004, November 24-26, 2004, Paris, France
67. ECCAD 2004, May 8, 2004, Waterloo ON, Canada
68. ICODOE 2005, May 13-15, 2005, Memphis TN, USA
69. HPCS 2005, May 15-18, 2005, Guelph ON, Canada
70. CMS/CSHPM Summer 2005 Meeting, June 4-6, 2005, Waterloo ON Canada
71. Maple Conference 2005, July 17-21, 2005, Waterloo ON, Canada
72. ACA 2005, July 31 - August 3, 2005, Nara, Japan
73. ACM SGB (SIG Governing Board) August 12-13, 2005, Newark, NJ, USA
74. Euroconference in Algebraic Combinatorics, August 20-26, 2005, Crete, Greece
75. CASC 2005, September 12-16, 2005, Kalamata, Greece
76. ASCM 2005, December 10-12, 2005, Seoul, Korea
77. Waterloo Computational Mathematics Colloquia Series, January 23, 2006
78. Rutgers Experimental Mathematics Seminar, February 2, 2006
79. Department of Mathematics and Statistics, Oakland University, Algebra Seminar, February 20, 2006
80. Waterloo Workshop on Computer Algebra 2006, April 10-12, 2006
81. Interactive Parallel Computation in Support of Research in Algebra, Geometry and Number Theory, January 29 to February 2, 2007, Mathematical Sciences Research Institute, MSRI, UC Berkeley, USA.
82. International Workshop on Hadamard and Cocyclic Matrices and Applications, IWHCMA 2007, June 18-19, 2007, Sevilla, Spain (TALK)
83. Guest Lecture in Doron Zeilberger's Experimental Mathematics class, Rutgers University, March 5, 2009
84. Rutgers Experimental Mathematics Seminar, March 5, 2009
85. International Conference on Design Theory and Applications, celebrating the 50th birthday of Dr Warwick de Launey, 2nd International Workshop on Hadamard and Cocyclic Matrices and Applications National University of Ireland, Galway, July 1-3, 2009 (TALK)
86. International Workshop on Hadamard Matrices and their Applications, In honour of the 60th birthday of Kathy Horadam, RMIT, Melbourne, Australia, November 2011 (TALK)
87. International Meeting to Celebrate the 60th Birthday of Jonathan Borwein. University of Newcastle, Australia, December 2011 (TALK)
88. University of Ioannina, Ioannina, Greece, September 2014 (TALK)
89. Caltech, Pasadena CA, USA, Department of Mathematics, September 2014 (TALK)
90. Conestoga College, Doon (Kitchener) Campus, October 2014 (TALK)
91. Jerusalem College of Technology, Jerusalem, Israel, June 2015 (TALK)
92. Gil Kalai 60th birthday conference, Hebrew University of Jerusalem, Israel
93. DIMACS Implementation Challenge workshop, (on-line), April 6-8, 2022
94. Number Theory and Arithmetic, Jerusalem, August 1, 2024, celebrating the mathematics of Ehud (Udi) de Shalit and Ron Livné

SEMINAR TALKS

1. Beihang University, Beijing, P. R. China, February 19, 2019
2. Chinese Academy of Sciences, Beijing, P. R. China, February 21, 2019
3. Algebra Seminar, McMaster University, Hamilton, ON, Canacda, March 25, 2019
4. LATNA Seminar, Nizhny Novgorod, March 03, 2021

SPECIAL EVENTS TALKS

1. Laurier Data Science Society, November 21, 2019, ”Do Billionaires Compute Eigenvalues?”
2. Google Waterloo, March 2017, ”Do Billionaires Compute Eigenvalues?”
3. Wilfrid Laurier University, March 2016, ”Do Billionaires Compute Eigenvalues?”

ADMINISTRATIVE AND COMMUNITY SERVICE

Department:

1. WLU FACULTY OF SCIENCE New Students Welcome Event SEPTEMBER 3, 2024
2. co-organizer: Department Seminar Series, `http://bohr.wlu.ca/seminars/`
    - with Li Wei and Marek Wartak, 2015-2016
    - with Paul McGrath and Marek Wartak, Winter 2015
3. PTAC Committee, 2010-2011, 2015-2016, Web page Committee, 2005, DAP Committee
4. Undergraduate Advisor, 2008-2009, 2009-2010, 2010-2011, 2013-2014

Faculty:

1. 2023 Merit Award Committee, Faculty of Science
2. internal innovation grant selection committee, WLU Office of Research Services, 2019-2020
3. Research Round Table, September 2009, Laurier Research Office, Laurier Chongqing Office
4. Ontario Universities Fair, Toronto, Faculty of Science kiosk, 2005
5. Teachers Science Day 2005, Presentation Title: "Working with 200 computers simultaneously, high-performance computing demonstration", February 2005
6. co-founder (with Roderick Melnik) of the Laurier Seminar Series in Computational Science and Applied and Statistical Modelling (CSASM) 2004-2014, `http://www.mmcs.wlu.ca/csasm/`
7. Environment/occupational Health and Safety Committee, Emergency Warden, 2004-2005
8. Admissions Committee, 2006-2007

University:

1. Senate Promotion and Tenure Committee (SPAT), Alternate, September 1, 2017 – August 31st, 2019
2. Designing Effective Course Syllabi Workshop, Educational Development Team, Wilfrid Laurier University, November 2009
3. Student Awards Selection Committee, Faculty of Science, Wilfrid Laurier University, 2009-2010
4. Internal Grants Committee, Wilfrid Laurier University, September 1, 2009 - August 31, 2011
5. Senate Committee on Information Technology, SCIT, 2005-2006, 2006-2007, 2007-2008, 2008-2009, 2009-2010
6. Shared Hierarchical Academic Research Computing Network (SHARCnet) Site Leader for Wilfrid Laurier University, December 2005 – today
7. Shared Hierarchical Academic Research Computing Network (SHARCnet), Chair of the Site Leaders Committee, July 1, 2011 – June 30, 2012.

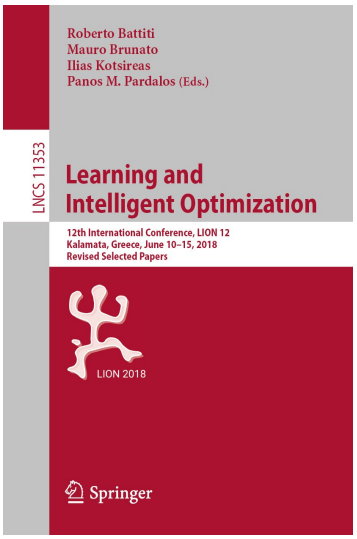
External:

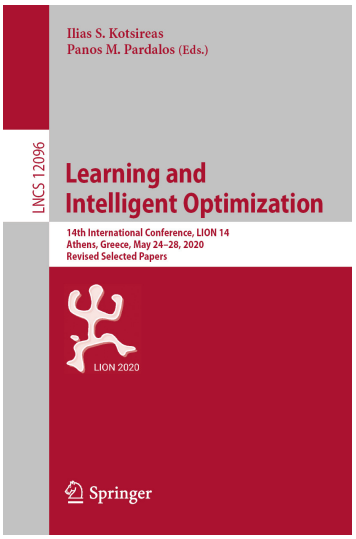
1. Examination Committee Member for PhD thesis defense of Mrs. Katerina Kadena, July 2024 "Integrated approach of involved computational biomarkers towards designing personalized precision medicine protocols for Amyotrophic Lateral Sclerosis", Ionio University, Corfu, Greece
2. Examination Committee Member for PhD thesis defense of Mr. Stefanos Patsiris, February 14, 2024 "Computational Biomarkers for Chronic Obstructive Pulmonary Disease (COPD)", Ionio University, Corfu, Greece
3. Examination Committee Member for PhD thesis defense of Mr. Themistoklis Stamadianos, September 13, 2023 "Formulation and Solution Methods for Locating Charging Stations and Routing of Electric Vehicles", Technical University of Crete, Greece
4. External Examiner, Ryan Gauthier, May 18, 2023
5. Reader, Douglas Bowen MRP, August 29, 2022
6. Mathematical Modeling in the age of COVID-19, March, 29, 2022 (WdG Digital Event, invited participant)
7. September 26-27, 2021, C3 Networking Conference event, invited talk
8. June 10, 2021, Maple Transactions journal launch, at the 75th CMS meeting
9. June 8, 2021, External Examiner, Ahmed Al-Saedi MAC program MSc thesis
10. February 2021, QS World University Rankings. Academic Experts Evaluation.
11. December 1-15, 2020, Chair of the SIGSAM elections nominating committee: Jean-Guillaume Dumas & Lihong Zhi
12. November 3, 2020, Maple Conference 2020 virtual lunch table host
13. June 19, 2020, ORCCA Joint Lab Meeting (held on-line)
14. Examination Committee Member for PhD thesis defense of Mr. Clément Laroche, April 30, 2020, "Compact and efficient implicit representations", University of Athens, Greece
15. Examiner, Amal Alahmadi, MSc thesis, April 10, 2019 "Towards Secure and Fair IIoT-Enabled Supply Chain Management via Blockchain-based Smart Contracts"
16. Examination Committee Member for PhD thesis defense of Mrs Anna Karasoulou, University of Athens, Greece
17. Judge for a Correlation One `www.correlation-one.com` Datathon, September 29, 2018, University of Waterloo. First Prize: 20,000 USD, Second and Third Prizes: 2,500 USD each.
18. D2L (Desire2Learn) Usability Study, Fall 2014
19. Defense Committee Chair, Frederico Faria, PhD thesis, WLU, October 2014
20. Eastwood Collegiate Institute (ECI), Professional Development Day, April 19, 2013,
    Workshop Title: "Exploring Fractals"

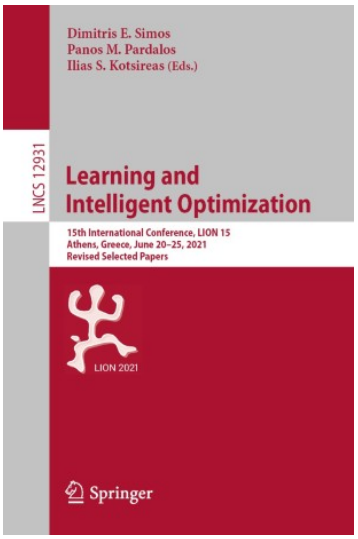
21. SHARCNET Board of Directors, Researcher Representative, May 1, 2012 to April 30, 2013
22. External Examiner, Rui Hu, PhD thesis, University of Western Ontario, 2013
23. Reader, Ruitong Huang, MSc thesis, University of Waterloo, July 2010
24. Poster Committee, SHARCnet Research Day, York University, May 6, 2010
25. Poster Committee, SHARCnet Research Day, University of Waterloo, May 21, 2009
26. Committee chair, Sherry McGee, MSc thesis, Wilfrid Laurier University, September 2009
27. External Examiner, Wenqin Zhou, PhD thesis, University of Western Ontario, 2007
28. Wilfrid Laurier University Phi Club, "Maple, Visualization and Fractals", November 2006
29. External Examiner, Brad Botting, MSc thesis, University of Waterloo, 2004
30. Promoting Women in Science, PROWIS 2003,
    Workshop Title: "The Fractal Geometry of Nature" May 2003
31. Promoting Women in Science, PROWIS 2002,
    Workshop Title: "Have fun with the computer while learning useful Mathematics" May 2002

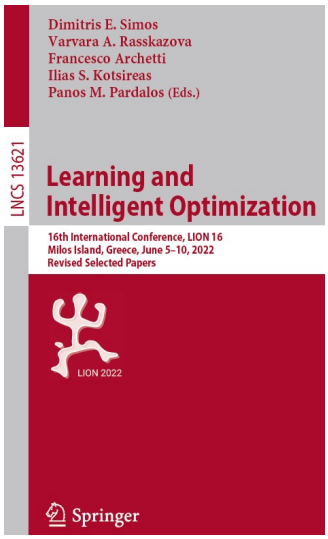
Publications Summary (225)

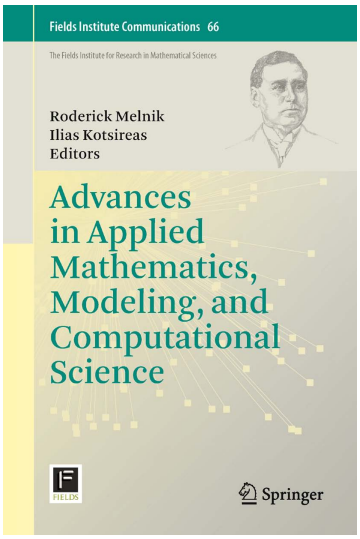
Journal Papers (refereed)	88
Conference Papers (refereed)	49
Edited books (conference proceedings)	35
Journal Special Issues	34
Collections Edited	4
Chapters in Books/Handbooks	4
Books Authored	1
Handbooks Edited	1
Technical Reports	9
Total:	225

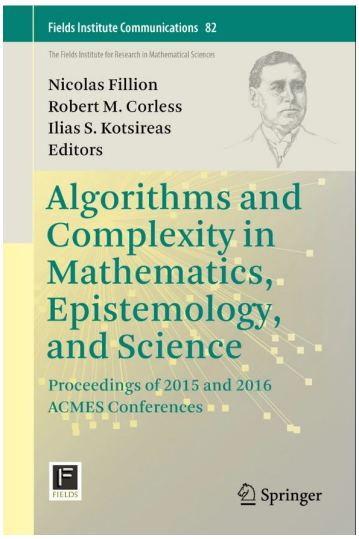

Roberto Battiti
Mauro Brunato
Ilias Kotsireas
Panos M. Pardalos (Eds.)
LNCS 11353
Learning and Intelligent Optimization
12th International Conference, LION 12
Kalamata, Greece, June 10–15, 2018
Revised Selected Papers
LION 2018
Springer

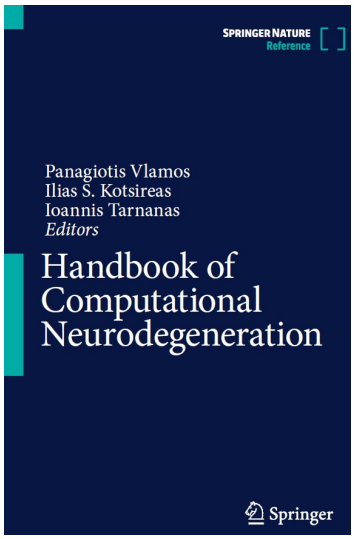

Ilias S. Kotsireas
Panos M. Pardalos (Eds.)
LNCS 12096
Learning and Intelligent Optimization
14th International Conference, LION 14
Athens, Greece, May 24–28, 2020
Revised Selected Papers
LION 2020
Springer

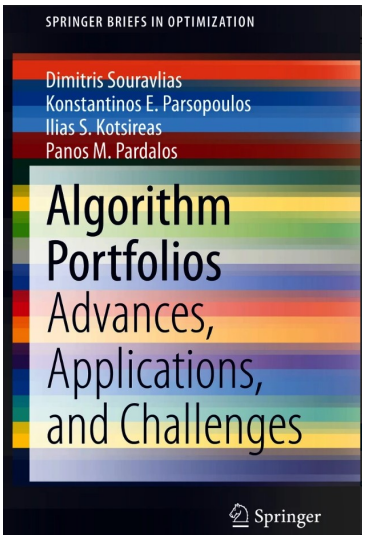

Dimitris E. Simos
Panos M. Pardalos
Ilias S. Kotsireas (Eds.)
LNCS 12931
Learning and Intelligent Optimization
15th International Conference, LION 15
Athens, Greece, June 20–25, 2021
Revised Selected Papers
LION 2021
Springer

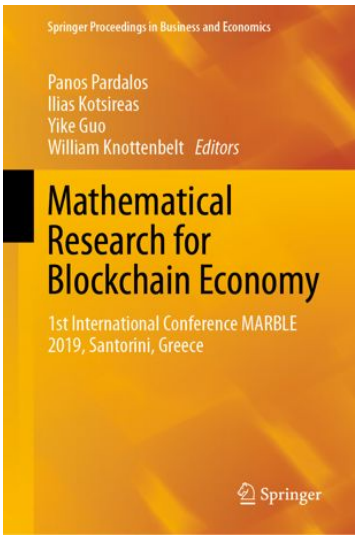

Dimitris E. Simos
Varvara A. Rasskazova
Francesco Archetti
Ilias S. Kotsireas
Panos M. Pardalos (Eds.)
LNCS 13621
Learning and Intelligent Optimization
16th International Conference, LION 16
Milos Island, Greece, June 5–10, 2022
Revised Selected Papers
LION 2022
Springer

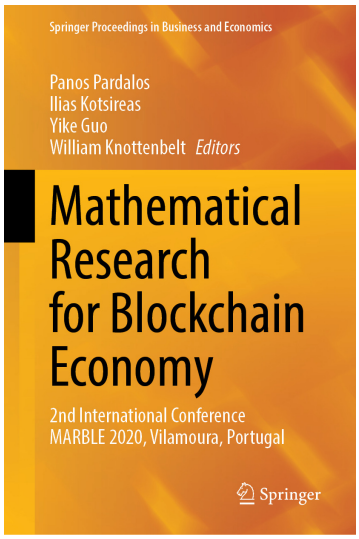

Fields Institute Communications 66
Roderick Melnik
Ilias Kotsireas
Editors
Advances in Applied Mathematics, Modeling, and Computational Science
Springer


Fields Institute Communications 82
Nicolas Fillion
Robert M. Corless
Ilias S. Kotsireas
Editors
Algorithms and Complexity in Mathematics, Epistemology, and Science
Proceedings of 2015 and 2016 ACMES Conferences
Springer


SPRINGER NATURE
Reference
Panagiotis Vlamos
Ilias S. Kotsireas
Ioannis Tarnanas
Editors
Handbook of Computational Neurodegeneration
Springer


SPRINGER BRIEFS IN OPTIMIZATION
Dimitris Souravlias
Konstantinos E. Parsopoulos
Ilias S. Kotsireas
Panos M. Pardalos
Algorithm Portfolios
Advances, Applications, and Challenges
Springer


Springer Proceedings in Business and Economics
Panos Pardalos
Ilias Kotsireas
Yike Guo
William Knottenbelt Editors
Mathematical Research for Blockchain Economy
1st International Conference MARBLE 2019, Santorini, Greece
Springer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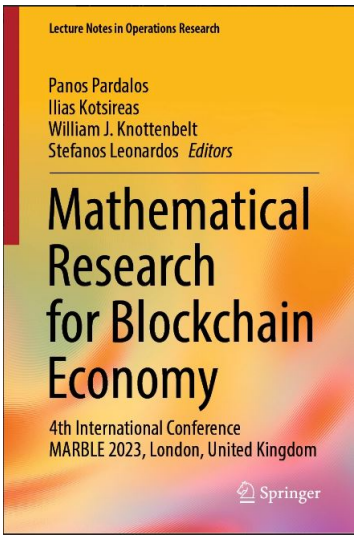
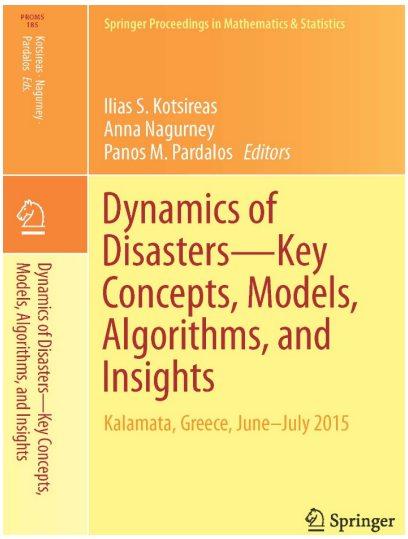
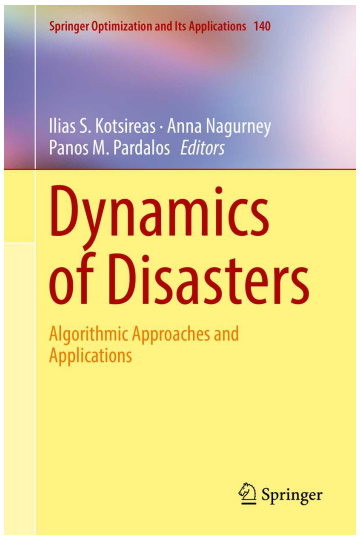
Panos Pardalos
Ilias Kotsireas
Yike Guo
William Knottenbelt Editors
Mathematical Research for Blockchain Economy
2nd International Conference MARBLE 2020, Vilamoura, Portugal
Springer


Lecture Notes in Operations Research
Panos Pardalos
Ilias Kotsireas
William J. Knottenbelt
Stefanos Leonardos Editors
Mathematical Research for Blockchain Economy
4th International Conference MARBLE 2023, London, United Kingdom
Springer


Springer Proceedings in Mathematics & Statistics
Ilias S. Kotsireas
Anna Nagurney
Panos M. Pardalos Editors
Dynamics of Disasters—Key Concepts, Models, Algorithms, and Insights
Kalamata, Greece, June–July 2015
Springer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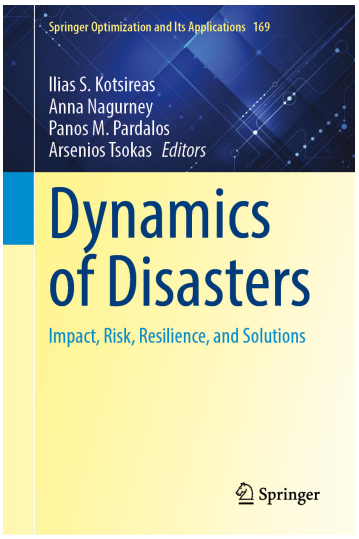
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Panos M. Pardalos
Arsenios Tsokas Editors
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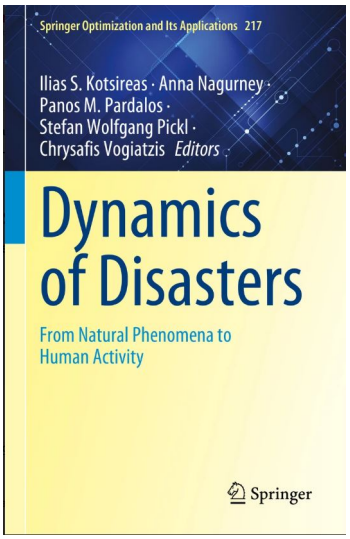
Springer Optimization and Its Applications 217
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Panos M. Pardalos ·
Stefan Wolfgang Pickl ·
Chrysafis Vogiatzis Editors
Dynamics of Disasters
From Natural Phenomena to Human Activity
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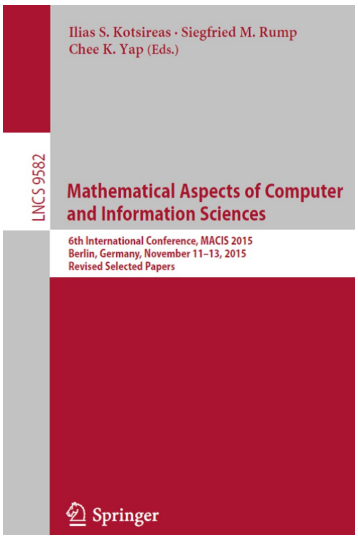
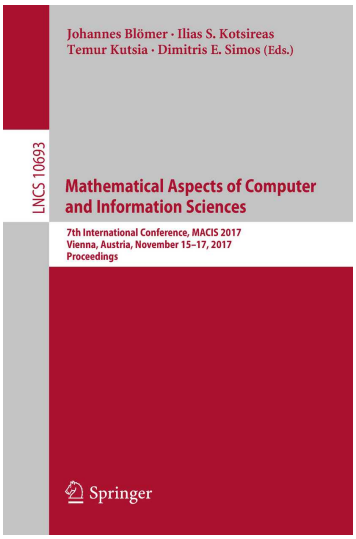
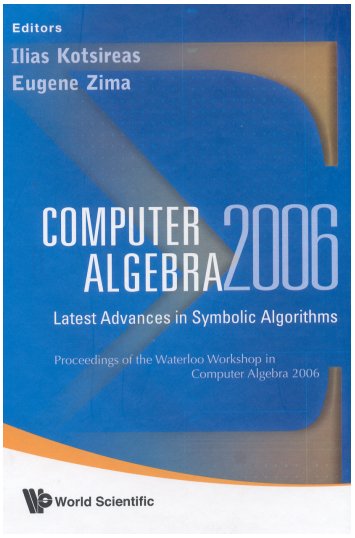
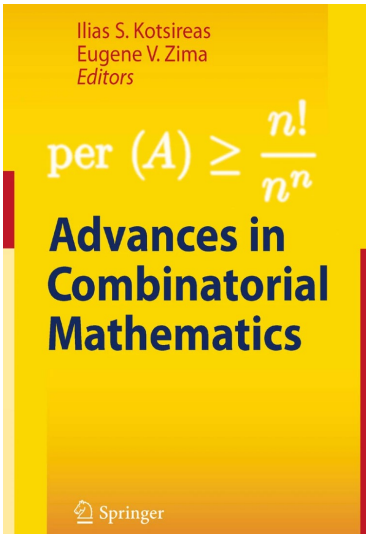

Ilias S. Kotsireas · Siegfried M. Rump
Chee K. Yap (Eds.)
LNCS 9582
Mathematical Aspects of Computer and Information Sciences
6th International Conference, MACIS 2015
Berlin, Germany, November 11–13, 2015
Revised Selected Papers
Springer


Johannes Blömer · Ilias S. Kotsireas
Temur Kutsia · Dimitris E. Simos (Eds.)
LNCS 10693
Mathematical Aspects of Computer and Information Sciences
7th International Conference, MACIS 2017
Vienna, Austria, November 15–17, 2017
Proceedings
Springer


Editors
Ilias Kotsireas
Eugene Zima
COMPUTER ALGEBRA 2006
Latest Advances in Symbolic Algorithms
Proceedings of the Waterloo Workshop in Computer Algebra 2006
World Scientific


Ilias S. Kotsireas
Eugene V. Zima
Editors
per (A) ≥ n!/n^n
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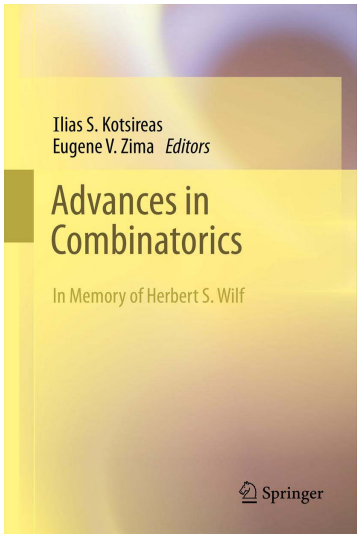
Ilias S. Kotsireas
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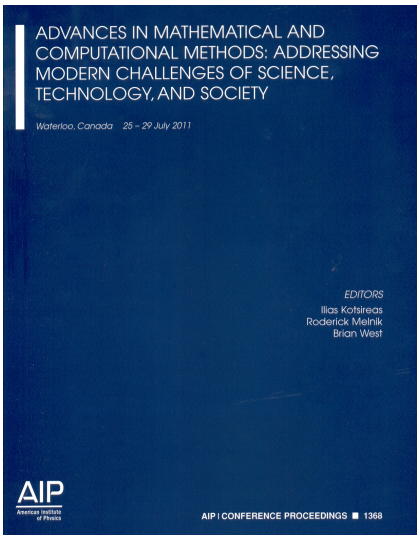
ADVANCES IN MATHEMATICAL AND COMPUTATIONAL METHODS: ADDRESSING MODERN CHALLENGES OF SCIENCE, TECHNOLOGY, AND SOCIETY
Waterloo, Canada 25 - 29 July 2011
EDITORS
Ilias Kotsireas
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Brian West
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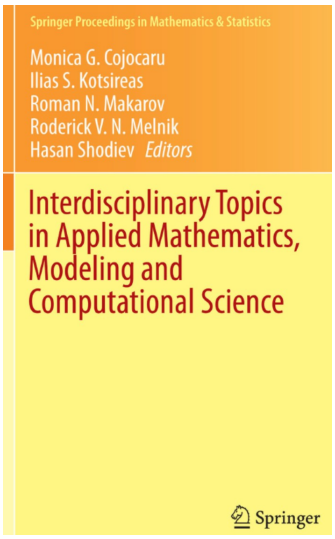
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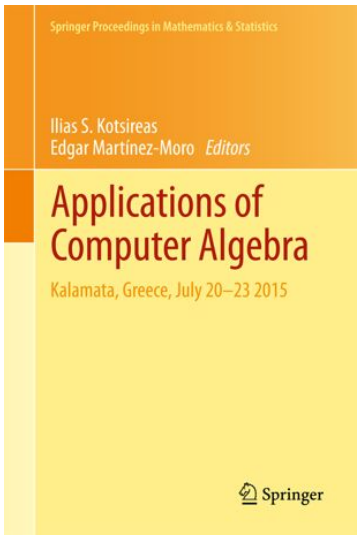
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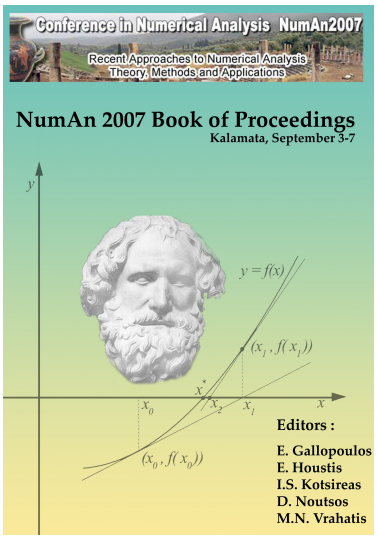
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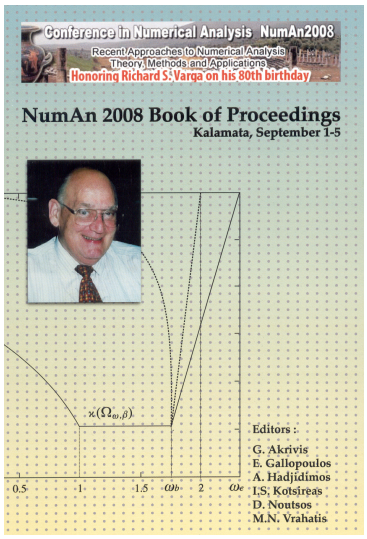
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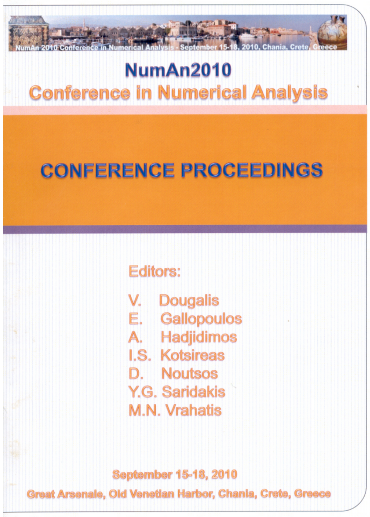
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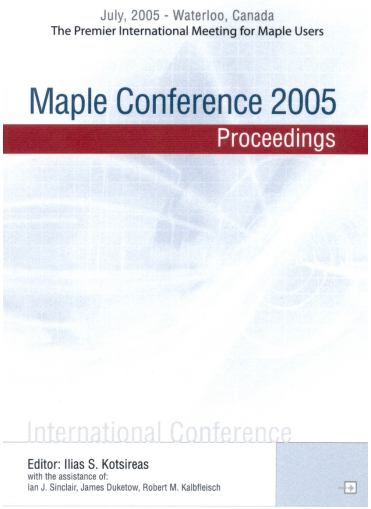
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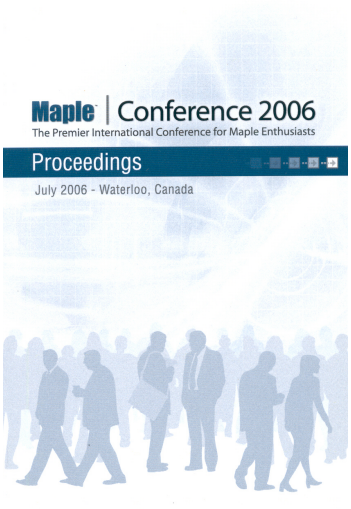
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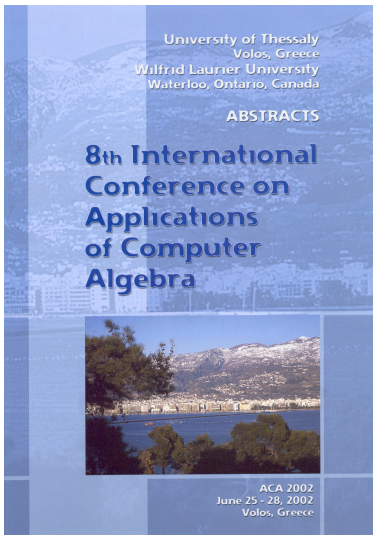
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ACA 2002
June 25 - 28, 2002
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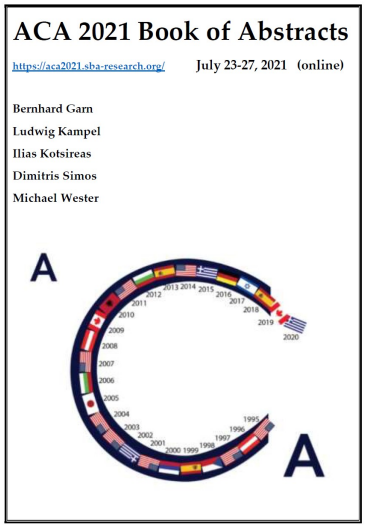
ACA 2021 Book of Abstracts
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Bernhard Garn
Ludwig Kampel
Ilias Kotsireas
Dimitris Simos
Michael Wester
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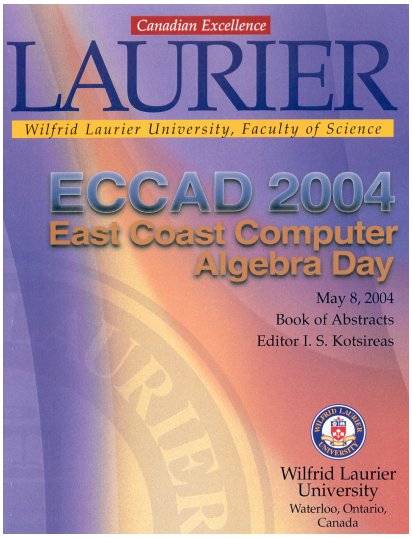
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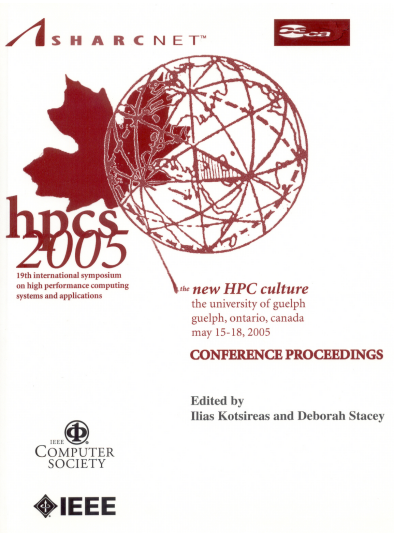
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Edited by
Ilias Kotsireas and Deborah Stacey
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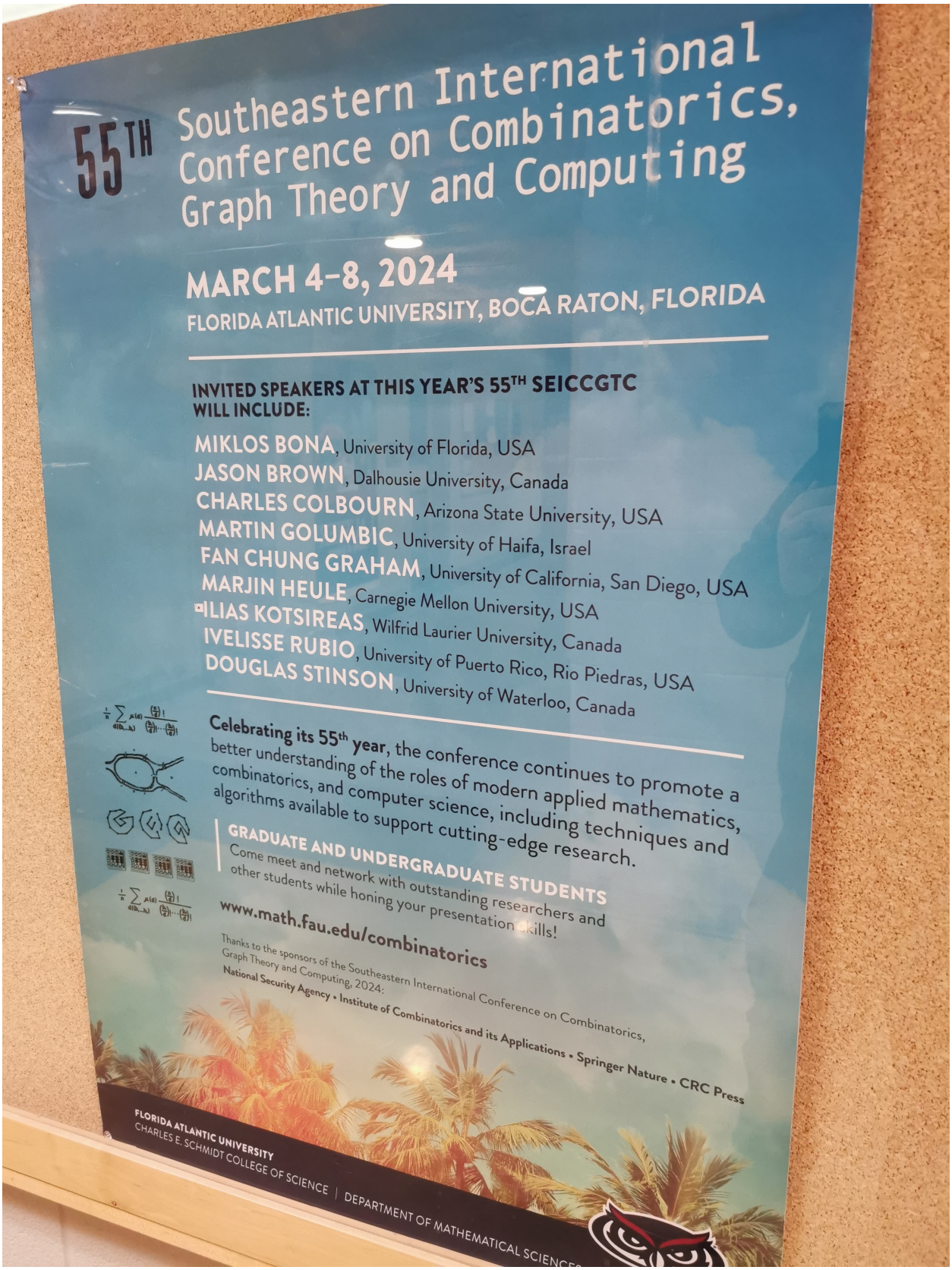
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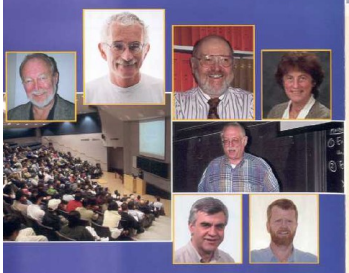

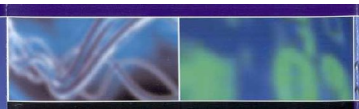

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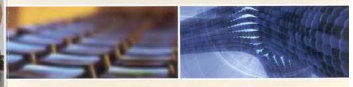

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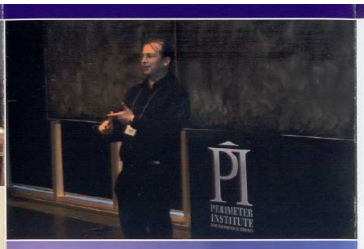
LAURIER SEMINAR SERIES IN Computational Science and Applied & Statistical Modelling (CSASM)

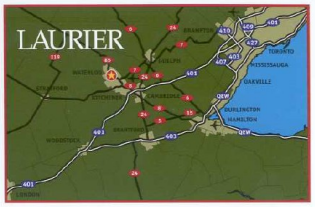
The Laurier CSASM Seminar Series, established in 2004, is an interdisciplinary initiative designed to strengthen the links among faculty and students, academia and industry in the areas of Computational Science and Applied & Statistical Modelling. Founded in Laurier's Faculty of Science, the CSASM Seminar Series today has co-ordinators from all six Science departments, and from the School of Business & Economics. Our attendees and supporters include students and faculty from Laurier, the universities of Waterloo, Guelph, and Western Ontario, as well as researchers from the Perimeter Institute, the Fields Institute, the Institute for Quantum Computing, and colleagues from the Greater Toronto Area.



We invite students, faculty, and colleagues from industry to meet world-renowned scientists, successful industrialists and distinguished researchers.

CSASMs seminars aim to generate collaborative links in research and to help students recognize the interdisciplinary nature of modern research, with a particular focus on science. As well, we hope to aid in the training of highly knowledgeable and employable students. Our seminar series covers all areas of:

- applied, industrial, and financial mathematics;
- computational physics and nanotechnological applications;
- computational biology and bioinformatics;
- mathematical, statistical, and computational models and tools as applied in natural and social sciences, business and economics;
- biomedical and bioengineering applications, and other areas of Computational Science and Applied Statistical Modelling.



GETTING TO LAURIER

To reach Laurier from Highway 401, take exit 278B if you're coming from London, or 278 if you're coming from Toronto. Follow Highway 8 West to Highway 85 North (formerly Highway 86) to Waterloo and continue to University Avenue. Take University Avenue West (the second University Avenue exit) and proceed to the university.

When you arrive, please check in to the parking kiosk, located at University Ave. and Hazel St. An attendent will be happy to direct you to the closest available parking.

The Laurier CSASM seminars are usually held in the Bricker Academic (BA) Building, which is adjacent to the Laurier Science Research Centre. Please visit our website for the most recent updates.

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- E. Zima
  Computer Science & Symbolic Computation

Seminar Series Sponsors:

Thursday, February 17 2005
4:00 p.m. Room BA101
Faculty of Science
Wilfrid Laurier University

Prof. Daniel Kleitman
MIT

Title:

Some results in Mathematical Biology and in Ramsey Theory

Abstract:

This talk will have two parts. One will be a review of the activities in Professor Berger's group in computational biology.

The other will concern some questions about the existence of monochromatic solutions to simple homogeneous linear equations when the integers or real numbers are colored.

We discuss the following answer to the first case of a conjecture of Rado from 1933:

Consider a linear homogeneous equation in three variables with integer coefficients. If every coloring of the integers using 24 colors has a monochromatic solution to it, then every coloring with any finite number of colors has a monochromatic solution to it.

We also discuss answers to the following two questions

Does every 3 coloring of the non-zero reals have a monochromatic solution to the equation $x + 2y = 4z$?

Does every coloring of the reals by positive integers have a monochromatic solution to the equation $x_1 + 4x_2 - x_3 - x_4 - \ldots - x_7 = 0$ with all x_i distinct?

This is joint work with Jacob Fox.

The next seminar in the series will take place in March 2005

Polymatroids – a talk by Jack Edmonds.

Thursday, September 30, 2010, 4 p.m, at Wilfrid Laurier University,
Room BA211, Bricker Academic Building on Bricker Street, Waterloo.

LAURIER SEMINAR SERIES IN
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The talk will sketch an introduction to P, NP, coNP, LP duality, matroids,
and some other foundations of combinatorial optimization theory.
A *predicate,* p(x), is a statement with variable input x. It is said to be in NP when, for any x such that p(x) is true, there is, relative to the bit-size of x, an easy proof that p(x) is true.
It is said to be in coNP when not(p(x)) is in NP. It is said to be in P when there is an easy (i.e.,polynomially bounded time) algorithm for deciding whether or not p(x) is true.
Of course P implies NP and coNP. Fifty years ago I speculated the converse.

Polymatroids are a linear programming construction of abstract matroids.
We use them to describe large classes of concrete predicates (i.e.,"problems")
which turn out to be in NP, in coNP, and indeed in P.

Failures in trying to place the NP "traveling salesman predicate" in coNP,
and successes in placing some closely related polymatroidal predicates
in both NP and coNP and then in P, prompted me to conjecture that
(1) the NP traveling salesman predicate is not in P, and
(2) all predicates in both NP and coNP are in P.
The conjectures have become popular, and are both used as practical axioms.
I might as well conjecture that the conjectures have no proofs.

"The classes of problems which are respectively known and not known to have good algorithms are of great theoretical interest. … I conjecture that there is no good algorithm for the traveling salesman problem. My reasons are the same as for any mathematical conjecture: (1) It is a legitimate mathematical possibility, and (2) I do not know." - Jack Edmonds, 1966, quoted by Christos Papadimitriou in his 1994 book ***Computational Complexity.***

"Pioneered by the work of Jack Edmonds, polyhedral combinatorics has proved to be a most powerful, coherent and unifying tool throughout combinatorial optimization. … Edmonds conjectured that there is no polynomial-time algorithm for the traveling salesman problem. In language that was developed later, this is equivalent to $NP \neq P$."
- Lex Schrijver in his 2003 book ***Combinatorial Optimization.***

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A Wilfrid Laurier University CSASM Event

Relationship Among Clusters for Data Streams

Margaret H. Dunham | Southern Methodist

Professor Dunham (formerly Eich) is a Professor in the CSE (Computer Science and Engineering Department) at SMU (Southern Methodist University) in Dallas, Texas. Professor Dunham leads the SMU DB Research Group. Professor Dunham's current database research is primarily in the areas of Bioinformatics and Data Mining. Department of Computer Science and Engineering.

In this talk we propose a new extension to clustering data streams called Temporal Relationship Among Clusters for Data Streams (TRACDS). This is not a new clustering algorithm, but rather a way to capture the temporal relationships among clusters that is inherent in the ordering of observations in the data stream. We propose to capture this ordering relationship among the clusters by overlaying clusters created by any data stream clustering algorithm with a Markov Chain (MC). The states in the Markov Chain represent the clusters and the transitions are the relationships between clusters. The TRACDS framework defines clustering/MC operations that are triggered by the underlying stream clustering algorithm. TRACDS is general enough to be built on top of any clustering algorithm. We describe and illustrate applications of TRACDS to outlier detection and prediction of future events in the stream.

Monday, October 26, 2009

4 p.m. | BA209

Wilfrid Laurier University, 75 University Avenue West, Waterloo

This event is hosted by the CSASM Seminar Series
Website: www.mmcs.wlu.ca/csasm | Email: csasm@wlu.ca

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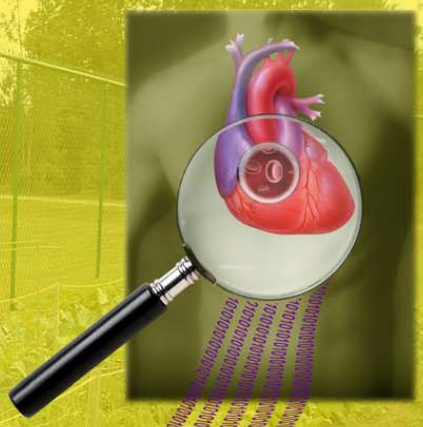
Optimization and Data Mining in Biomedicine

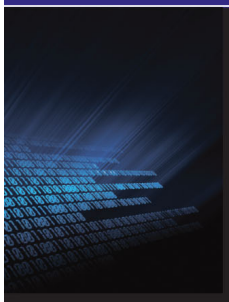
Panos M. Pardalos, Distinguished Professor
Co-Director, Center for Applied Optimization
ISE, MBE Departments
McKnight Brain Institute and
University of Florida Genetics Institute
University of Florida
pardalos@ufl.edu
http://www.ise.ufl.edu/pardalos



In recent years optimization has been widely used in many problems in biomedicine. These problems are inherently complex and very difficult to solve. In this talk we are going to focus on global optimization techniques (multi-quadratic programming) in computational neurosciences and biclustering (nonlinear fractional optimization) based data mining approaches in cancer research. In addition,several other applications will be briefly discussed.

Thursday May 24, 2007 Room: BA112 Time: 4:00 to 5:00

A WILFRID LAURIER UNIVERSITY CSASM EVENT



Emerging Trends AND New Techniques FOR Engineering Modelling AND Simulation

DR. TOM LEE | Chief Evangelist, Maplesoft

Several key industries including automotive and aerospace sectors are questioning the viability of the traditional engineering modeling and simulation toolchain for emerging design challenges. Many are concluding that meeting these challenges require a rethinking of how we create and interact with engineering models. This seminar presents a case for a new approach that exploits some of the well-known advantages of symbolic computation ina way that accelerates the development of complex dynamic models and produces models of higher fidelity and real time performance.

As Chief Evangelist at Maplesoft, DR. TOM LEE is the principal external spokesperson for the company. He holds a PhD in Mechanical Engineering (Automation and Control) from the University of Waterloo. He has been with Maplesoft since 1989.

The software context for this seminar will be the Maplesoft product line. Best known for its math product **Maple**, Maplesoft has recently emerged as a key player in the engineering modeling software with the release of the milestone product MapleSim, a new modeling environment for high performance, multi-domain modeling of physical systems. MapleSim supports the interactive, drag and drop approach to system modeling and allows for rapid development of a wide range of models. Furthermore, through the application of Maple's symbolic computation algorithms, MapleSim automatically generates and provides access to all of the model equations of the system allowing for deeper exploration and greater flexibility in parameter studies. These symbolic tools also simplify model equations increasing simulation speeds by as much as an order of magnitude over traditional signal-flow based simulations.

This symbolic approach has already earned keen interest from automotive OEMs, and a broad range of academic engineering groups. Researchers project significant reduction in the effort required to develop model equations and potential for advancement in the analytical capabilities and are actively exploring its potential to become the new software framework for modeling research. Educators have also expressed optimism as it provides an intuitive environment to define and simulate models without sacrificing any of the rigor in the course as the system provides full access to the underlying model equations.

This seminar will provide an overview of the product MapleSim and its conceptual foundation. Several demonstration examples will illustrate its functionality and potential. An informal Q & A session will discuss implications in research and education.

Thursday, March 12, 2009

4:00 P.M. | ROOM BA 111

(LOCATED IN THE BRICKER ACADEMIC BUILDING)

Wilfrid Laurier University, 75 University Avenue West, Waterloo

This event is hosted by the CSASM Seminar Series

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LAURIER SEMINAR SERIES IN
Computational Science and Applied & Statistical Modelling (CSASM)

This event is made possible through the generous sponsorship of the Academic Development Fund (administered by the Office of the Vice-President: Academic) at Wilfrid Laurier University

PERIMETER INSTITUTE FOR THEORETICAL PHYSICS

Presenting

PROFESSOR DON SAARI

Professor of Economics and Mathematics and the Director of the Institute for Mathematic and Behavioral Sciences, University of California, Irvine

THE Chaotic Evolution OF THE Universe

Thursday, March 9, 2006

4 P.M. | Bob Room, Perimeter Institute

31 Caroline Street North, Waterloo, Ontario
www.perimeterinstitute.ca

This lecture is hosted by CSASM at the The Perimiter Institute
Organizers: Ilias Kotsireas/Roderick Melnik | E-mail csasm@wlu.ca | http://www.mmcs.wlu.ca/csasm/

LECTURE ONE

In this expository talk, I describe how "chaotic behavior" not only was discovered in the study of the Newtonian N-body problem, but also is responsible for several strange appearing motions. Then, a mathematical outline of the general evolution of the universe, under Newton's laws, is provided. No prior background in dynamics or the mathematics of the N-body problem is needed to follow this lecture.

FROM Disposing ARROW'S DICTATOR TO UNDERSTANDING ALL THOSE MYSTERIES ABOUT VOTING

Friday, March 10, 2006

2:30 P.M. | SBE 1230, Wilfrid Laurier University

75 University Avenue South, Waterloo, Ontario
www.wlu.ca

This lecture is hosted by Laurier's School of Business & Economics and the Faculty of Political Science
Organizer: Maria Gallego | E-mail mgallego@wlu.ca | http://www.wlu.ca/sbe/econ-speakers

LECTURE TWO

Over a half century ago, Arrow's Impossibility Theorem left us with the negative sense that "no decision method is fair." Is this correct? After indicating "why" his theorem states what it states, very benign interpretations immediately follow—interpretations that show how to replace Arrow's dictator with positive conclusions. Then I show how all of the standard voting paradoxes can be understood. In this manner, we can identify the "optimal voting rule." If time permits, I will indicate how all of this extends to price dynamics.

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5422 PI poster-Second Lecture 28.02.06

A PERIMETER INSTITUTE & WILFRID LAURIER UNIVERSITY JOINT EVENT

PROFESSOR JOHN MCKAY

Professor of Mathematics, Concordia University

THE Monster AND ITS Moonshine Functions

Tuesday, March 13, 2007

2 P.M. | Bob Room, Perimeter Institute

31 Caroline Street North, Waterloo, Ontario

www.perimeterinstitute.ca

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QUANTUM CRYPTOGRAPHY

DR. MICHELE MOSCA

| Institute for Quantum Computing
| University of Waterloo

Professor Michele Mosca is a co-founder and the Deputy Director of the Institute for Quantum Computing, a founding member of the Perimeter Institute for Theoretical Physics and a faculty member in the Combinatorics & Optimization department of the University of Waterloo. He has made major contributions in the areas of quantum algorithms, techniques for studying the limitations of quantum computers, quantum self-testing and private quantum channels. He has won numerous academic awards including the Commonwealth Scholarship, the Premier's Research Excellence Award and a Canada Research Chair in Quantum Computation. He has been a Canadian Institute for Advanced Research (CIFAR) Fellow since 2010.

Abstract: Cryptography is the art of using mathematical tools to provide information security objectives. The security of the mathematical tools often relies on unproven assumptions about the infeasibility of solving some mathematical problems. Other tools rely on robust information theoretic tools. Since the world is quantum mechanical, the security of all these tools must be re-assessed in the context of quantum information processing.

One very dramatic change was the fact (discovered by Peter Shor) that factoring and finding discrete logarithms is easy on a quantum computer. This drove researchers around the world to seriously study the question of whether one can realistically build a quantum computer, and impressive progress has been made in harnessing quantum mechanical systems for information processing.

Even earlier, it was known (through the work of Wiesner, and of Bennett and Brassard) that the Uncertainty Principle allows us to achieve information theoretically secure cryptographic objectives – their security is not based on computation assumptions, but rather on fundamental features of quantum mechanics. Again, great progress has been made on implementations, particularly quantum key distribution.

In this talk, I will discuss the opportunities and challenges of deploying quantum key distribution in the next generation quantum-secure infrastructure (joint work with Ioannou, Lutkenhaus and Stebila). I will also discuss a new quantum cryptographic primitive for achieving a public-key identification scheme (joint work with Ioannou).

Monday, January 24, 2011

4:00 p.m. | BA 113

Wilfrid Laurier University, 75 University Avenue West, Waterloo

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Experimental Quantum Error Correction

Dr. Raymond Laflamme | Director, Institute for Quantum Computing
| University of Waterloo

Professor Laflamme is the founding Director of the Institute for Quantum Computing at the University of Waterloo. He also holds a Canada Research Chair in Quantum information. He completed his PhD in Cambridge under the direction of Stephen Hawking. He and Don Page are responsible for having changed Hawking's mind on the reversal of the direction of time in a contracting Universe. Dr. Laflamme has made groundbreaking contributions in the areas of quantum error correction, quantum information processing with linear optics and experimental implementations of small quantum information devices. In 2008, he won the Ontario Premier's Discovery Award. He is the Director of the Quantum Information Program of the Canadian Institute for Advanced Research.

Information processing devices are pervasive in our society; from the 5-dollar watches to multi-billion dollar satellite networks. These devices have allowed the information revolution which is developing around us. It has transformed not only the way we communicate or entertain ourselves but also the way we do science and even the way we think. All this information is manipulated using the classical approximation to the laws of physics, but we know that there is a better approximation: the quantum mechanical laws. Using quantum mechanics for information processing turns out not to be an impediment but leads to a dramatic advantage for manipulating information. The Achille's heel of quantum information is however its fragility. While we are learning how to build quantum processors, we must learn to to make them robust: quantum error correction aims to do this. Quantum error correction and its fault tolerant extension lead to the accuracy threshold theorem which says that despite some noise, at a level below the threshold, it is still possible to quantum compute efficiently. Underlying this theorem is an assumption on noise models that hopefully are physically reasonable. This talk will give a method to learn about the noise model for quantum information processing devices having in mind quantum error correction. Standard methods for measuring the noise are based on quantum process tomography and require an exponentially large numberof experiments. I will describe protocols that will determine efficiently the probability of k errors independently of which qubit is affected and which type of error it is for memory based on the ideas described in Emerson et al. (Science 317, 1893, 2007). I will also describe characterization of errors for one and two bits gates based onthe work of Knill (arXiv:0707.0963). I will also describe work on benchmarking of quantum gates whose goal is to assess the performance of quantum information processors (arXiv:0808.3973). I will give an overview of experimental implementation on these ideas using NMR in both liquid and solid-state.

Thursday, April 29, 2010

4 p.m. | N1044

Wilfrid Laurier University, 75 University Avenue West, Waterloo

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LAURIER SEMINAR SERIES IN

Computational Science and Applied & Statistical Modelling (CSASM)

Speaker

Doron Zeilberger
Rutgers University

The GuessAndCheck Methodology

The method of "Guess and Check" is taught to elementary school pupils as preparation for algebra, but in a more global sense is the underlying methodology of the physical sciences that Reichenbach famously called "Context of Discovery" and "Context of Justification".

Implicitly, this is also how mathematicians work, but you'll never know that from their finished product, whose format can be described by the regular expression:

`` ((Lemma:___ : Proof: ___)* Theorem:___ Proof:___)* ''

sometimes interspersed by `Remark: ' and `Corollary: '.

The future of mathematics will depend on how well we understand the REAL way that mathematicians arrive at their results, not by formal logic, but by some (usually implicit) ANSATZ. We should learn how to make the ansatzes EXPLICIT, and then teach it to our computers, who would eventually far surpass their masters.

http://www.mmcs.wlu.ca/csasm
Seminar Series Coordinators:
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ikotsire@wlu.ca rmelnik@wlu.ca

December 2, 2005 4:00 p.m. Room BA101

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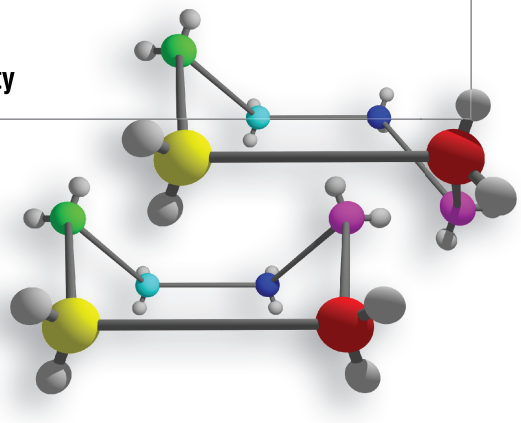
Please join us for the following CSASM seminar

Mathematical Modelling with Maple® and Applications
Presented by Dr. Jürgen Gerhard, Team Lead, Mathematical Software, Maplesoft™

Thursday, December 16, 2004
4:00 pm, Room BA102
Faculty of Science, Wilfrid Laurier University



Computer algebra systems such as Maple have several advantages over purely numerical mathematical software that make them particularly suitable for modelling in science and engineering. In addition to symbolic computations, with the potential to obtain, e.g., exact formulae for the dependency of the model on certain parameters and what-if analyses, such systems also offer numerical computations to arbitrary precision, visualization capabilities, and the ability to document within one framework the whole modelling process, from the development of the model to simulation and validation.

After a brief introduction to various aspects of Maple: symbolic computation, numerical computation, visualization, and documentation, the talk will demonstrate modelling applications in Maple from areas including chemistry and engineering.

Seminar Series Co-ordinators:
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A Wilfrid Laurier University CSASM Event

AN EXAMPLE OF LARGE SCALE ONLINE AD AUCTION ANALYSIS WITH DREMEL

Oleg Golubitsky Google, Inc

Abstract: How does one analyze a model generating millions of predictions every day? In this talk we will discuss online ad auctions. These ads rely on probabilistic prediction of click-through and conversion rates. We will consider a simple metric used to analyze models for predicting these rates and show how it can be effectively computed from the vast click and conversion data with Dremel, a query system designed at Google for log analysis. We will take a quick look under the hood of Dremel to see what makes it scalable to multi-terabyte datasets.

Tuesday, February 15, 2011

4:00 p.m. | BA 112

Wilfrid Laurier University, 75 University Avenue West, Waterloo

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PERIMETER INSTITUTE
FOR THEORETICAL PHYSICS

presents

The universe can be thought of as a giant information processor: every atom, quark, and photon registers bits of information, and every time two elementary particles interact, those bits are flipped. The universe computes. How powerful a computer is it? Recent advances in the physics of quantum computation allows us to measure both the computational power of the universe and how hard it is for a computer to reproduce the universe's full dynamics. This talk calculates the computational capacity of the universe and describes how the dynamics of the universe – including the behaviour elementary particles and quantum gravity – can be analyzed as a quantum computation.

PROFESSOR SETH LLOYD

Professor of Quantum-Mechanical Engineering, MIT

Computing THE Universe

Friday, November 18, 2005

4:15 P.M. | Mike Lazaridis Theatre of Ideas

31 Caroline Street North, Waterloo, Ontario

www.perimeterinstitute.ca

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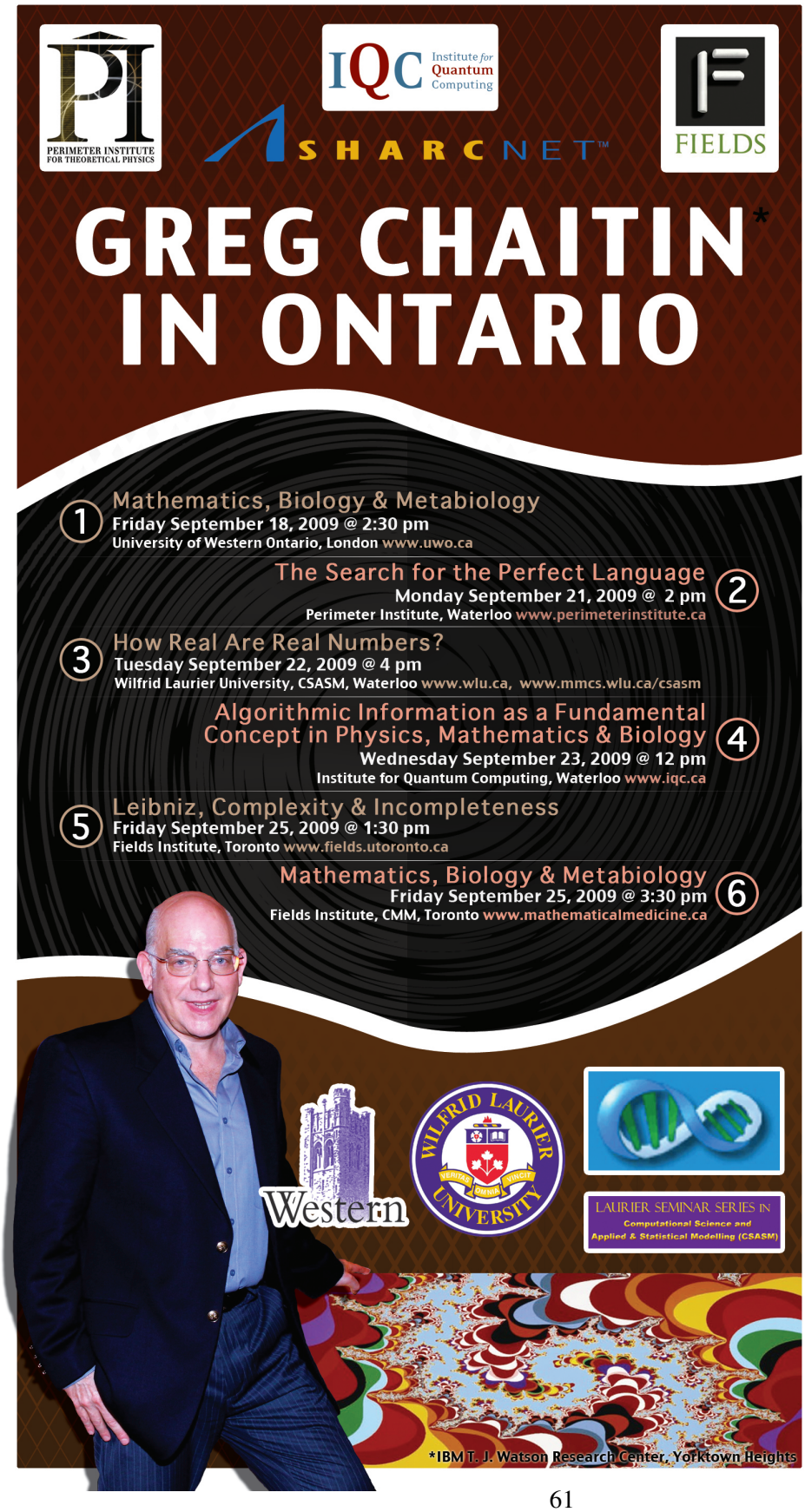
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FIELDS
GREG CHAITIN*
IN ONTARIO
1 Mathematics, Biology & Metabiology
Friday September 18, 2009 @ 2:30 pm
University of Western Ontario, London www.uwo.ca
The Search for the Perfect Language 2
Monday September 21, 2009 @ 2 pm
Perimeter Institute, Waterloo www.perimeterinstitute.ca
3 How Real Are Real Numbers?
Tuesday September 22, 2009 @ 4 pm
Wilfrid Laurier University, CSASM, Waterloo www.wlu.ca, www.mmcs.wlu.ca/csasm
Algorithmic Information as a Fundamental Concept in Physics, Mathematics & Biology 4
Wednesday September 23, 2009 @ 12 pm
Institute for Quantum Computing, Waterloo www.iqc.ca
5 Leibniz, Complexity & Incompleteness
Friday September 25, 2009 @ 1:30 pm
Fields Institute, Toronto www.fields.utoronto.ca
Mathematics, Biology & Metabiology 6
Friday September 25, 2009 @ 3:30 pm
Fields Institute, CMM, Toronto www.mathematicalmedicine.ca
Western
WILFRID LAURIER UNIVERSITY
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LAURIER SEMINAR SERIES IN Computational Science and Applied & Statistical Modelling (CSASM)
*IBM T. J. Watson Research Center, Yorktown Heights

A Wilfrid Laurier University CSASM Event

Successes and open problems on the road to quantum gravity

DR. LEE SMOLIN

| Perimeter Institute for Theoretical Physics
| Waterloo

Dr. Smolin is a theoretical physicist who works mainly on the problem of quantum gravity. He was a founder of the approach called loop quantum gravity. He is also known for proposing the notion of the landscape of theories, based on his application of Darwinian methods to Cosmology. He has contributed also to the foundations of quantum mechanics, elementary particle physics and theoretical biology. He also has a strong interest in philosophy and his three books, Life ofthe Cosmos, Three Roads to Quantum Gravity and The Trouble with Physics are in part philosophical explorations of issues raised by contemporary physics.

Abstract: I survey the results of our search for quantum gravity, both theoretical and experimental, in order to emphasize both the unexpected successes and persistent open issues. I will argue that these are explained by a wrong assumption concerning the treatment of time.

Thursday, October 7, 2010

4:30 p.m. | SBE 1210

Wilfrid Laurier University, 75 University Avenue West, Waterloo

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Critical Nodes Detection Problem in Networks

Panos M. Pardalos | University of Florida

Dr. Pardalos is Distinguished Professor of Industrial and Systems Engineering, the director of the Center for Applied Optimization, and is affiliated with the Computer Science Department, the Hellenic Studies Center, and the Biomedical Engineering Program. He has held visiting appointments at Princeton University, DIMACS Center, Institute of Mathematics and Applications, FIELDS Institute, AT&T Labs Research, Trier University, Linkoping Institute of Technology, and Universities in Greece. He is the editor-in-chief of the Journal of Global Optimization, Journal of Optimization Letters, and Computational Management Science.

We study two problems that involve in detecting critical nodes in networks. In the first problem, we seek a set of vertices with a specified cardinality whose deletion results in maximum number of disconnected components. In an alternate version of the problem, we desire the specified amount of disconnectivity and try to minimize the number of vertices to be deleted in order to achieve this. This is referred to as the critical node detection problem, and finds applications in supply chain networks, epidemic control and identification of influential individuals in social networks, and telecommunication networks. In a supply chain network, it is important to ensure connectivity between supply and demand nodes. These nodes could be secured or made more resilient in order to retain connectivity in the network. In this talk, we review the recent work in this area and provide formulations based on integer linear programming. We also discuss new complexity results and present heuristic techniques to solve the problems.

Thursday, November 19, 2009

4 p.m. | BA113

Wilfrid Laurier University, 75 University Avenue West, Waterloo

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  Data Structures, Algorithms, Combinatorics & Applications
- I. Hamilton
  High Performance Computing, Computational Chemistry
- C. Hoang
  Graph Algorithms and Applications
- M. Kilgour
  Operations Research and Mathematical Modelling in Social Sciences
- I. Kotsireas
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- R. Melnik
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- S. Perry
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- P. Servos
  Modelling in Psychology, Computational Neuroscience
- D. Vaughan
  Educational Aspects of Mathematical & Statistical Modelling
- Z. Wang
  Statistical Modelling and Bioinformatics
- M. Wartak
  Computational Physics & Nanotechnology
- E. Zima
  Computer Science & Symbolic Computation

Seminar Series Coordinators:
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ikotsire@wlu.ca rmelnik@wlu.ca

Seminar Series Sponsors:

Thursday, January 20 2005
4:00 p.m. Room BA102
Faculty of Science
Wilfrid Laurier University

Prof. Thomas F. Coleman
Cornell University
Director, Cornell Theory Center (CTC)

Title:

Financial Engineering on Computational Clusters

Abstract:

Many of the important problems of risk management and financial engineering are computationally intensive. Computing good answers can take hours, sometimes days. Practitioners, under severe time pressure, sometimes make unwarranted assumptions or overly simplify models in order to compute an answer more quickly. Unfortunately, this approach can yield incorrect, and sometimes dangerous, computed answers.

The advent of (commodity) cluster computing, with point-and-click access from a desktop, offers convenient parallel computing power for the financial analyst or risk manager. We discuss some basic problem situations that arise in computational risk management such as portfolio management, pricing and hedging of large portfolios, evaluating complex index-linked insurance contracts, Value-at-Risk, credit risk computations, and sensitivity analysis; we demonstrate the convenience and power of cluster approaches, especially when working at the portfolio level.

The talk is organized as follows:

1) Background
2) What is the connection between web services, and high-performance (parallel) computing?
3) Why is the *.NET/web services* environment, front-ended by *Excel*, absolutely ideal for handling the compute-intensive problems of finance?
4) Four examples of the effective use of this environment in financial engineering.
   i. Price and compute risk parameters of a large portfolio of structured bonds (in 10 minutes instead of 10 hours)
   ii. Compute a rich 'hypercube' of future 'what if scenarios' for a portfolio of convertibles (in 1 minute instead of 25 minutes)
   iii. How to price a portfolio of portfolios of defaultable corporate bonds, and compute risk parameters, in 4 minutes instead of 4 hours.
5) Conclusions

The next seminar in the series will take place in February 2005