

ACA 2019

25TH CONFERENCE ON APPLICATIONS OF COMPUTER ALGEBRA

Montréal, Canada | July 16-20, 2019 | 16 au 20 juillet 2019



	Tuesday July 16	Wednesday July 17	Thursday July 18	Friday July 19	Saturday July 20
8:30 – 9:00		Registration + Coffee	Coffee	Coffee	Coffee
9:00 – 9:30		Opening ceremony + Keynote presentation Simon Plouffe	Keynote presentation Sylvie Ratté	Maple + Keynote presentation David Stoutemyer	Keynote presentation Franco Saliola
9:30 – 10:00			Group Photo (10:00 – 10:15)		Education session
10:00 – 10:15			Poster session + Coffee break		
10:15 – 10:30					
10:30 – 11:00			Coffee break	Coffee break	Coffee break
11:00 – 11:30		Parallel sessions	Parallel sessions	Parallel sessions	Parallel sessions
11:30 – 12:00		Parallel sessions	Parallel sessions	Parallel sessions	Parallel sessions
12:00 – 12:30		Parallel sessions	Parallel sessions	Parallel sessions	Parallel sessions
12:30 – 14:00		Lunch	Lunch	Lunch	Closing Ceremony
14:00 – 14:30		Parallel sessions	Excursion	Parallel sessions	
14:30 – 15:00		Parallel sessions		Parallel sessions	
15:00 – 15:30		Parallel sessions		Parallel sessions	
15:30 – 16:00		Coffee break		Coffee break	
16:00 – 16:30	Registration	Parallel sessions		Parallel sessions	
16:30 – 17:00		Parallel sessions		Parallel sessions	
17:00 – 17:30	Welcome reception (until 20:00)	Parallel sessions		ACA WG meeting	
17:45 – 18:15		Education session			
19:00 ++				Banquet (The Windsor)	

Special Sessions

S1	Algebraic and Algorithmic Aspects of Differential and Integral Operators Session	E-4025
S2	Algebraic Geometry from an Algorithmic Point of View	E-4025
S3	Computational Differential and Difference Algebra and its Applications	E-4024
S4	Computer Algebra and Applications to Combinatorics, Coding Theory and Cryptography	E-4026
S5	Computer Algebra for Dynamical Systems and Celestial Mechanics	E-4024
S6	Computer Algebra in Education	B-0904
S7	Computer Algebra Modeling in Science and Engineering	E-4026 E-4024
S8	Proving and Discovery in Geometry: Dynamic Geometry, Computer Algebra and Mathematics Education	B-0906 E-4024
S9	Use of Mathematical Software in Research and Teaching through the Blending of CASs and DGS	B-0906

Poster session

Thursday, 10:15 – 11:00, in the Atrium (Room E-2010)

Wednesday July 17					
8:30 – 9:00	Registration + Coffee Room E-1012				
9:00 – 10:30	Opening ceremony + Keynote presentation Simon Plouffe, π , <i>the primes and the Lambert W function</i> Room E-2033				
10:30 – 11:00	Coffee break				
	S6 Room B-0904	S8 Room B-0906	S3 Room E-4024	S2 Room E-4025	S7 Room E-4026
11:00 – 11:30	Gosia Brothers <i>Exciting Updates to the TI-Nspire™ World (Part I)</i>	Pedro Quaresma <i>Tracing the Evolution of Current Automatic Proving Technologies</i>	James Freitag <i>A computational method for the strong minimality of differential equations</i>	David Sevilla <i>Rational reparametrization of polynomial ODEs, PDEs and linear systems with radical coefficients</i>	Haiduke Sarafian <i>A Study of sensitivity of nonlinear oscillations of a CLD-series circuit to parametrization of tunnel diode</i>
11:30 – 12:00	Gosia Brothers <i>Exciting Updates to the TI-Nspire™ World (Part II)</i>	Peter Barendse and Daniel McDonald <i>Automated Plane Geometry in Wolfram Mathematica</i>	Vladimir Bavula <i>The generalized Weyl Poisson algebras and their Poisson simplicity criterion</i>	Gabriel Langeloh <i>Unrestricted dynamic Gröbner Basis algorithms</i>	Ali Bilek <i>Analysis and modeling of contact stresses between two deformable bodies</i>
12:00 – 12:30	William Bauldry and Wade Ellis <i>Dynamic Applications for Learning and Exploring Mathematics Using Computer Algebra</i>	Ludovic Font and Philippe R. Richard <i>The realization of a proof support system in a process of adaptation to the human perspective</i>	Alexander Levin <i>Hilbert-type Functions of Non-reflexive Prime Difference Polynomial Ideals</i>	Robert H. Lewis <i>New heuristics and extensions of the Dixon resultant for solving polynomial systems</i>	Salah Zouaoui <i>Towards the numerical simulation of fluid/solid particles flow inside a pipe</i>
12:30 – 14:00	Lunch Cafétéria, Pavillon A				
	S6 Room B-0904	S8 Room B-0906	S3 Room E-4024	S2 Room E-4025	S7 Room E-4026
14:00 – 14:30	Pauline Hubert <i>Interactive tutorials, an example on symmetric functions</i>	Nicolas Leduc and Pascal-Alexandre Morel <i>The Modelisation of the Possible Proofs for High School Geometry Problems in the Tutoring Software QED-Tutrix</i>	Richard Gustavson <i>Order bounds for differential elimination algorithms</i>	John Perry <i>A dynamic F3 algorithm</i>	Hassane Djebouri <i>Viscous fingering in five-spot immiscible displacement</i>
14:30 – 15:00	Helmut Heugl <i>Realizing the concept of "Multiple Representations" by using CAS (Part I)</i>	Thierry Dana-Picard <i>Experiments on isoptics by dynamic coloring</i>	Peter Thompson <i>A differential algebra approach to parameter identifiability in ODE models</i>	Teo Mora <i>Weak involutive bases over effective rings (Part I)</i>	Ionel Tifrea <i>Graphene transport in a parallel magnetic field: spin polarization effects at finite temperature</i>
15:00 – 15:30	Helmut Heugl <i>Realizing the concept of "Multiple Representations" by using CAS (Part II)</i>	Viktor Freiman <i>Rearrangement method for area of a circle: complex paths from historical roots to modern visual and dynamic models in discovery-based teaching approach</i>	Johann Mitterramskogler <i>A Maple package for solving algebraic differential equations by algebro-geometric methods</i>	Teo Mora <i>Weak involutive bases over effective rings (Part II)</i>	Avi Karsenty <i>Pre-manufacturing behavior forecasting and modeling of silicon photonics dual-mode devices using computer algebra</i>

Wednesday July 17					
15:30 – 16:00	Coffee break				
	S6 Room B-0904	S8 Room B-0906	S3 Room E-4024	S2 Room E-4025	
16:00 – 16:30	Gilbert Labelle Putting words on arrows and loops	Alain Kuzniak Vers un travail géométrique conforme et correct en contexte d'usages d'outils géométriques classiques et numériques	Carlos Arreche Differential transcendence of elliptic hypergeometric functions through Galois theory	Martin Weimann Computing the genus of plane curves with cubic complexity in the degree	
16:30 – 17:00	Jan Krupa and Włodzimierz Wojas Symbolic calculation behind floating-point arithmetic using CAS	Jiří Blažek Discovering in DGE — A case study	Mengxiao Sun On the Complexity of Computing the Galois Group of a Linear Differential Equation	Michela Ceria Bar Code and Janet-like division	
17:00 – 17:30	Aharon Naiman Gaussian Elimination with Parameters	Roman Hašek One method of trisecting an angle and its interpretation for teaching purposes using a dynamic geometry and computer algebra system		Stephen M. Watt Algorithms for Polynomials in Legendre-Sobolev Bases	
17:30 – 18:00	Elena Varbanova Methodological issues of application of computer algebra in blended learning environment				

Thursday July 18					
8:30 – 9:00	Coffee				
9:00 – 10:00	Keynote presentation Sylvie Ratté, <u>Looking under the hood of Artificial Intelligence: About cookies, blood, language, and some mathematics</u> Room E-2033				
10:00 – 10:15	Group photo Room E-1012				
10:15 – 11:00	Poster session Thanh-Trung Do, <u>Automatic Generation of Inverse Dynamics for Industrial Robots with Flexible Joints Using a Computer Algebra</u> Barry H. Dayton, <u>Software for Real Algebraic Curves In the Wolfram Language</u> Koissi Adjorlolo, <u>Manipulating Symbolic Expressions on a Computer</u> Atrium (Room E-2010) + Coffee break				
	S6 Room B-0904	S9 Room B-0906	S8 Room E-4024	S2 Room E-4025	S4 Room E-4026
11:00 – 11:30	Aharon Naiman <u>Proving and Disproving Subspaces with Mathematica</u>	Alexander Prokopenya <u>Animation of some mechanical systems with Mathematica</u>	Jean-Jacques Dahan <u>Investigations with DGS and CAS dealing with problems of equal area and particularly a possible generalization to 3D of the known results of the Lhuillier problem (Part I)</u>	Mark Huibregtse <u>Some new elementary components of the Hilbert scheme of points</u>	Pierre-Louis Cayrel <u>Code-based cryptography: from McEliece to the NIST competition</u>
11:30 – 12:00	Thierry Dana-Picard <u>Parametric integrals, combinatorial identities and applications</u>	Emmanuel Roque <u>Symbolical and numerical study of Fourier series and PDEs using Maxima</u>	Jean-Jacques Dahan <u>Investigations with DGS and CAS dealing with problems of equal area and particularly a possible generalization to 3D of the known results of the Lhuillier problem (Part II)</u>	Elisa Palezzato <u>Modular methods for rich algebraic geometry results on hyperplane arrangements</u>	Reza Dastbasteh <u>Constructions of quantum codes</u>
12:00 – 12:30	David Jeffrey and David Stoutemyer <u>The importance of being continuously continuous</u>	Setsuo Takato <u>Development and Applications of KeTCindyJS</u>		Cristina Bertone <u>On algebraic and geometric properties of almost reflexive ideals</u>	Malihe Aliasgari <u>Distributed Coded Computation</u>
12:30 – 14:00	Lunch Cafétéria, Pavillon A				
14:00 – 21:00	Excursion				

Friday July 19					
8:30 – 9:00	Coffee				
9:00 – 10:30	Maple presentation + Keynote presentation David Stoutemyer, <i>The Constant hunters</i> Room E-2033				
10:30 – 11:00	Coffee break				
	S6 Room B-0904	S9 Room B-0906	S7 Room E-4024	S1 Room E-4025	S4 Room E-4026
11:00 – 11:30	Paulina Chin Assessment Tools in Maple: Recent Developments and Challenges	Yoichi Maeda Three-dimensional model of $SL(2, R)$ and visualization of $SL(2, Z)$ as a pattern on the cubic lattice	Ryszard Kozera Reparametrizations and Lagrange piecewise-cubics for fitting reduced data	Maximilian Jaroschek First order differential and difference systems in Sage	Theo Moriarty Why you cannot even hope to use Gröbner bases in cryptography: an eternal golden braid of failures
11:30 – 12:00	Thierry Dana-Picard DGS assisted activities around the Golden Ratio in Space and Time	Tetsuo Fukui Educational graph creation tool based on the natural mathematical description	Alexander Prokopenya Dynamics of a generalized Atwood's machine with three degrees of freedom	Alexander Levin Some properties and applications of multivariate dimension polynomials and their computation in Python	Michela Ceria HELP: the knight gambit for efficient decoding of BCH codes
12:00 – 12:30	M. Pilar Vélez GeoGebra Automated Reasoning Tools: a problem from Spanish Civil Service Math Teachers' examination	Tatiana Mylläri Fractals in the classroom with CAS and KeTCindy	Alexander Prokopenya Analytical calculations of secular perturbations of translational-rotational motion of a non-stationary triaxial body in the central field of attraction	Franz Winkler A decision algorithm for strong rational general solutions of algebraic ordinary differential equations	Madhu Raka Skew constacyclic codes over a non-chain ring
12:30 – 14:00	Lunch Cafétéria, Pavillon A				
	S6 Room B-0904	S9 Room B-0906	S7 Room E-4024	S1 Room E-4025	S4 Room E-4026
14:00 – 14:30	José Luis Galán-García Teaching the residue theorem and its applications with a Cas	Naoki Hamaguchi A teaching material for orthogonal transformations using rotation of cuboids	Jose A. Vallejo Mathematical modelling with Fourier series and PDEs	Vladimir Bavula Localizable sets and the localization of a ring at a localizable set	Daniel J. Katz Rudin-Shapiro-like sequences with low correlation
14:30 – 15:00	Jan Krupa and Włodzimierz Wojas Some examples of calculation improper integrals using CAS	Koji Nishiura Effective Use of KeTCindy in an Experimental Study to Develop Methods of Teaching Mathematics	Setsuo Takato Producing animations of some physical phenomena with KeTCindy	Cyrille Chenavier An effective version of Warfield's theorem	Mercè Villanueva PD-sets for partial permutation decoding of Z_2^5-linear Hadamard codes
15:00 – 15:30	Gabriel Aguilera-Venegas Using a CAS-developed random samples generator for teaching and researching in probabilistic cellular automata and Statistics	Takeo Noda Visualizing ODEs with KeTCindy	Haiduke Sarafian A two-dimensional nonlinear oscillator in a charged rectangular frame	Ruyong Feng and Ziming Li Telescopers for differential forms with one parameter	Curtis Bright Searching for projective planes with computer algebra and SAT solvers

Friday July 19					
15:30 – 16:00	Coffee break				
	S6 Room B-0904	S9 Room B-0906	S5 Room E-4024	S1 Room E-4025	S4 Room E-4026
16:00 - 16:30	Michael Xue <u>Boosting Rocket Performance without Calculus</u>	Tomoya Tokairin <u>Extension of KeTCindyJS to generate interactive HTML slides</u>	Anna Myullyari <u>On the complexity of finite sequences</u>	Thomas Cluzeau <u>An efficient algorithm for the simultaneous triangularization of a finite set of matrices</u>	Simon Eisenbarth <u>Relative projective group ring codes over chain rings</u>
16:30 – 17:00	José Luis Galán-García <u>SFOPDES.dfw: A stepwise tutorial for solving Partial Differential Equations with Derive</u>	Satoshi Yamashita <u>Calculation and visualization of Fourier series with KeTCindy and KeTCindyJS</u>	Aleksandr Mylläri <u>On the dynamical system generated by the three-body integrator</u>	Sette Diop <u>Towards a differential algebraic decision methods toolbox for systems theory</u>	Kenza Guenda <u>Errors correcting codes over rings</u>
17:00 – 17:30	ACA Working Group Meeting Room E-2033				
19:00 ++	Banquet The Windsor, 1170 Peel street				

Saturday July 20			
9:00 – 9:30	Coffee		
9:30 – 10:30	Keynote presentation Franco Saliola, <i>Computer Exploration in Algebraic Combinatorics via SageMath</i> Room E-2033		
10:30 – 11:00	Coffee break		
	S6 Room B-0904	S5 Room E-4024	S1 Room E-4025
11:00 – 11:30	Daniel Jarvis <i>Innovative CAS Technology Use in University Mathematics Teaching and Assessment</i>	Ariel Chitan <i>Influence of Relativistic Effects on the Evolution of Triple Black Hole Systems</i>	Mark van Hoeij <i>Factoring linear recurrence operators</i>
11:30 – 12:00	Karsten Schmidt <i>Teaching Decision Analysis using a Computer Algebra System</i>		Johannes Middeke <i>A direct solver to find hypergeometric solutions for coupled systems of difference equations</i>
12:00 – 12:30	Jan Krupa and Włodzimierz Wojas <i>Familiarizing students with definition of Lebesgue integral using Mathematica - some examples of calculation directly from its definition: Part 2</i>		Clemens Raab <i>On rational solutions of linear systems of Mahler equations</i>
12:30	Closing Ceremony Atrium (Room E-2011)		