TENTATIVE Program for the 1st International IMACS Conference on Applications of Computer Algebra

May 16, 1995 (Tuesday)		
Session	Symmetries and Closed Form Solutions of Differential Equations *Fritz Schwarz* SUB 250-A	Session Parametric Curves and Applications in Computer Aided Geometric Design *J. Rafael Sendra* SUB 231-A
8:30 am	Group-Invariant Solutions of Hydrodynamics *Stephen Coggeshall*	Parametric Curves and Applications in CAGD: Introduction and Some Special Issues *Tomas Recio, J. Rafael Sendra* & Juana Sendra*
9:00 am	Symmetry Reduction and Symbolic Solutions of Ordinary Differential Equations *Alexei Bocharov*	Implicitization by Groebner Basis Conversion *Michael Kalkbrener*
9:30 am	JET—An Axiom Environment for Geometric Computations with Differential Equations *Werner Seiler & Jacques Calmet**	New Elimination Tools based on Symmetric Functions for the Implicitization of Parametric Curves and Surfaces *Laureano Gonzalez-Vega*
10:00 am	BREAK	
10:30 am	The Characterization of 3rd Order ODE's Admitting Fiber Preserving Point Symmetries *Guy Grebot*	Issues in Symbolic Parametrization of Algebraic Curves *Franz Winkler*
11:00 am	To Be Announced *Thomas Wolf*	Geometric Constraint Solving: (I) Graph-Directed Solvers *Christoph M. Hoffmann*
11:30 am	Symmetries and Solutions of Plasma-Fluid Equations *Raul Acevedo*	A Toolkit for Algebraic Geometry *Ashutosh Rege*
12:00 pm	LUNCH	
Session	Symmetries and Closed Form Solutions of Differential Equations *Fritz Schwarz* SUB 250-A	Session Polynomial Systems *Lakshman Y. N. & David Wood* SUB 231-A
1:30 pm	Symmetries for Dynamical Systems on a Lattice *Decio Levi*	Geometric Constraint Solving: (II) Algebraic Issues *Christoph M. Hoffmann*
2:00 pm		Resurrecting Dixon Resultants *Deepak Kapur* & Tushar Saxena*
2:30 pm	Algorithmic Determination of the Cartan Structure of Infinite Lie Symmetry Groups of PDE's *Greg Reid*	The Kapur-Saxena-Yang Dixon Resultant with Maple and Mathematica *Janet McShane, George Nakos & Robert M. Williams*
3:00 pm	BREAK	
3:30 pm	Symbolic Computation and Conserved Densities *Willy Hereman*	On Sparsifying Transformations for Multivariate Polynomials *Lakshman Y. N.*
4:00 pm	Liouvillian Solutions of 3rd Order ODE's: A Progress Report *Winfried Fakler & Jacques Calmet**	Quasi-Linear Differential Algebraic Equations: An Algebraic Study *Gabriel Thomas*
4:30 pm	On the Translation Invariants of Quadratic Differential Systems *Leonid A. Timochouk*	Geometry and Polynomial Systems—Theory and Application *Peter F. Stiller*
5:00 pm		Ten Minutes of Discussion of Issues Raised and Not Raised *informally led by the organizers*
evening	Sacrifice at the flying saucer landing pad	

TENTATIVE Program for the 1st International IMACS Conference on Applications of Computer Algebra

May 17, 1995 (Wednesday)		
Session	Construction and Applications of Normal Forms in the Theory Session of Nonlinear ODEs and Transfer Map Techniques *Alexander D. Bruno & Victor Edneral* SUB 250-A	Computer Algebra Applied to Technology & Open Session *Waldir L. Roque & Laureano Gonzalez-Vega* SUB 231-A
8:30 am	Methods of calculation of normal forms *Alexander D. Bruno*	Mixing Symbolic and Numeric Strategies to Solve the Inverse Kinematics Problem in Robotics *Laureano Gonzalez-Vega*
9:00 am	A Lie Algebraic Approach *Jan Sanders*	Design and Performance Analysis of Optical Instruments with Computer Algebra *Yves Papegay*
9:30 am	Normal Form Method and Formal Integrals of Nonlinear ODEs systems *Victor F. Edneral*	Verification of Knowledge Based Systems with Commutative Algebra and Computer Algebra Techniques *Eugenio Roanes-Lozano* & Luis M. Laita*
10:00 am	BREAK	
10:30 am	SAP, a symbolic algebraic processor *Andre Deprit*	Two more links to NAG numerics involving CA systems *Evatt Hawkes & Grant Keady**
11:00 am	Computation of coefficients of the normal form in a singular case *Sergey Yu. Sadov*	A Review of CAS Mathematical Capabilities *Michael Wester*
11:30 am	Phase space structure of 4D symplectic mappings and applications to beam optics *Ezio Todesco*	On Conservation Laws and Symmetries for PDEs *Vladimir Rosenhaus*
12:00 pm	LUNCH	
Session	Polynomial Systems Session *Lakshman Y. N. & David Wood* SUB 250-A	CA Applications of Stochastic Methods *Michael Trott* SUB 231-A
1:30 pm	Matrix Methods for Sparse Polynomial Systems *John Canny*	Quantum coupling coefficients seen as discrete wave functions *Markus van Almsick*
2:00 pm	Advances in Affine Elimination Theory *J. Maurice Rojas*	Computer-Aided Stochastic Calculus with Applications in Finance *Colin P. Williams*
2:30 pm	Polynomial Conditions on Spectra of Real, Symmetric Toeplitz Matrices *David H. Wood*	Algebra for the Electronic Marketplace *Ross Miller*
3:00 pm	BREAK	
3:30 pm	A Normal Form Algorithm for Matrices over k[x,y]/<xy> *Reinhard Laubenbacher*	Transmission of Solitons through Random Media *Robert Knapp*
4:00 pm	Ten Minutes of Discussion of Issues Raised and Not Raised *informally led by the organizers*	
evening	Tramway ride to Sandia Peak & dinner	

TENTATIVE Program for the 1st International IMACS Conference on Applications of Computer Algebra

	May 18, 1995 (Thursday)	
Session	Parallel Computer Algebra *Eric Kaltofen & Gilles Villard* Woodward Hall 147	Session: Numerical Methods for PDEs in a Computer Algebra Environment *Victor G. Ganzha & E. V. Vorozhtsov* Woodward Hall 149
8:30 am	REDUCE on a Massively Parallel System *Winfried Neun*	Applications of Computer Algebra in Scientific Computing *Hans-Joachim Bungartz*
9:00 am	Parallel Computer Algebra on the Desk-Top *Wolfgang Kuechlin & Beatrice Amrhein**	Symbolic-Numeric Stability Investigation of Difference Schemes for the Euler and Navier-Stokes Equations *Victor G. Ganzha & E. V. Vorozhtsov*
9:30 am	Parallelism in MuPAD *Holger Naundorf*	Using the Symbolic Computation for Analysis of Local Approximation of Finite-Difference Operators *Mikhail Shashkov* & Victor G. Ganzha*
10:00 am	BREAK	
10:30 am	A Flexible Tool to Experiment with Distributed Symbolic Computation *Stephane Dalmas & Marc Gaetano**	Algorithm for Solving Riccati Matrix Equation with Guaranteed Accuracy *Aider Ya. Bulgakov*
11:00 am	The Newton Polyhedra in the Nonlinear Analysis *Alexander D. Bruno*	Local Approximation Study of Johnson's Method for 2D Elasticity Problems *Victor G. Ganzha & E. V. Vorozhtsov*
11:30 am	FORUM *started off by the conference organizers*	
12:00 pm	LUNCH	
Session	Parallel Computer Algebra *Eric Kaltofen & Gilles Villard* Woodward Hall 147	Session: CA Methods in Control *Chaouki T. Abdallah & Peter Dorato* Woodward Hall 149
1:30 pm	Parallel Integral Multivariate Polynomial Greatest Common Divisor Computation *Mohamed Omar Rayes*	Complexity of Systems and Control Theory Problems *Paul W. Goldberg, Chaouki T. Abdallah* & Greg L. Heileman*
2:00 pm	Distributed Symbolic Computation with the Black Box Representation *Angel Diaz* & Erich Kaltofen*	NP-hardness of some linear control design problems *Vincent Blondel* & John N. Tsitsiklis*
2:30 pm	Parallel Quantifier Elimination on the SP2 *Hoon Hong*, Michael Jahn, Richard Liska, Nicholas Robidoux & Stanly Steinberg*	Application of Quantifier Elimination Theory to Robust Multi-objective Feedback Design *Peter Dorato*, Wei Yang & Chaouki T. Abdallah*
3:00 pm	Summarizing Remarks *Erich Kaltofen*	
3:30 pm	BREAK	
4:00 pm	BUSINESS MEETING *all who wish to attend*	
evening	Social gathering at Professor Steinberg's house	

TENTATIVE Program for the 1st International IMACS Conference on Applications of Computer Algebra

May 19, 1995 (Friday)		
Session	CAS in Engineering Education *H. Eric Nuttall & Jeanine Ingber* SUB 250-A	Session: Computer Algebra and Automated Theorem Proving *Dongming Wang* SUB 231-A
8:30 am		An Open Environment for Doing Mathematics *Karsten Homann & Jacques Calmet*
9:00 am		Geometry Theorem-Proving and Geometry Problem-Solving, Old and New *Wen-tsun Wu*
9:30 am		Radical Decomposition and Geometry Theorem Proving *Michael Kalkbrener*
10:00 am	BREAK	
10:30 am	Coding Theory in MATHEMATICA *Igor Gachkov & Kenneth Hulth*	Zero Decomposition for Theorem Proving in Geometry *Dongming Wang*
11:00 am		Geometric Reasoning and Resultants *Deepak Kapur*
11:30 am		Probabilistic Verification of Elementary Geometry Statements *Giuseppa Carra Ferro, Giovanni Gallo* & Rosario Gennaro*
12:00 pm	LUNCH	
Session	CAS in Engineering Education *H. Eric Nuttall & Jeanine Ingber* SUB 250-A	Session: Quantifier Elimination and its Applications *Richard Liska & Michael Jahn* SUB 231-A
1:30 pm	Advanced Engineering Math Through Symbolic Software *Robert Lopez*	To Be Announced *Hoon Hong*
2:00 pm	Active learning through interactive texts based on Mathematica Notebooks *Jerry Uhl*	Partial solution of a path finding problem using the CAD method *Scott McCallum*
2:30 pm	Engineering Applications of Computer Algebra: Mathematica Approach *Cetin Cetinkaya*	Stability Analysis by Quantifier Elimination *Richard Liska* & Stanly Steinberg*
3:00 pm	BREAK	
3:30 pm	Freshmen Engineering: Computing using Mathematica *Jeanine Ingber & Eric Nuttall*	Using Quantifier Elimination to solve the Birkhoff Interpolation Problem *Laureano Gonzalez-Vega*
4:00 pm	Mathematica for the Beginning Teacher *Henry Shapiro*	Applying quantifier elimination to problems in optimization and simulation *Volker Weispfenning*