



U N I K A S S E L
V E R S I T Ä T

Computer Algebra in Scientific Computing
CASC 2014

Institute of Mathematics, Universität Kassel
Kassel, Germany

and

Faculty of Applied Informatics and Mathematics,
Warsaw University of Life Sciences – SGGW
Warsaw, Poland

are organizing

The 16th International Workshop
on Computer Algebra
in Scientific Computing

September 8 – 12, 2014
Warsaw, Poland

WWW: <http://www14.in.tum.de/CASC2014>
Email: casc2014@mathematik.uni-kassel.de

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Schedule

Monday, September 8

- 10:00 – 14:00 Registration (build. 34, 3d floor, Lecture Hall "Aula IV")
13:00 – 14:00 Lunch (Buffets are available at the ground floor, build. 34, 23, 12, 9)

Build. 34, 3d floor, Lecture Hall "Aula IV"

Session Chair: Ernst W. Mayr

- 14:00 – 14:15 Opening
14:15 – 14:30 Welcome address by **Arkadiusz Orłowski**, Dean of WZIM SGGW
14:30 – 15:00 **Takuya Kitamoto**
On the computation of the determinant of a generalized Vandermonde matrix
15:00 – 15:30 **Tateaki Sasaki**, Daiju Inaba and Fujio Kako
Solving parametric sparse linear systems by local blocking
15:30 – 16:00 Coffee Break
16:00 – 16:30 Ryszard Kozera, Lyle Noakes and **Piotr Szmielew**
Sharpness in trajectory estimation for planar four-points piecewise-quadratic interpolation
16:30 – 17:00 **Victor Y. Pan**
Real polynomial root-finding by means of matrix and polynomial iterations
17:00 – 17:30 Jonathan Hauenstein, **Victor Y. Pan** and Agnes Szanto
A note on global Newton iteration over Archimedean and non-Archimedean fields
18:00 – 20:00 Welcome reception at restaurant Pałacyk (Rectorate SGGW, build. 12))

Tuesday, September 9

Build. 34, 3d floor, Lecture Hall "Aula IV"

Session Chair: Vladimir P. Gerdt

- 09:00 – 09:30 Stefan Gyurki and Mikhail Klin
Sporadic examples of directed strongly regular graphs obtained by computer algebra experimentation
09:30 – 10:00 Maciej Janowicz and **Arkadiusz Orłowski**
Coherence and large-scale pattern formation in coupled logistic-map lattices via computer algebra systems
Invited Talk
10:00 – 11:00 **Leszek Plaskota**
Continuous Problems: Optimality, Complexity, Tractability
11:00 – 11:30 Coffee Break

Session Chair: Doru Stefanescu

11:30 – 12:00 Francois Boulier, Francois Lemaire, Adrien Poteaux, Anja Korporal, Wilfrid Perruquetti and Rosane Ushirobira
An algorithm for converting nonlinear differential equations to integral equations with an application to parameters estimation from noisy data

12:00 – 12:30 Valentin Irtegov and **Tatiana Titorenko**
Invariant manifolds in the classic and generalized Goryachev-Chaplygin problem

12:30 – 13:00 **Radosław Kycia**
Scheme for numerical investigation of movable singularities of the complex valued solutions of ordinary differential equations

13:00 – 14:30 Lunch break

Session Chair: Sergei Abramov

14:30 – 15:00 **Rudolf Berghammer**
Relation algebra, RelView, and plurality voting

15:00 – 15:30 Konstantin Korovin, **Marek Kosta** and Thomas Sturm
Towards conflict-driven learning for virtual substitution

15:30 – 16:00 Sardar Haque, Farnam Mansouri and **Marc Moreno Maza**
On the parallelization of subproduct tree techniques targeting many-core architectures

16:00 – 16:30 Coffee Break

16:30 – 17:00 Russell Bradford, Changbo Chen, James H. Davenport, Matthew England, **Marc Moreno Maza** and David Wilson
Truth table invariant cylindrical algebraic decomposition by regular chains

17:00 – 17:30 **Doru Stefanescu**
Applications of the Newton index to the construction of irreducible polynomials

17:30 – 18:30 Business Meeting

Wednesday, September 10

Build. 34, 3d floor, Lecture Hall "Aula IV"

Session Chair: Victor F. Edneral

09:00 – 09:30 Dominik L. Michels, Dmitry A. Lyakhov, **Vladimir P. Gerdt**, Gerrit A. Sobottka and Andreas G. Weber
Lie symmetry analysis for Cosserat rods

09:30 – 10:00 **Alexander Gusev**, Ochbadrakh Chuluunbaatar, Sergue Vinitzky, Vladimir Derbov, Andrzej Gózdź, Vitaly A. Rostovtsev and Le Hai Luong

- Symbolic-numerical solution of boundary-value problems with self-adjoint second-order differential equation using the finite element method with interpolation Hermite polynomials
- 10:00 – 10:30 **Sergue Vinitzky**, Alexander Gusev, Ochbadrakh Chuluunbaatar, Le Hai Luong, Vladimir Derbov, Pavel Krassovitskiy and Andrzej Gózdź
Symbolic numerical algorithm for solving quantum tunneling problem of a diatomic molecule through repulsive barriers
- 10:30 – 11:00 **Grigoriy Drozdov** and Vasily Shapeev
CAS application to the construction of high-order difference schemes for solving Poisson equation
- 11:00 – 11:30 Coffee Break
- Session Chair: Andreas Weber**
- 11:30 – 12:00 Vasily Shapeev and **Evgenii Vorozhtsov**
CAS application to the construction of the collocations and least residuals method for the solution of the Burgers and Korteweg–de Vries–Burgers equations
- 12:00 – 12:30 Leonid Sevastyanov, **Anton Sevastyanov** and Anastasiya Tutunnik
Analytical calculations in Maple to implement the method of adiabatic modes for modeling smoothly irregular integrated optical waveguide structures
- 12:30 – 13:00 **Alexander Prokopenya**, Mukhtar Minglibayev and Baglan Beketauov
On integrability of evolutionary equations in the restricted three-body problem with variable masses
- 13:00 – 14:30 Lunch break
- 14:30 – 22:00 Excursion and sightseeing

Thursday, September 11

Build. 34, 3d floor, Lecture Hall "Aula IV"

Session Chair: Werner M. Seiler

- 09:00 – 09:30 **Jorge Caravantes**, Mario Fioravanti, Laureano Gonzalez-Vega and Ioana Necula
Computing the topology of an arrangement of implicit and parametric curves given by values
- 09:30 – 10:00 **Jin-San Cheng** and Kai Jin
Finding a deterministic generic position for an algebraic space curve

Invited Talk

- 10:00 – 11:00 **Georg Regensburger** (joint work with Stefan Müller)
Generalized mass-action systems and positive solutions
of polynomial equations with real and symbolic exponents
- 11:00 – 11:30 Coffee Break
- Session Chair: Alexander N. Prokopenya**
- 11:30 – 12:00 **Georg Grasegger**, Alberto Lastra, J. Rafael Sendra
and Franz Winkler
On symbolic solutions of algebraic partial differential equations
- 12:00 – 12:30 **Sergey Paramonov**
On testing uniqueness of analytic solutions of PDE
with boundary conditions
- 12:30 – 13:00 **Sergei Abramov** and Moulay Barkatou
Computable infinite power series in the role of coefficients
of linear differential systems
- 13:00 – 14:30 Lunch break
- 15:00 – 23:00 Excursion (Old town, The Royal Castle) & Conference Dinner

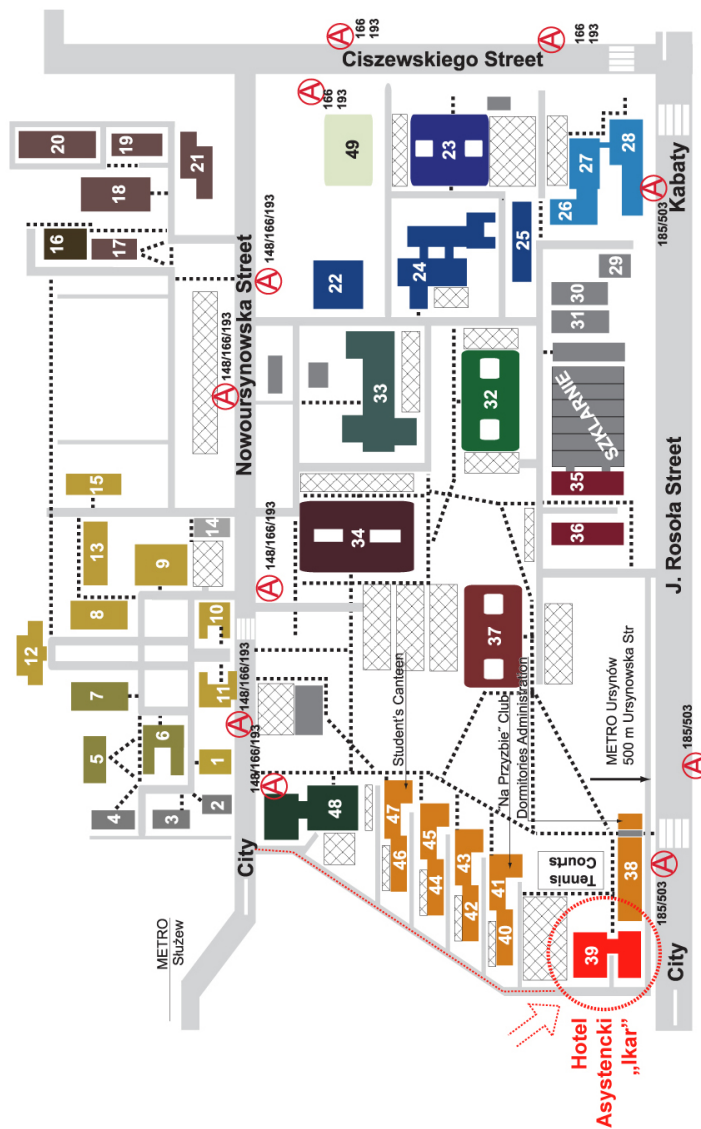
Friday, September 12

Build. 34, 3d floor, room 3/40

Session Chair: Evgenii V. Vorozhtsov

- 09:30 – 10:00 **Amir Hashemi**, Werner M. Seiler and Michael Schweinfurter
Deterministically computing reduction numbers of polynomial ideals
- 10:00 – 10:30 **Takafumi Shibuta** and Shinichi Tajima
An algorithm for computing the truncated annihilating ideals
for an algebraic local cohomology class
- 10:30 – 11:00 **Fatima K. Abu Salem**, Khalil El-Harake and Karl Gemayel
Factoring sparse bivariate polynomials using the priority queue
- 11:00 – 11:30 Coffee Break
- 11:30 – 12:00 **Aurelien Grolet**, Philippe Malbos and Fabrice Thouverez
Eigenvalue method with symmetry and vibration analysis
of cyclic structure
- 12:00 – 12:30 **Matan Ziv-Av**
Enumeration of Schur rings over small groups
- 12:30 – 13:00 **Iulia Costin** and Gheorghe Toader
Optimal estimations of Seiffert-type means
by some special Gini means
- 13:00 – 14:30 Lunch and Closing

WULS – SGGW CAMPUS



- 9 – Crystal Hall ("Kryształowa" Hall)
- 11 – Financial Department, Cash Desk, Bank
- 12 – Rectorate
- 34 – Faculty of Forestry; Faculty of Applied Informatics and Mathematics
- 39 – Hotel "IKAR"