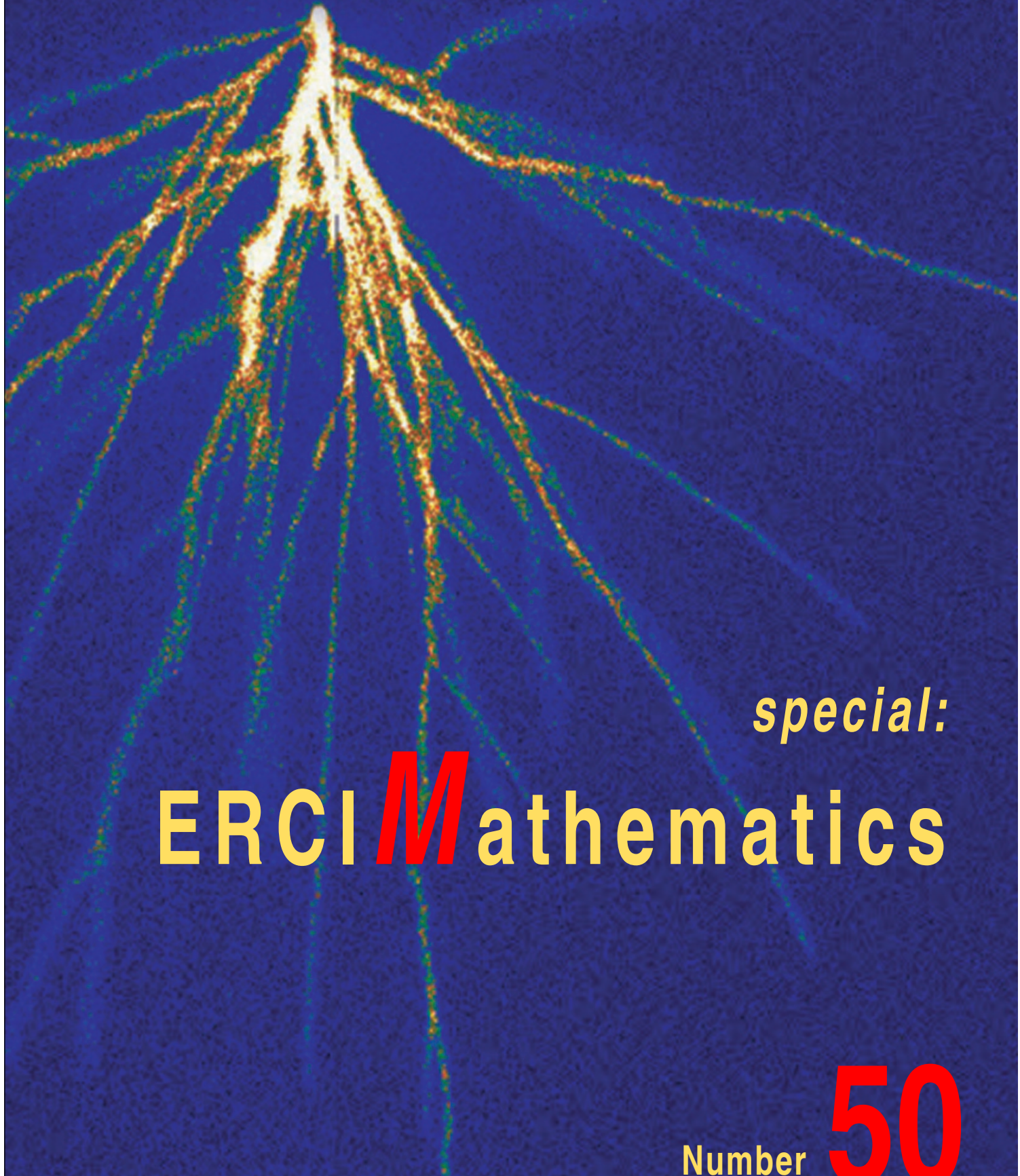


ERCIM NEWS

European Research Consortium for Informatics and Mathematics

www.ercim.org

July 2002



special:

ERCIM **M**athematics

Number **50**

KEYNOTE

- 3 **by Rolf Jeltsch,**
President European Mathematical Society

JOINT ERCIM ACTIONS

- 4 **50 Issues ERCIM News**
by Peter Kunz, ERCIM office
- 5 **Towards a Strategic Cooperation
with the European Science Foundation**
by Jean-Eric Pin, ERCIM office
- 6 **Euro-Legal**
by Heather Weaver, CLRC

SPECIAL THEME

- 7 **Introduction to the Special Theme: ERCIMathematics**
by Tom Koorwinder, University of Amsterdam and CWI
- 9 **Nonlinear Modelling of Internet Packet Traffic**
by David K. Arrowsmith, University of London
- 10 **Mathematics on the Web with MathML**
by Max Froumentin, W3C
- 12 **Internet Protocol Table Lookup as a Geometric Problem**
by Marco Pellegrini, IIT-CNR
- 12 **On Large Random Graphs of the ‘Internet Type’**
by Hannu Reittu and Ilkka Norros, VTT
- 14 **MUMPS: A Multifrontal Massively Parallel Solver**
by Patrick Amestoy, ENSEEIHT, Toulouse, France;
Iain Duff, CLRC; Jacko Koster, Parallax, Bergen, Norway;
and Jean-Yves L’Excellent, INRIA
- 16 **Simulation of Underground Water Pollution**
by Mario Arioli, CLRC
- 17 **Parallel Direct Solvers for Large Sparse Linear Systems**
by Iain Duff and Jennifer A. Scott, CLRC
- 19 **Spurious Solutions in Finite Element Simulation
of Electromagnetic Cavity Resonators**
by Paolo Fernandes and Mirco Raffetto, IMATI-CNR
- 20 **Scalable Solvers for Sparse Linear Systems**
by Klaus Stüben, Fraunhofer SCAI
- 22 **A new Algorithm for Discrete Tomography**
by Rob Tijdeman, University of Leiden, The Netherlands
and Herman te Riele, CWI
- 23 **Computational Topology Techniques for Shape Modelling**
by Silvia Biasotti, Bianca Falcidieno, Michela Mortara,
Giuseppe Patané and Michela Spagnuolo, IMATI-CNR
- 24 **Marked Point Processes in Image Analysis**
by Xavier Descombes and Josiane Zerubia, INRIA
- 26 **Iterative Methods in Image Reconstruction**
by Paola Favati, Grazia Lotti and Ornella Menchi, IIT-CNR
- 27 **Shape Geometry and Aesthetics**
by Franca Giannini and Marina Monti, IMATI-CNR
- 28 **Angry * (-1) = Surprised!**
by Aldo Paradiso, Fraunhofer IPSI
- 30 **Experimental Mathematics and Integer Relations**
by Jonathan M. Borwein, Simon Fraser University, Canada
- 31 **Algebra and Computation at SZTAKI**
by András Benczúr, Gábor Ivanyos and Lajos Rónyai,
SZTAKI

- 33 **Renaissance of MacMahon’s Partition Analysis:
Symbolic Summation at RISC-Linz**
by Peter Paule, RISC-Linz, Austria
- 35 **ALIAS, a System Solving Library Based on Interval Analysis**
by Jean-Pierre Merlet, INRIA
- 36 **Theorema: A System for Computer-Supported Formal
Mathematics**
by Bruno Buchberger, RISC-Linz, Austria
- 38 **A Colourful Theory on Graphs**
by Zsolt Tuza, SZTAKI
- 39 **Quantitative Domain Theory**
by Michel Schellekens, National University of Ireland, Cork
- 40 **Finding Dependencies in Industrial Process Data**
by Daniel Gillblad and Anders Holst, SICS
- 42 **Interaction of Stochastic Systems and Financial
Mathematics**
by László Gerencsér, SZTAKI
- 43 **Algebraic Convergence of Pulled Fronts**
by Ute Ebert, CWI

R&D AND TECHNOLOGY TRANSFER

- 44 **Random Indexing of Linguistic Units
for Vector-Based Semantic Analysis**
by Magnus Sahlgren, SICS
- 45 **Extending Thematic Lexical Resources
by Term Categorization**
by Alberto Lavelli, Bernardo Magnini,
and Fabrizio Sebastiani, IEI-CNR
- 46 **An End-to-End Software Suite for 3D Scanning**
by Marco Callieri, Paolo Cignoni and Paolo Pingi, IEI-CNR
- 48 **Exploring the Frontiers of Computability**
by Jiri Wiedermann, CRCIM and Jan van Leeuwen, Utrecht
University, The Netherlands
- 49 **Towards the Design of Functional Materials
and Drugs ‘from Scratch’**
by Wanda Andreoni and Alessandro Curioni, IBM Zurich
Research Lab, Switzerland
- 51 **Flower – Framework for Local Wireless Services**
by Tero Hakkarainen, Ali Lattunen and Vespe Savikko, VTT
- 53 **A Simple Model for Spark Branching**
by Ute Ebert, CWI
- 54 **Dyade, a Successful Cooperation between Bull and INRIA**
by Patrick Valduriez, INRIA
- 55 **Digital Library Competence Center**
by Maria Bruna Baldacci and Stefania Biagioni, IEI-CNR

EVENTS

- 56 **EU/NSF Digital Library All Projects Workshop**
by Costantino Thanos, IEI-CNR
- 57 **Fourth DELOS Workshop on Evaluation
of Digital Libraries: Testbeds, Measurements and Metrics**
by László Kovács, SZTAKI
- 57 **Announcements**

55 IN BRIEF

Next issue:
October 2002

Special theme:
Semantic Web

Cover image: spark branching (time integrated picture, exposure time 10^{-6} seconds). Courtesy E. van Veldhuizen, Eindhoven University of Technology. Researchers at CWI have shown that branching of sparks is a direct consequence of the simplest mathematical model describing such electric discharges. See article on page 53.