International Symposium on Scientific Computing, Computer Arithmetic and Validated Numerics "SCAN-93"

On September 26–29, 1993, the International Symposium on Scientific Computing, Computer Arithmetic and Validated Numerics ("SCAN-93") was held in Vienna, Austria. This conference continues the series of SCAN-xx Symposia which have previously been held at Karlsruhe (Germany), Basel (Switzerland), Albena (Bulgaria), and Oldenburg (Germany), under the joint sponsorship of IMACS and GAMM. The scope of the conference covers the numerical and algorithmic aspects of Scientific Computing, with a strong emphasis on the result verification and on algorithmic and arithmetic tools for this purpose.

The following researchers were members of the international scientific committee:

Götz Alefeld (Karlsruhe)
George F. Corliss (Milwaukee)
Andreas Frommer (Wuppertal)
Jürgen Herzberger (Oldenburg)
Svetoslav M. Markov (Sofia)
David W. Matula (Dallas)
Arnold Neumaier (Freiburg)
Siegfried M. Rump (Hamburg)
Hans J. Stetter (Wien)

The local organizing committee was constituted by Winfried Auzinger, Josef Schneid, Gabriela Schranz-Kirlinger and Hans J. Stetter in Technische Universität Wien.

The following 110 scientists attended the symposium:
Austria (9), Brasil (1), Bulgaria (4), Czech Republic (1), Denmark (4), France (10), Germany (53), Hungary (2), Italy (1), Japan (2), Russia (7), Switzerland (4), Turkey (2), UK (1), Ukraine (2), USA (7).

The conference was held at the Technical University of Vienna, in the "Freihaus" building on Wiedner Hauptstrasse which is located at the center of the city.

The following 12 lectures were presented for plenary 40 minutes talks:
• S.Beermann, E.Adams (Karlsruhe, Germany): On step size controls and modifications of Lohner's enclosure algorithm for solutions of ODEs with initial conditions
• B.S.Doblonets (Krasnoyarsk, Russia): Two sided numerical methods for differential equations
• F.Goerisch (Braunschweig, Germany): A new variational principle for eigenvalues and its application in inclusion techniques
• C.Jansson (Hamburg, Germany): Recent developments in global optimization
• B.Kearfott (Lafayette, USA): Research results in a Fortran 90 environment supporting global optimization and numerical nonlinear algebra
• D.W.Matula, S.P.Prasad (Dallas, USA): Contemporary IEEE standard floating point hardware designs
• D.Michelucci, J-M.Moreau (St. Etienne, France): Hashing Lazy Numbers
• M.T.Nakao (Fukuoka, Japan): Finite element method for nonlinear elliptic problems with result verification
• M.Plum (Clausthal, Germany): An enclosure method for non-selfadjoint eigenvalue problems
• J.Rohn (Prague, Czech Republic): Linear interval equations
• S.Salvini (Oxford, UK): Certification of numerical software at NAG
• P.Wittwer (Geneva, Switzerland): Interval arithmetic for nonlinear operators on Banach spaces

Furthermore, 59 regular 25-minute talks related to the following subjects were given in two parallel sessions:
• Basic scientific computation and interval methods
• Software tools and programming languages for implementation of interval algorithms
• Enclosure methods for linear/nonlinear equations including eigenvalue problems
• Rigorous computational methods for optimization problems
• Verified computation of solutions for ordinary and partial differential equations

A few posters also were presented during the conference in front of the lecture halls.

There were many active and useful discussions in these presentations as well as individually fruitful exchange of ideas on the research and developments of validated computations.

Selected papers of presented talks will appear in the proceedings as special issues of the following journals:

Computing
Interval Computations
Mathematics and Computers in Simulation

The conference was very well organized and favorably proceeded by virtue of the organizing committee. Particularly, the planning of social events was so excellent that we could enjoy very much our stay in the cultural and attractive city Wien throughout the conference. On be half of all participants, the author would like to express his sincere gratitude to the members of the organizing committee for their kind considerations and great efforts.

The next SCAN-symposium are supposed to be held at Karlsruhe, but details are not yet decided at the present.

Mitsuhiro T. Nakao