

# CURRENT SCIENCE

## Special Section on Computational Science

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Guest Editors: V. Sriram and Rudra Prathap

### TUTORIALS

**An introduction to automatic differentiation**, Arun Verma, Cornell University, USA. Email: verma@CS.Cornell.EDU

**An introduction to proper orthogonal decomposition**, Anindya Chatterjee, Pennsylvania State University, USA. Email: anindya@crash.esm.psu.edu

**An introduction to load balancing for parallel raytracing on heterogeneous distributed computing systems**, Kalim Qureshi and Masahiko Hatanaka, Muroran Institute of Technology, Japan. Email: qur@wave.csse.muroran-it.ac.jp

### SURVEYS

**Portable concurrent programming on emerging platforms**, Guy Delamarter, Sandhya Dwarakadas, Adam Frank and Robert Stets, University of Rochester, USA. Email: sandhya@cs.rochester.edu

**Reconfigurable computing: Architectures, models and algorithms**, Kiran Bondalapati and V. K. Prasanna Kumar, University of Southern California, Los Angeles, USA. Email: kiran@halcyon.usc.edu

**Survey of three-dimensional computer graphics architecture**, Tulika Mitra and Tzi-cker Chiueh, State University of New York, Stony Brook, USA. Email: mitra@cs.sunysb.edu

**Supercomputing applications in materials engineering**, G. Phanikumar, K. Chattopadhyay and Pradip Dutta, Indian Institute of Science, Bangalore, India. Email: phani@platinum.metallrg.iisc.ernet.in

### PERSPECTIVES

**Computing goes embedded**, Pradeep K. Dubey, IBM India Research Labs, New Delhi, India. Email: pkdubey@in.ibm.com

### RESEARCH ARTICLES

**Molecular dynamics simulations of modeled angiogenin-monomer complexes**, M. S. Madhusudhan and Saraswathi Vishveshwara, Indian Institute of Science, Bangalore, India. Email: sv@mbu.iisc.ernet.in

**Multiple molecular sequence alignment by island parallel genetic algorithm**, V. Sundararajan, Centre for Development of Advanced Computing, Pune, India. Email: sundar@cdac.ernet.in

**Computer processing of heart rate variability signals for detection of patient states in cardiac care units**, D. Narayana Dutt and S. M. Krishnan, National Technological University, Singapore. Email: EDNDutt@ntu.edu.sg

**Seasonal simulation of the monsoon with the NCMRWF model**, Ravi S. Nanjundiah, Indian Institute of Science, Bangalore, India. Email: ravi@caos.iisc.ernet.in

**Numerical simulation of particulate materials using discrete element modeling**, Thallak G. Sitharam, Indian Institute of Science, Bangalore, India. Email: sitharam@civil.iisc.ernet.in

**A generalized algorithm for modelling phase change problems in materials processing**, Suman Chakraborty and Pradip Dutta, Indian Institute of Science, Bangalore, India. Email: pradip@mecheng.iisc.ernet.in