
Final Call for Papers

SYNASC 2017

19th International Symposium on
Symbolic and Numeric Algorithms for Scientific Computing
September 21-24, 2017, Timisoara, Romania
<http://synasc.ro/2017>

In honor of the anniversaries of
Stefan Maruster (80)
Bruno Buchberger (75)
Tetsuo Ida (70)

Aim

SYNASC aims to stimulate the interaction between the two scientific communities of symbolic and numeric computing and to exhibit interesting applications of the areas both in theory and in practice. The choice of the topic is motivated by the belief of the organizers that the dialogue between the two communities is very necessary for accelerating the progress in making the computer a truly intelligent aid for mathematicians and engineers.

Important Dates

15 June 2017 : Paper submission (firm deadline)
(the papers can be submitted even without a preliminary abstract)
15 July 2017 : Notification of acceptance
01 September 2017 : Registration
01 September 2017 : Revised papers according to the reviews
21-24 September 2017 : Symposium
30 November 2017 : Final papers for post-proceedings

Invited Speakers

* Plenary talks

Armin Biere, Johannes Kepler University, Linz, Austria
Bruno Buchberger, Johannes Kepler University, Linz, Austria
Panagiota Fatourou, University of Crete
Tetsuo Ida, University of Tsukuba, Japan
Gheorghe Paun, Romanian Academy, Romania
Klaus-Dieter Schewe, Software Competence Center Hagenberg, Linz, Austria

* Tutorials

Erika Abraham, RWTH Aachen University, Germany

Tracks

- * Symbolic Computation
 - + computer algebra
 - + symbolic techniques applied to numerics
 - + hybrid symbolic and numeric algorithms
 - + numerics and symbolics for geometry
 - + programming with constraints, narrowing

- * Numerical Computing
 - + iterative approximation of fixed points
 - + solving systems of nonlinear equations
 - + numerical and symbolic algorithms for differential equations
 - + numerical and symbolic algorithms for optimization
 - + parallel algorithms for numerical computing
 - + scientific visualization and image processing

- * Logic and Programming
 - + automatic reasoning
 - + formal system verification
 - + formal verification and synthesis
 - + software quality assessment
 - + static analysis
 - + timing analysis

- * Artificial Intelligence
 - + intelligent systems for scientific computing
 - + recommender and expert systems for scientific computing
 - + scientific knowledge management
 - + agent-based complex systems modeling and development
 - + uncertain reasoning in scientific computing
 - + computational intelligence
 - + soft computing
 - + machine learning
 - + data mining, text mining and web mining
 - + natural language processing
 - + computer vision
 - + intelligent hybrid systems

- * Distributed Computing
 - + parallel and distributed algorithms for clouds, GPUs, HPC, P2P systems, autonomous systems. Work should focus on scheduling, scaling, load balancing, networks, fault-tolerance, gossip algorithms, energy saving
 - + applications for parallel and distributed systems, including work on cross disciplinary (scientific) applications for grids/clouds, web applications, workflow platforms, network measurement tools, programming environments
 - + architectures for parallel and distributed systems,

including self-managing and autonomous systems, negotiation protocols, HPC on clouds, GPU processing, PaaS for (inter)cloud, brokering platforms, mobile computing

+ modelling of parallel and distributed systems including models on resources and networks, semantic representation, negotiation, social networks, trace management, simulators
+ any other topic deemed relevant to the field

* Advances in the Theory of Computing

- + Data Structures and algorithms
- + Combinatorial Optimization
- + Formal languages and Combinatorics on Words
- + Graph-theoretic and Combinatorial methods in Computer Science
- + Algorithmic paradigms, including distributed, online, approximation, probabilistic, game-theoretic algorithms
- + Computational Complexity Theory, including structural complexity, boolean complexity, communication complexity, average-case complexity, derandomization and property testing
- + Logical approaches to complexity, including finite model theory
- + Algorithmic and computational learning theory
- + Aspects of computability theory, including computability in analysis and algorithmic information theory
- + Proof complexity
- + Computational social choice and game theory
- + New computational paradigms: CNN computing, quantum, holographic and other non-standard approaches to Computability
- + Randomized methods, random graphs, threshold phenomena and typical-case complexity
- + Automata theory and other formal models, particularly in relation to formal verification methods such as model checking and runtime verification
- + Applications of theory, including wireless and sensor networks, computational biology and computational economics
- + Experimental algorithmics

This list is not intended to be exhaustive.

Publication

Research papers that are accepted and presented at the symposium will be collected as post-proceedings published by Conference Publishing Service (CPS) (included in IEEE Xplore) and will be submitted for indexing in ISI Web of Science, DBLP, SCOPUS.

Extended versions of the selected papers published in post-proceedings will be considered to be published as special issues in international journals (e.g. Scalable Computing: Practice and Experience, Soft Computing Journal etc.)

Honorary Chairs

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- * Bruno Buchberger, Johannes Kepler University, Austria
 - * Stefan Maruster, West University of Timisoara, Romania

Steering Committee

- * Tetsuo Ida, University of Tsukuba, Japan
- * Tudor Jebelean, Johannes Kepler University, Austria
- * Viorel Negru, West University of Timisoara, Romania
- * Dana Petcu, West University of Timisoara, Romania
- * Stephen Watt, University of Western Ontario, Canada
- * Daniela Zaharie, West University of Timisoara, Romania

General Chairs

- * Viorel Negru, West University of Timisoara, Romania
- * Dana Petcu, West University of Timisoara, Romania

Program Chairs

- * Tudor Jebelean, Johannes Kepler University, Austria
- * Daniela Zaharie, West University of Timisoara, Romania

Track Chairs

- * Symbolic Computation
 - + James Davenport, University of Bath, UK
 - + Stephen Watt, University of Western Ontario, Canada
- * Numerical Computing
 - + Stephen Takacs, Johannes Kepler University Linz, Austria
 - + Eva Kaslik, West University of Timisoara, Romania
- * Logic and Programming
 - + Nikolaj Bjorner, Microsoft Research, USA
 - + Laura Kovacs, Chalmers University of Technology, Sweden
- * Artificial Intelligence
 - + Andrei Petrovski, Robert Gordon University, UK
 - + Daniela Zaharie, West University of Timisoara, Romania
- * Distributed Computing
 - + Marc Frincu, West University of Timisoara, Romania
 - + Karoly Bosa, Johannes Kepler University Linz, Austria
- * Advances in the Theory of Computing
 - + Mircea Marin, West University of Timisoara, Romania
 - + Gabriel Istrate, Institute e-Austria Timisoara, Romania

Special sessions and workshops chair

- * Daniel Pop, West University of Timisoara, Romania

Tutorial chair

- * Florin Fortis, West University of Timisoara, Romania

Proceedings Chairs

- * Tudor Jebelean, Johannes Kepler University, Austria
- * Daniela Zaharie, West University of Timisoara, Romania

Local Committee Chairs

- * Isabela Dramnesc, West University of Timisoara, Romania
- * Silviu Panica, Institute e-Austria Timisoara, Romania
- * Monica Tirea, West University of Timisoara, Romania
- * Mihail Gaianu, West University of Timisoara, Romania

Submission

Submissions of research papers are invited. The papers must contain original research results not submitted and not published elsewhere.

There are four categories of submissions:

- * Regular papers describing fully completed research results (up to 8 pages in the two-columns paper style).
- * System descriptions and experimental papers describing implementation results of experimental data, with a link to the reported results (up to 4 pages in the two-columns paper style).
- * Short papers, describing work in progress and/or preliminary results (up to 4 pages in the two-columns paper style).
- * Posters, describing ongoing work and research challenges of PhD students (up to 2 pages in the two-columns paper style).

Both the abstract and the full paper should be submitted electronically through <http://www.easychair.org/conferences/?conf=synasc2017>.

Workshops

- * Agents for Complex Systems (ACSys)
- * Data Representation for Learning, Living-systems and Signals (DRILLS)
- * Days of Computer Science (DACS)
- * Digital Image Processing for Medical and Automotive Industry (DIPMAI)
- * Geoinformatics (GeoInfo)

- * HPC for Science and Technology (HPC-ST)
- * Iterative Approximation of Fixed Points (IAFP)
- * Natural Computing and Applications (NCA)

The papers for the above workshops should be submitted through
<https://easychair.org/conferences/?conf=synasc2017workshops>

All papers accepted at workshops will be included in the local electronic proceedings and the best presented papers will be included in the post proceedings published by Conference Publishing Services.

SYNASC 2017
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