



Foreword

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This special issue consists of a selection of extended versions of talks presented at the 6th edition of the European Seminar on COmputing (ESCO) Conference.

ESCO is a series of conferences that promotes modern technologies and practices in scientific computing and visualization.

The first ESCO Conference was held in Jetrichovice, Czechia in 2008. Since then, this biannual conference has been held in Pilsen, also in Czechia, in even years.

This 6th edition of ESCO was held on June 3–8, 2018. There were 169 participants from 25 countries all over the world. Five keynote lectures and 160 talks and posters were presented during the conference.

The main topics of the conference included the following areas:

- Computational electromagnetics and coupled problems,
- Fluid-structure interaction and multi-phase flows,
- Computational chemistry and quantum physics,
- Computational civil and structural engineering,
- Computational biology and bioinformatics,
- Computational geometry and topology,
- Mathematics Education and Outreach,
- Petascale and exascale computing,
- Hydrology and porous media flows,
- Wave propagation and acoustics,
- Climate and weather modeling,
- GPU and cloud computing,
- Uncertainty quantification,
- Computational Statistics,

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- Open source software.

The persons in the Organizing Committee were:

- Pavel Solin (conference chair)
- Javier Morales Castillo (Universidad Autonoma de Nuevo Leon, Mexico), co-chair
- Vít Dolejší (Charles University, Prague, Czechia), co-chair
- José Luis Galán García (Universidad de Málaga, Spain), co-chair
- Stefano Giani (University of Durham, UK), co-chair
- Alberto Matteo Attilio Guardone (Politecnico di Milano, Italy), co-chair
- Pavel Karban (University of West Bohemia, Pilsen, Czechia), co-chair
- Jaroslav Kruis (Faculty of Civil Engineering, CTU Prague, Czechia), co-chair
- Petr Lukáš (Charles University, Prague, Czechia), co-chair
- Philipp Neumann (Technical University of Munich, Garching, Germany), co-chair
- David Pánek (University of West Bohemia, Pilsen, Czechia), co-chair
- Eugenio Roanes-Lozano (Universidad Complutense de Madrid, Spain), co-chair
- Sascha Schnepf (ETH Zurich, Switzerland), co-chair

The Scientific Committee consisted of:

- Valmor de Almeida (Oak Ridge National Laboratory, Oak Ridge, USA)
- Zdenek Bittnar (Faculty of Civil Engineering, CTU Prague)
- Alain Bossavit (Laboratoire de Genie Electrique de Paris, France)
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- Sascha Schnepf (ETH Zurich, Switzerland)
- Irina Tezaur (Sandia National Laboratories, USA)
- Stefan Turek (Technical University of Dortmund, Germany)

15 proposals were submitted for this special issue in *Mathematics in Computer Science* (MCS) and, after the peer review process, 9 papers were finally accepted. These 9 papers represent a very good sample of the topics of ESCO 2018. We list below the title and authors of these 9 papers of this issue:

1. Multi-channel Queueing Networks with Input Flow Controlled by semi-Markov Process by Eugene Lebedev and Hanna Livinska.
2. Half-Explicit Exponential Runge–Kutta Methods for Index-1 DAEs in Helicopter Simulation by Elena Kohlwey and Melven Röhrig-Zöllner.
3. TiGL—An Open Source Computational Geometry Library for Parametric Aircraft Design by Martin Siggel, Jan Kleinert, Tobias Stollenwerk and Reinhold Maierl.

4. Application of an Intelligent Control on Economics Dynamic System: The Attractive Invariant Ellipsoid approach by R. Juárez-del-Toro, J.G. Castrejón-Lozano, C.A. Gómez-Rosales and S. López-Chavarría.
5. Calculation of binomial and multinomial coefficients by sequences of summations by José Alfredo Sánchez de León.
6. Some reflections about the success and impact of the computer algebra system DERIVE with a 10-year time perspective by Eugenio Roanes-Lozano, José Luis Galán-García and Carmen Solano-Macías.
7. On Convex Functions with Complex Order Through Bounded Boundary Rotation by S. Melike Aydoğan and F. Müge Sakar.
8. Bounds on Initial Coefficients for a Certain New Subclass of Bi-univalent Functions by Means of Faber Polynomial Expansions by F. Müge Sakar and S. Melike Aydoğan.
9. An Algebraic Approach to DC Railway Electrification Verification by Eugenio Roanes-Lozano, Rubén González-Martín and Javier Montero.

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