Preface

Vladimir Sobolev[1], Dmitry Savelyev[1]

[1]*Samara National Research University, 34 Moskovskoe Shosse, 443086, Samara, Russia*

The International Workshop "Mathematical Modeling" was organized and hosted by the Samara University and IPSI RAS – affiliate of the FSRC "Crystallography and Photonics" in the framework of the III International Conference and Youth School "Information Technology and Nanotechnology (ITNT-2017)" in the faculty of Information Technology at the Samara University, Samara, Russia on 25-27 April 2017 (http://ru.itnt-conf.org/itnt17ru/).

The work of this workshop is reported in this volume. The focus was on information technology and mathematical modeling across the sciences, a recurring theme of past three workshops reinvigorated recently by new collaborations of engineers and mathematicians. Participants repeatedly remarked on useful interactions with scientists from different disciplines. The Symposium was attended by experts working across a wide range of mathematical modeling fields from different countries, including Great Britain and USA, and provided a useful forum for them to share and exchange their work and ideas.

The goal of the ITNT-2017 Conference was to discuss problems of fundamental and applied research in information technology and nanotechnology, including but not limited to:

− Computer Optics;
− Diffractive Nanophotonics;
− Image Processing;
– High-performance Computing;
− Computer Vision;
− Mathematical Modeling;
− Data Science.

Scientists from Austria, Belarus, Bulgaria, Denmark, Germany, Great Britain, India, Iraq, Mexico, Moldova, Russia, Spain, USA, and Finland presented over 330 reports at the ITNT-2017 Conference.

These Proceedings contain both invited papers and contributed presentations, part of which was included to the special issue of the Procedia Engineering (Elsevier BV). As usual, topics ranged from theoretical foundation of mathematical modeling to applicably inspired problems and purely methodological advances. We hope that readers will benefit from specialized results as well as profit from exposure to new algorithms, methods of analysis, and conceptual developments.

Guest Editors

- Sergei Sazhin, University of Brighton, UK;
- Elena Shchepakina, Samara National Research University, Samara, Russia;
- Vladimir Sobolev, Samara National Research University, Samara, Russia;
- Denis Kudryashov, Samara National Research University, Samara, Russia.

Conference Organizers

- Samara National Research University
- Image Processing Systems Institute of RAS – Branch of the FSRC "Crystallography and Photonics" RAS
- Government of Samara Region
- Computer Technologies

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- Evgeniy Shakhmatov, Samara National Research University, Russia

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- Eduard Kolomiets, Samara National Research University, Russia
- Alexander Kupriyanov, Samara National Research University, Russia

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