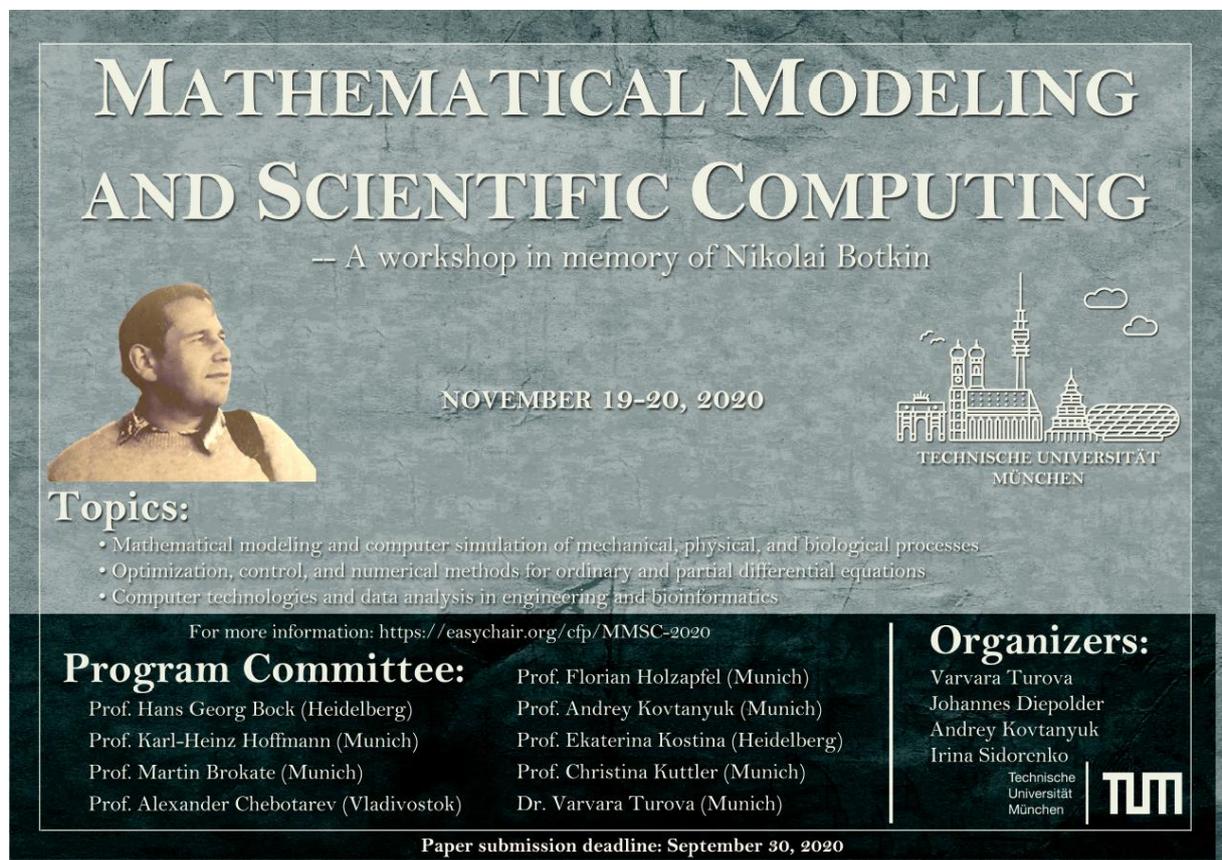


**International Workshop**  
**Mathematical Modeling and Scientific Computing:**  
**Focus on complex processes and systems**  
**(dedicated to the memory of Nikolai Botkin)**

**Munich, November 19-20, 2020**



**MATHEMATICAL MODELING  
AND SCIENTIFIC COMPUTING**  
— A workshop in memory of Nikolai Botkin

NOVEMBER 19-20, 2020

TECHNISCHE UNIVERSITÄT  
MÜNCHEN

**Topics:**

- Mathematical modeling and computer simulation of mechanical, physical, and biological processes
- Optimization, control, and numerical methods for ordinary and partial differential equations
- Computer technologies and data analysis in engineering and bioinformatics

For more information: <https://easychair.org/cfp/MMSC-2020>

**Program Committee:**

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**Paper submission deadline: September 30, 2020**

This proceedings volume contains papers presented at the International Workshop “Mathematical Modeling and Scientific Computing: Focus on complex processes and systems”, MMSC 2020, dedicated to the memory of Nikolai Botkin (22.03.1956–14.09.2019), who made a significant contribution to the creation and mathematical analysis of models, the development of numerical methods and algorithms for optimal control of ordinary and distributed systems, elasticity theory, hydrodynamics, thermodynamics, and homogenization theory.

The creation of adequate mathematical models is an integral part of the study of complex natural phenomena in mechanics, physics, biology, and medicine. Correct mathematical models form the necessary basis for the development of computational methods and algorithms. This allows for computer simulations seeking to identify and explain important patterns that are not always amenable to study using physical experiments. The workshop topics covered mathematical and computer modeling for a wide range of problems of optimization, optimal control theory, thermodynamics, biology, medicine, and aerospace. Recent achievements in the study of heat transfer problems, simulation of cerebral blood circulation, as well as new results in the framework of the DFG project (TU427/2-2 & HO4190/8-2) related to the development of highly efficient computational methods for aircraft control problems with disturbances were presented and discussed.

The Workshop MMSC 2020 was approved by the German Research Society (DFG – Deutsche Forschungsgemeinschaft), Grant TU427/3, and set to take place on November 19–20, 2020 at the Technical University of Munich, Germany. Due to the COVID-19 outbreak, it was held virtually on November 19–20, 2020.

31 invited talks of 48 authors from 8 countries were delivered. 18 papers (15 regular papers and 3 short papers) were accepted for open-access publication. All of them were reviewed in the peer-review process using EasyChair conference system, and, on average, by two Program Committee members.

The editors would like to thank the participants, the reviewers, the members of the Program Committee, and the organizers for actively contributing to the success of MMSC 2020.

December 14, 2020

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