

Mesh Methods for Boundary-Value Problems and Applications - 2020

Kazan Federal University, Keldysh Institute of Applied Mathematics, Lomonosov Moscow State University conduct **the 13-th International Conference 'Mesh Methods for Boundary-Value Problems and Applications'**.

The conference will take place from October 20 till October 25, 2020 in the suburb of Kazan. The participants of the conference will be provided with good conditions for productive work and leisure. **The registration fee will be 2000** rubles

In case of deterioration of the epidemiological situation, the conference will be held online.

Conference Organizers

Organizing Committee

I.B. Badriev, Kazan Federal University (Kazan) – co-chairman
B.N. Chetverushkin, Keldysh Institute of Applied Mathematics, Russian Academy of Sciences, (Moscow) – co-chairman
M.M. Karchevskii, Kazan Federal University (Kazan) – deputy chairman
V.V. Banderov, Kazan Federal University (Kazan) – academic secretary
L.U. Sultanov, Kazan Federal University (Kazan)
F.M. Ablav, Kazan Federal University (Kazan)
V.B. Andreev, Lomonosov Moscow State University (Moscow)
Zhou Weixing, Harbin Institute of Technology (China)
V.S. Zheltukhin, Kazan National Research Technological University (Kazan)
G.M. Kobelkov, Lomonosov Moscow State University (Moscow)
A.N. Konovalov, Institute of Computational Mathematics and Mathematical Geophysics, Siberian Branch of the Russian Academy of Sciences (Novosibirsk)
S.P. Kopysov, Institute of Applied Mechanics, Ural Branch of the Russian Academy of Sciences (Izhevsk)
V.G. Korneev, St. Petersburg State Technological Institute (St. Petersburg)
E. Laitinen, University of Oulu (Finland)
U. Langer, Institute of Computational Mathematics (Austria)
S.A. Lapin, Washington State University (Pullman, USA)
R.H. Latypov, Kazan Federal University (Kazan)
S. Louhenkilpi, University of Oulu (Finland)
D.K. Nurgaliev, Kazan Federal University (Kazan)
V.N. Paimushin, Tupolev Kazan National Research Technical University (Kazan)
M.Kh. Salakhov, President of Tatarstan Academy of Sciences (Kazan)
T.A. Sushkevich, Keldysh Institute of Applied Mathematics, Russian Academy of Sciences (Moscow)
V.F. Tishkin, Keldysh Institute of Applied Mathematics, Russian Academy of Sciences (Moscow)
R. Ciegis, Vilnius Gediminas Technical University (Vilnius, Lithuania)

G.I. Shishkin, Institute of Mathematics and Mechanics, Ural Branch of the Russian Academy of Sciences (Ekaterinburg)

M.N. Shneider, Princeton University (USA)

Program Committee

A.V. Lapin, Kazan Federal University (Kazan) - Chairman,

S.G. Mosin, Kazan Federal University (Kazan) - deputy chairman,

R.Z. Dautov, Kazan Federal University, (Kazan)

K.M. Zingerman, Tver State University (Tver)

A.I. Zadorin, Omsk Branch of Sobolev Institute of Mathematics, Siberian Branch of the Russian Academy of Sciences (Omsk)

O.A. Zadvornov, Kazan Federal University (Kazan)

I.V. Konnov, Kazan Federal University (Kazan)

Yu.G. Konoplev, Kazan Federal University (Kazan)

A.V. Kosterin, Kazan Federal University (Kazan)

Yu.A. Lebedev, A.V. Topchiev Institute of Petrochemical Synthesis, Russian Academy of Sciences (Moscow)

S.I. Martynenko, Central Institute of Aviation Motors, State Scientific Center of Russian Federation (Moscow)

M.F. Pavlova, Kazan Federal University (Kazan)

I.B. Petrov, Moscow Institute of Physics and Technology (State University), Dolgoprudny (Moscow region)

S.I. Soloviev, Kazan Federal University (Kazan)

L.E. Tonkov, Institute of Mechanics, Ural Branch of the Russian Academy of Sciences (Izhevsk)

D.T. Chekmarev, N.I. Lobachevski State University of Nizhni Novgorod (Nizhny Novgorod)

A.A. Shanenin, Moscow Institute of Physics and Technology (State University), Dolgoprudny (Moscow region)

Technical Committee

V.L. Gnedenkova, Kazan Federal University (Kazan)

V.M. Gostev, Kazan Federal University (Kazan)

M.V. Makarov, Kazan Federal University (Kazan)

V.Yu. Chebakova, Kazan Federal University (Kazan)

Scientific Agenda

1. Theory of mesh methods for boundary-value problems of mathematical physics

Methods for constructing and studying mesh schemes for problems with non-smooth solutions; mesh methods of domain decomposition; mixed finite element methods, mesh methods for solving nonlinear degenerate elliptic and parabolic equations; mesh methods for solving nonlinear spectral problems; multigrid methods.

2. Mathematical models of mechanics and physics

Methods for studying equations and inequalities arising in the nonlinear theory of liquid and gas filtration, the nonlinear theory of thin elastic shells, the theory of biological membranes, plasma physics, and hydrodynamic lubrication theory; methods for constructing self-similar solutions; numerical methods; methods for solving inverse problems.

3. Methods for solving variational inequalities

Construction of mesh approximations of stationary and evolutionary variational inequalities; accuracy estimation; construction and study of efficient iterative methods; techniques for improved approximation of a free boundary; domain decomposition methods for variational inequalities.

4. Numerical methods in plasma physics

Numerical models and methods in low-temperature plasma physics: kinetic, hydrodynamic, and hybrid models. Models of interaction between plasma and surfaces: plasma spraying, activation, plasma etching.

5. Numerical methods in filtration theory

Numerical methods for solving seepage problems in porous media. Numerical solution of filtration consolidation problems. Numerical methods of multi-phase filtration. Numerical simulation of enhanced oil recovery processes. Numerical methods for solving problems of rational and environmentally friendly mining. Numerical simulation of filtration processes of heavy oils.

6. Computer simulation and training systems

Information and communication technologies; computational experiment; numerical modeling of technological processes using modern supercomputers; principles of training systems; simulation of random processes.

7. Numerical simulation of dynamic processes in multiphase media

Development of models and methods for calculating dynamic processes in multiphase environments and their applications. Development of models and methods for calculating the dynamics of single gas-vapor bubbles, bubble dynamics in clusters and their applications. Development of models and methods for calculating the pulsed effect of cavitation on the surface of solids and their application.

Request for participation

CONFERENCE APPLICATION

The application for participation should include: first name, last name, address, date of birth, e-mail address, academic status, academic degree, work place, position, report title and abstract (1-2 pages). Please type “**sem_MeshMethods**” in the subject field of the e-mail. The acknowledgement emails will be sent to the authors by September 15, 2020.

Application deadline is September 1, 2020.

Materials in Russian up to 5 pages should be submitted by November 1, 2020 and are accepted only in electronic form (LaTeX-file, style article, open, download).

Selected by the program committee materials will be published in the journal *Lecture Notes in Computational Science and Engineering* (Web of Science, Scopus).

1. Official language for *Lecture Notes in Computational Science and Engineering* is English in paper writing.

2. All submitted articles should report original, previously unpublished research results, experimental or theoretical. Articles submitted to the Conference should meet these criteria and must not be under consideration for publication elsewhere. Manuscripts should follow the style of the Conference.

3. All submissions will be peer-reviewed based on originality, technical quality and presentation.

4. General paper page is from 10 to 15 pages. Also it should need to be minimum 9 pages. The paper lesser than 9 pages cannot be accepted

5. Papers will be reviewed by Experts Team in 3-4 weeks.

7. We will announce the reviewing results in first time. Authors will be asked to revise their manuscripts and resubmit.

Articles are not coming up in the journal theme *Lecture Notes in Computational Science and Engineering* and in Russian will be published in the Conference proceedings and indexed in RISC

Important dates

Submission of registration forms and abstracts before September 1, 2020 indicating the requests for publishing in English-language journal.

Notification of acceptance - September 10, 2020.

Submission of full text articles until October 1, 2020.

Notification of acceptance of articles - October 15, 2020.

Payment - up to August October 25, 2020.

Contact Information

ADDRESSES FOR APPLICATIONS AND MATERIALS

420008 Kazan, Kremlyovskaya St., 18, Kazan Federal University, Institute of Computational Mathematics and Information Technologies. For the attention of Badriev Ildar Burkhanovich.

E-Mail: sem_meshmethods@mail.ru

TELEPHONES OF ORGANIZING COMMITTEE

Badriev Ildar Burkhanovich:

Work phone: + 7(843) 233-71-67

Home phone: +7 (843) 298-11-72

Mobile phone: +7 917 8614065