

XXII International Conference
on Computational Mechanics
and Modern Applied Software
Systems

CMMASS 2021



September 4-13, 2021

Preface

This issue comprises selected works presented on the 22nd International Conference on Computational Mechanics and Modern Applied Software Systems (CMMASS 2021) held from 4 September to 13 September 2021 in Alushta (The Republic of Crimea). The Conference was hosted by Moscow Aviation Institute (national research university) in cooperation with the Laboratory «Space flight mechanics» of the Moscow Aviation Institute, the Russian Academy of Sciences, the Ministry of Science and Higher Education of the Russian Federation, the Russian National Committee on Theoretical and Applied Mechanics.

The objective of the Conference is to raise and discuss up-to-date questions relating to computational mechanics problems, modern software systems, parallel computing problems, far-reaching numerical approaches and various aspects of application of computational tools to solve problems in mechanics of a deformable solid, fluid dynamics, aerospace mechanics, nanomechanics and other fields. Also during the Conference the problems of software and database support with analysis of instruments for data processing and data visualization and new achievements from researches are considered.

The Conference became a workspace for participants from Russia, the People's Republic of China, Japan, Australia, India, Poland, Serbia, France, Italy, Armenia, Republic of Kazakhstan.

Conference Committee:

Co-Chairs:

Prof. Dr. Irina G. Goryacheva (Academician of RAS)
Prof. Dr. Vladimir A. Levin (Academician of RAS)
Prof. Dr. Vladimir F. Tishkin (Corresponding member of RAS)
Prof. Dr. Iliia S. Nikitin (Institute of Computer Aided Design RAS)

Deputy Chairman:

Prof. Dr. Sergey S. Krylov (Moscow Aviation Institute, Moscow, Russia)

Program Committee:

Prof. Ara S. Avetisyan (Institute of Mechanics of AAS, Yerevan, Armenia),
Prof. Gevorg E. Bagdasaryan (Russian-Armenian University, Yerevan, Armenia),
Prof. Valentina Balas (Aurel Vlaicu University of Arad, Romania),
Prof. Boris V. Boshenyatov (Institute of Applied Mechanics of RAS, Moscow, Russia),
Prof. Maria B. Bulakina (Moscow Aviation Institute, Lomonosov Moscow State University, Moscow, Russia),
Prof. Irma A. Vardanyan (The National Academy of Sciences of the Republic of Armenia, Yerevan, Armenia),

Prof. Alexander N. Vasiliev (Peter the Great St. Petersburg Polytechnic University, Saint Petersburg, Russia),
Prof. Wang Ruoyu (Beihang University, Beijing, China),
Prof. Vladimir Yu. Gidaspov (Moscow Aviation Institute, Moscow, Russia),
Prof. Decheng Wan (Shanghai Jiao Tong University, Shanghai, China),
Prof. Yuriy I. Dimitrienko (Bauman Moscow State Technical University, Moscow, Russia),
Prof. Anna Esposito (Universita della Campania «Luigi Vanvitelli», Italy),
Prof. Igor E. Ivanov (Moscow Aviation Institute, Lomonosov Moscow State University, Moscow, Russia),
Prof. Valeriy O. Kaledin (Novokuznetsk Branch Kemerovo State University, Novokuznetsk, Russia),
Prof. Sergey S. Krylov (Moscow Aviation Institute, Moscow, Russia),
Prof. Evgenii B. Kuznetsov (Moscow Aviation Institute, Moscow, Russia),
Prof. Li Mingzhi (Beihang University, Beijing, China),
Prof. Vladimir N. Lukin (Moscow Aviation Institute, Moscow, Russia),
Prof. Andrzej Maciejewski (University of Zielona Gora, Zielona Gora, Poland),
Prof. Mayuri Mehta (Sarvajanik College of Engineering and Technology, India),
Prof. Josue Melguzo–Gavilanes (National Center for Scientific Research of France, Paris, France),
Prof. Nenad Mladenovic (SANU, Belgrade, Serbia),
Prof. Janmenjoy Nayak (Aditya Institute of Technology and Management, India),
Prof. Afanasiy V. Ostriuk (Institute of Problems of Chemical Physics of RAS, Chernogolovka, Russia),
Dr. Mrutyunjaya Panda (Utkal University, India),
Prof. Yuriy N. Panov (Moscow Aviation Institute, Moscow, Russia),
Prof. Prasant Kumar Pattnaik (Kalinga Institute Of Industrial Technology, India),
Prof. Bernhard Peters (University of Luxembourg, Luxembourg, Germany),
Prof. Maria Przybylska (University of Zielona Gora, Zielona Gora, Poland),
Prof. Vijayalakshmi Ramasamy (University of Wisconsin, USA),
Prof. Dmitriy L. Reviznikov (Moscow Aviation Institute, Moscow, Russia),
Prof. Mika Sato-Ilic (University of Tsukuba, Japan),
Prof. Natal'ya S. Severina (Moscow Aviation Institute, Moscow, Russia),
Prof. Ordabay Z. Sembiyev (M. Auezov South Kazakhstan State University, Shymkent, Republic of Kazakhstan),
Dr. Milan Simic (RMIT University, School of Engineering, Melbourne, Australia),
Prof. Dmitriy Yu. Strelets (Moscow Aviation Institute, Moscow, Russia),
Prof. Sergey V. Strijhak (ISP RAS, Moscow, Russia),
Prof. Dmitriy A. Tarkhov (Peter the Great St. Petersburg Polytechnic University, Saint Petersburg, Russia),
Prof. Niu Han (Beihang University, Beijing, China),
Prof. Yuan Yuan (Shanghai Jiao Tong University, Shanghai, China)

Editor-in-Chief:

Dr. Natalia Severina, Moscow Aviation Institute, Russia

E-mail: severina@mai.ru

Guest Editor:

Dr. Marine Mikilyan, Institute of Mechanics, National Academy of Sciences
of Armenia, Armenia

E-mail: marine.mimkilyan@rau.am