

1. Record Nr.	UNINA9910743363503321
Titolo	Advances in Theory and Practice of Computational Mechanics : Proceedings of the 22nd International Conference on Computational Mechanics and Modern Applied Software Systems (CMMASS 2021) // edited by Margarita N. Favorskaya, Ilia S. Nikitin, Natalia S. Severina
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2022
ISBN	981-16-8925-3 981-16-8926-1
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (414 pages)
Collana	Smart Innovation, Systems and Technologies, , 2190-3026 ; ; 274
Disciplina	016.403
Soggetti	Computational intelligence Mechanics, Applied Continuum mechanics Software engineering Computational Intelligence Engineering Mechanics Continuum Mechanics Software Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1. Advances in Computational Study of Dynamic Systems -- Part I: COMPUTATIONAL FLUID DYNAMICS -- Chapter 2. Mathematical Modeling of the Problem of Magneto-aero-elastic Stability of Rectangular Plate -- Chapter 3. Calculation of Heat Transfer at the Front of an Aircraft during Hypersonic Flight -- Chapter 4. Some Features of DG Method Application for Solving Gas Dynamics Problems -- Chapter 5. Using the CFD Code hySol to Calculate High-speed Flows -- Chapter 6. Mathematical Modeling of Spots Chain Dynamics in Fluid -- Chapter 7. Simulation of Flows near Wings with Supersonic Edges -- Chapter 8. 3-D Quasi-Conformal Mappings and Generalization of Axisymmetric Case -- Chapter 9. Direct Numerical Simulation of Two- dimensional Turbulence and Investigation of the Boundary Conditions Influence on the Energy Cascade Formation -- Chapter 10. Numerical

Modeling of Non-Stationary Flow Near Lateral Surface of the Descent Module in Martian Atmosphere for Wide Range of Attack Angles -- Part II: NUMERICAL SIMULATION OF PHYSICAL AND CHEMICAL PROCESSES IN GASES AND LIQUIDS -- Chapter 11. Probe Diagnostics of Rarefied Plasma Flows from Magnetoplasmodynamic Engines -- Chapter 12. Numerical Simulation of Combustion Wave Propagation in a Black Powder Charge using a Two-Fluid Model -- Chapter 13. Unconventional Trajectories of Meteoroids in the Earth's Atmosphere -- Chapter 14. Mathematical Modeling of Dynamic and Optical Effects in Ionospheric Experiments Using an Explosive Chemical Generator -- Chapter 15. Numerical Study of the Perturbed Region Produced by a Heating Facility in the Lower Ionosphere.

---

Sommario/riassunto

This book is a collection of peer-reviewed best selected research papers presented at 22nd International Conference on Computational Mechanics and Modern Applied Software Systems (CMMASS 2021), held at the Alushta Health and Educational Center, The Republic of Crimea, during 4–13 September 2021. The proceedings is dedicated to solving the real-world problems of applied mechanics using smart computational technology. Physical and mathematical models, numerical methods, computational algorithms and software complexes are discussed, which allow to carry out high-precision mathematical modelling in fluid, gas and plasma mechanics, in general mechanics, deformable solid mechanics, in strength, destruction and safety of structures, etc. Smart technologies and software systems that provide effective solutions to the problems at various multi scale-levels are considered. Special attention is paid to the training of highly qualified specialists for the aviation and space industry. .

---