

Section 1 HIGH-INTENSITY PROCESSES AND TURBULENCE, SPACE PROTECTION OF THE EARTH

MAY 20, TUESDAY

Morning session

Hall 2

Co-chairs: Alexander K. Muzyrya,
Vladimir N. Nogin

Presentations

- 1-29 9⁰⁰ **CURRENT HIGH ENERGY DENSITY PHYSICS ISSUES IN SCIENCE AND TECHNOLOGIES**
Vadim A. Simonenko, N. G. Karlykhanov, D. G. Modestov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 1-3 9²⁵ **COMPARATIVE STUDY OF BLAST LOADING ON SOLID AND POROUS STRUCTURES**
 J. R. Li¹, K. Xue², B. L. Tian³, M. Z. Xiang¹, L. L. Miao², J. Chen^{1, 4}
¹National Key Laboratory of Computational Physics, Institute of Applied Physics and Computational Mathematics, Beijing, China
²State Key Laboratory of Explosive Science and Technology, Beijing Institute of Technology, Beijing, China
³School of Aeronautic Science and Engineering, Beihang University, Beijing, China
⁴HEDPS, Center for Applied Physics and Technology, and College of Engineering, Peking University, Beijing, China
- 1-2 9⁵⁵ **A MULTI-COMPONENT HYDRODYNAMIC PLASMA MODEL FOR RESOLVING MESOSCOPIC DISEQUILIBRIA**
 Zhang Chao
Institute of Applied Physics and Computational Mathematics, Beijing, China
- 1-1 10²⁵ **SMOOTHED PARTICLE HYDRODYNAMICS STUDY ON EJECTA BREAKUP AND SIZE DISTRIBUTIONS**
 Bao Wu, XinXin Wang, Jian-Zhen Qian, Qiang Bao, HaoNan Sui, Pei Wang
Laboratory of Computational Physics, Institute of Applied Physics and Computational Mathematics, Beijing, China
- 10⁴⁵ *Coffee-break*
- 1-5 11¹⁵ **PHYSICAL NATURE OF THE LONG-RANGE ACTION OF I. NEWTON'S LAW OF UNIVERSAL GRAVITATION; EXPERIMENTS OF S. E. SHNOL AND A. N. KOZYREV; EXPLANATION OF RED SHIFTS IN HUBBLE'S LAW AND OF COSMIC MICROWAVE BACKGROUND**
 Azary A. Barenbaum
Oil and Gas Research Institute RAS (OGRI RAS), Moscow, Russia
- 1-4 11³⁵ **ON THE NUCLEAR CHAIN REACTIONS IN THE EARTH'S OUTER LIQUID CORE**
Vladimir F. Anisichkin
Lavrentyev Institute of Hydrodynamics of the Siberian Branch of the RAS, Novosibirsk, Russia

- 1-22 11⁵⁵ **INVESTIGATION OF INTERACTION OF SPACECRAFT MATERIALS WITH HIGH-VELOCITY SPACE DUST STREAMS**
 Yuliya S. Usherenko¹, A. I. Belous², A. N. Petlitskii³, S. A. Lenkevich¹
¹Belarusian National Technical University, Minsk, Belarus
²National Academy of Sciences of Belarus, Department of Physics, Mathematics and Computer Science, Minsk, Belarus
³JSC “INTEGRAL” – “INTEGRAL” Holding Managing Company, Minsk, Belarus
- 1-17 12¹⁵ **EVALUATION OF THE PROTECTIVE PROPERTIES EFFICIENCY OF MONOLITHIC AND SPACED PROTECTIVE SCREENS OF SPACECRAFT**
Pavel A. Radchenko, A. V. Radchenko, S. P. Batuev, A. V. Kanutkin
Institute of Strength Physics and Materials Science SB RAS, Tomsk, Russia
- 1-10 12³⁵ **EVOLUTION OF PARTICLE FLOW FORMED AS A RESULT OF SHOCK LOADING OF METALS IN GAS MEDIUM**
Tatyana V. Karsanova^{1,2,3}, M. V. Antipov^{1,2}, A. B. Georgievskaya^{1,2}, D. A. Polshkov^{1,2}, D. S. Ponomorenko¹, A. V. Fedoseev^{1,2}
¹FGUP «RFNC – VNIIEF», Sarov, Russia
²Nizhny Novgorod State Technical University, Nizhny Novgorod, Russia
³Moscow State University, Moscow, Russia
- 13⁰⁰ *Lunch*

Afternoon session

Co-chairs: Alexander K. Muzyrya,
Vladimir N. Nogin

- 1-23 14³⁰ **STREAMS OF JETS UNDER IMPACT ACTION ON PLATES OF STRUCTURAL MATERIALS FORMING A STEPPED JOINT**
Vyacheslav P. Khalemenchuk¹, K. A. Ten¹, E. R. Prueel¹, A. O. Kashkarov¹, A. M. Asylkaev^{1,5}, A. S. Tumanik^{1,5}, I. A. Rubtsov^{1,2}, L. I. Shechtman³, A. A. Glushak³, B. P. Tolochko⁴
¹Lavrentyev Institute of Hydrodynamics of SB RAS, Novosibirsk, Russia
²Center for Collective Use “Siberian Ring Photon Source”, Koltsovo, Russia
³Budkera Institute of Nuclear Physics SB RAS, Novosibirsk, Russia
⁴Institute of Solid-State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
⁵Novosibirsk State University, Novosibirsk, Russia
- 1-6 14⁵⁰ **LARGE-SCALE DISTURBANCES OF NEAR-EARTH PLASMA WHEN REACHING PROMISING POWER LEVELS OF THE SURA HEATING FACILITY**
Alexey S. Belov
FSUE «RFNC – VNIIEF», Nizhny Novgorod, Russia
- 1-19 15¹⁰ **SINGLE-STAGE PNEUMATIC INSTALLATION FOR ACCELERATION OF MACROBODIES**
 Alexey D. Sidorov, A. N. Ishchenko, Yu. F. Khristenko, O. V. Ushakova, E. V. Zhalnin, K. S. Startsev
Tomsk State University, Tomsk, Russia

- 1-15 15³⁰ **RESULTS OF EXPERIMENTAL STUDIES OF THE SHOCK WAVE INTERACTION WITH TURBULENT MIXING ZONE IN GASES**



Nikolay V. Nevmerzhitskiy, E. D. Senkovskiy, E. A. Sotskov, D. O. Kochetkov,
E. V. Bodrov, E. V. Levkina, M. V. Antipov, K. V. Anisiforov,
V. V. Ashikhmin, I. R. Farin

FSUE «RFNC – VNIIEF», Sarov, Russia

16⁰⁰ *Coffee-break*

Co-chairs: Igor V. Glazyrin,
Nikita A. Mikhailov

- 1-26 16³⁰ **INVESTIGATION OF THE FEATURES OF EXPLOSIVE FRAGMENTATION OF LIQUID METAL DROPLETS FALLING INTO COLD WATER**



Stepan M. Yudin^{1, 2}, Y. P. Ivochkin¹, O. A. Sinkevich^{1, 2}

¹Joint Institute of High Temperature RAS, Moscow, Russia

²Nation Research Institute “Moscow Power Engineering Institute”, Moscow, Russia

- 1-27 16⁵⁰ **EFFECT OF THE COMPUTATIONAL GRID ON THE RESULTS OF DIRECT NUMERICAL SIMULATION OF TURBULENT MIXING FOR THE RAYLEIGH-TAYLOR INSTABILITY**



Yury V. Yanilkin, I. E. Cherednichenko, O. G. Sinkova

FSUE “RFNC – VNIIEF”, Sarov, Russia

- 1-28 17¹⁰ **NUMERICAL SIMULATION OF SHOCK WAVE INTERACTION WITH TURBULIZED MEDIUM**



Yury V. Yanilkin, V. P. Statsenko, I. E. Cherednichenko,
Yu. V. Tretyachenko, O. G. Sinkova

FSUE “RFNC – VNIIEF”, Sarov, Russia

- 1-18 17³⁵ **THE SYSTEM OF ASYMPTOTICALLY PRECISE EQUATIONS FOR DESCRIBING TURBULENT GAS DYNAMICS WITH RADIATION**



Sergey A. Serov

FSUE “RFNC – VNIIEF”, Sarov, Russia

Section 1 HIGH-INTENSITY PROCESSES AND TURBULENCE, SPACE PROTECTION OF THE EARTH

MAY 21, WEDNESDAY

Morning session

Hall 3

Co-chairs: Pavel A. Kuchugov,
Alexander A. Tyaktev

Presentations

- 1-21 9⁰⁰ **EXPERIMENTAL MODELING OF HYDRODYNAMIC INSTABILITIES DEVELOPING ALONG COMPRESSIBLE MEDIA INTERFACES USING SHOCK TUBES**
Alexander A. Tyaktev, N. B. Anikin, Yu. A. Piskunov, I. L. Bugaenko, P. V. Promyslov, E. S. Morozov, M. E. Ignatyuk, E. V. Sviridov, A. M. Andreev
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 1-24 9³⁰ **LIQUID VELOCITY PULSATIONS IN TURBULENT MIXING ZONES UNDER THE RAYLEIGH-TAYLOR AND THE KELVIN-HELMHOLTZ INSTABILITIES**
Alina E. Shkaeva¹, N. V. Nevmerzhitskiy^{1,2}, E. D. Senkovskiy², D. O. Kochetkov², K. V. Anisiforov², E. V. Levkina²
¹SarPhTI NINU «MEPhI», Sarov, Russia
²FSUE «RFNC – VNIIEF», Sarov, Russia
- 1-9 10⁰⁰ **EXPERIMENTAL STUDY OF THE RICHTMYER-MESHKOV INSTABILITY IN CONVERGING GEOMETRY DEVELOPING ON THE CYLINDRICAL AND CYLINDRICAL-SINUSOIDAL INTERFACES OF GASES OF DIFFERENT DENSITIES**
Dmitry I. Kapustin, E. V. Sviridov, A. M. Andreev, E. S. Morozov, A. A. Tyaktev, N. B. Anikin
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 1-13 10²⁰ **ADAPTIVE CHANGE OF THE SPATIAL RESOLUTION PARAMETER IN THE APPROACH TO THE DESCRIPTION OF TURBULENT FLOWS BASED ON PARTIALLY AVERAGED NAVIER-STOKES EQUATIONS**
Pavel A. Kuchugov
Keldysh Institute of Applied Mathematics of RAS, Moscow, Russia
- 10⁴⁵ *Coffee-break*
- 1-20 11¹⁵ **NUMERICAL MODELING OF DEVELOPMENT OF PERTURBATIONS UNDER RAYLEIGH-TAYLOR INSTABILITY AND TRANSITION TO TURBULENCE**
Yuliya V. Tretyachenko, O. G. Sinkova, V. P. Statsenko, Yu. V. Yanilkin
FSUE «RFNC – VNIIEF», Sarov, Russia
- 1-11 11⁴⁰ **SIMULATION OF A HYDROGEN FLAME INSTABILITIES AND TRANSITION TO TURBULENT BURNING**
Olga G. Kotova, I. V. Glazyrin, N. A. Mikhaylov, A. M. Titova, Yu. F. Yusupov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia

SECTION 1

1-12 12⁰⁰ **NUMERICAL AND EXPERIMENTAL STUDIES OF DEVELOPMENT
OF 2D-PERTURBATIONS UNDER THE RAYLEIGH-TAYLOR INSTABILITY
AND THEIR TRANSITION TO TURBULENCE**

Dmitry O. Kochetkov, E. V. Bodrov, E. V. Levkina, N. V. Nevmerzhitskiy,
V. P. Statsenko, Yu. V. Tret'yachenko, I. R. Farin, Yu. V. Yanilkin

FSUE «RFNC – VNIIEF», Sarov, Russia

13⁰⁰ *Lunch*

Section 1P HIGH-INTENSITY PROCESSES AND TURBULENCE, SPACE PROTECTION OF THE EARTH

MAY 20, TUESDAY 14³⁰ TO 18⁰⁰
MAY 21, WEDNESDAY 8⁴⁰ TO 13⁰⁰

Foyer

Posters

- 1-7 **DYNAMICS OF PULSED GAS FILLING OF ELONGATED CYLINDRICAL TUBE**
Alexander N. Grigoryev¹, A. V. Arzhannikov², D. A. Samtsov², S. L. Sinitsky²,
D. A. Starostenko², M. A. Makarov², N. A. Lubenchenko¹, R. V. Protas¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²Budker Institute of Nuclear Physics of SB RAS, Novosibirsk, Russia
- 1-8 **RESULTS OF X-RAY EXPERIMENTS
WITH LOADING SEALED ASSEMBLIES TO STUDY MATERIALS USING HIGH-
CURRENT ELECTROPHYSICAL FACILITY**
Mikhail Yu. Gubarevich, M. A. Borshchevsky, A. N. Grigoryev, D. N. Kazakov,
E. I. Karnaukhov, N. A. Lubenchenko, S. N. Malyugina, I. V. Matveev, P. A. Tolstoukhov,
D. A. Vikhlyaev, D. S. Nosulenko
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 1-14 **THE PARAMETERS OF EXPLOSIVE LOADING OF WOOD**
Alexander K. Muzyrya
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 1-16 **MINSK BOLIDE, DECEMBER 2024. OBSERVATION, CALCULATION OF
TRAJECTORY, STREWN FIELD, SEARCHING CAMPAIGN**
Alexander Yu. Pastukhovich¹, G. A. Yakovlev^{1,2}, Y. A. Goryachko³, A. V. Mikulich³,
A. E. Yarotov⁴, J. Borovicka⁵, R. Brozkova⁶, V. I. Grokhovsky¹
¹Physics and Technology Institute, B. N. Yeltsin Ural Federal University, Ekaterinburg, Russia
²Zavaritsky Institute of Geology and Geochemistry of the Ural Branch of the Russian Academy of Sciences,
Ekaterinburg, Russia
³Minsk Planetarium, Minsk, Republic of Belarus
⁴“NNIC Ozonosphere Monitoring”, Belarusian State University, Minsk, Republic of Belarus
⁵Astronomical Institute, Czech Academy of Sciences, Prague, Czech Republic
⁶Czech Hydrometeorological Institute, Prague, Czech Republic