

Section 4 **PROPERTIES OF MATTER AT HIGH-INTENSITY PROCESSES**

MAY 19, MONDAY

Afternoon session

Hall 1

Co-chairs: Alexander V. Petrovtsev,
Konstantin V. Khishchenko

Presentations

- 4-53 14:20 **EQUATIONS OF STATE OF MATERIALS FOR SOLVING PROBLEMS OF HIGH ENERGY DENSITY PHYSICS**
Konstantin V. Khishchenko
Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia
- 4-9 14:40 **ATOMISTIC SIMULATION OF METALS PRIMARY MICROSTRUCTURE FORMATION DURING RAPID CRYSTALIZATION**
Vladimir V. Dremov¹, P. V. Chirkov¹, R. M. Kichigin¹, A. V. Karavaev¹,
E. B. Cherepetskaya², V. V. Cheverikin², V. S. Dub³, I. A. Ivanov^{2, 3}, S. V. Salikhov²
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²NUST “MISIS”, Moscow, Russia
³NPO “TsNIITMASH”, Moscow, Russia
- 4-20 15:00 **PATH INTEGRAL MONTE-CARLO METHOD FOR THERMOPHYSICAL PROPERTIES CALCULATIONS OF QUANTUM SYSTEMS OF PARTICLES**
Pavel R. Levashov, V. S. Filinov, A. S. Larkin, G. S. Demyanov
Joint Institute for High Temperatures, Moscow, Russia
- 4-14 15:20 **CALCULATION OF METALS PHASE DIAGRAMS FROM FIRST PRINCIPLES USING MACHINE LEARNING INTERATOMIC POTENTIALS**
Alexey V. Karavaev, P. V. Chirkov, G. S. Eltsov, V. V. Dremov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-22 15:40 **QUANTUM MOLECULAR DYNAMICS STUDY OF THERMOPHYSICAL PROPERTIES OF NUCLEAR ENERGY METALS: FROM MELTING TO THE CRITICAL POINT**
Dmitry V. Minakov, M. A. Paramonov, V. B. Fokin, I. S. Galtsov,
G. S. Demyanov, P. R. Levashov
Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia
- 16:00 *Coffee-break*
- 4-23 16:30 **STUDY INTO THE EFFICIENCY OF STOCHASTIC OPTIMIZATION METHODS BY THE EXAMPLE OF A MULTIPHASE EQUATION OF STATE FOR ALUMINUM**
Vadim N. Mikhailov, V. M. Elkin
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-43 16:50 **MODEL OF EQUATIONS OF STATE FOR REFRACTORY METAL ALLOYS IN PROCESSES OF INTENSIVE MECHANICAL LOADING**
Nikolay N. Seredkin, K. V. Khishchenko
Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia

4-5 17:10 **EQUATION OF STATE FOR LIQUID AND GASEOUS IRON
AT HIGH PRESSURES AND TEMPERATURES**

Kseniya A. Boyarskikh, K. V. Khishchenko

Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia

4-3 17:30 **MULTIPHASE SEMI-EMPIRICAL WIDE-RANGE EQUATION OF STATE OF
IRON**



Il'ya N. Arapov, A. A. Kayakin, A. S. Danilov, D. G. Gordeev

FSUE «RFNC – VNIIEF», Sarov, Russia

Section 4 **PROPERTIES OF MATTER AT HIGH-INTENSITY PROCESSES**

MAY 20, TUESDAY

Morning session

Hall 1

Co-chairs: Alexey V. Karavaev,
Irina G. Brodova

Presentations

- 4-6 9:00 **INVESTIGATION OF THE STRUCTURE AND PROPERTIES OF THE $\text{AlSi}_{10}\text{Mg}$ ALLOY OBTAINED BY SELECTIVE LASER FUSION**
Irina G. Brodova, A. O. Kuryshv, I. G. Shirinkina, V. V. Astafiev, S. V. Afanasiev,
G. A. Belenko, E. P. Zavarzina
Mikheev Institute of Metal Physics, Ural Branch, Russian Academy of Sciences, Ekaterinburg, Russia
- 4-15 9:20 **YIELD STRENGTH CALCULATIONS OF BCC IRON BASED ALLOYS**
Roman M. Kichigin, P. V. Chirkov, V. V. Dremov, A. V. Karavaev
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-21 9:40 **METASTABLE STATES AND QUANTUM EFFECTS OF NUCLEI IN WARM DENSE HYDROGEN**
Vyacheslav G. Lukyanchuk^{1, 2}, N. D. Kondratyuk^{1, 2, 3}, I. M. Saitov^{1, 2, 3}
¹Moscow Institute of Physics and Technology, Dolgoprudny, Russia
²Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia
³HSE University, Moscow, Russia
- 4-17 10:00 **DYNAMICAL PROPERTIES OF WARM DENSE HYDROGEN**
Nikolay D. Kondratyuk^{1, 2, 3}, V. G. Lukyanchuk^{1, 2}, G. A. Gliaudelis^{1, 2},
I. M. Saitov², N. M. Chtchelkatchev⁴
¹Moscow Institute of Physics and Technology (National Research University), Dolgoprudny, Russia
²Joint Institute for High Temperatures RAS, Moscow, Russia
³NRU HSE, Moscow, Russia
⁴Vereshchagin Institute for High Pressure Physics of the Russian Academy of Sciences, Troitsk, Russia
- 4-54 10:20 **DYNAMIC PROPERTIES OF COPPER-BASED ALLOYS AND COMPOSITES**
Irina V. Khomskaya¹, D. N. Abdullina¹, S. V. Razorenov², E. V. Shorokhov³, K. V. Gaan²
¹M. N. Mikheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russia
²Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of Russian Academy of Sciences, Chernogolovka, Russia
³FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 10:45 *Coffee-break*

- 4-60 11:15 **DETERMINATION OF SHOCK COMPRESSION CONDITIONS FOR POROUS NiAl SAMPLES BELOW THE MELTING CURVE**
Vladislav V. Yakushev¹, K. M. Bulatov², A. N. Zhukov¹, F. S. Khorobrykh², A. V. Utkin¹, P. V. Zinin², M. Yu. Popov³
¹Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry of the Russian Academy of Sciences, Chernogolovka, Russia
²Scientific and Technological Centre of Unique Instrumentation of the Russian Academy of Sciences, Moscow, Russia
³Prokhorov General Physics Institute of the Russian Academy of Sciences, Moscow, Russia
- 4-16 11:35 **DYNAMIC AND SHOCK-WAVE PROPERTIES OF AK6 Al ALLOY MESH PRODUCTS OBTAINED BY ADDITIVE TECHNOLOGY**
Alexander I. Klenov¹, I. G. Brodova², A. N. Petrova², E. B. Smirnov¹, D. T. Yusupov¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²M. N. Mikheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russia
- 4-56 11:55 **SIMULATION OF LIQUID METALS VISCOSITY BY MACHINE LEARNING INTERATOMIC POTENTIALS**
Pavel V. Chirkov, G. S. Eltsov, V. V. Dremov, A. V. Karavaev
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-50 12:15 **ABOUT TEMPERATURE DEPENDENCE OF MELTED LITHIUM HYDRIDE VISCOSITY**
Andrey L. Falkov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-57 12:35 **STUDIES OF DYNAMIC ISENTROPIC COMPRESSION OF MATERIALS USING A SMALL-CLASS DISC EXPLOSIVE MAGNETIC GENERATOR**
Evgeny V. Shapovalov, V. K. Baranov, A. M. Buyko, S. F. Garanin, A. M. Glybin, A. G. Golubinskiy, P. N. Guskov, A. A. Zimenkov, A. V. Ivanovskiy, D. A. Irinichev, V. A. Karepov, K. N. Klimushkin, V. B. Kudelkin, S. D. Kuznetsov, V. I. Mamyshev, S. M. Polyushko, Z. S. Tsibikov
FSUE «RFNC – VNIIEF», Sarov, Russia
- 13:00 *Lunch*

Section 4 **PROPERTIES OF MATTER AT HIGH-INTENSITY PROCESSES**

MAY 21, WEDNESDAY

Morning session

Hall 1

Co-chairs: Vyacheslav M. Elkin,
Oleg B. Naimark

- 4-28 9:00 **CRITICAL DYNAMICS OF CONDENSED MATTER UNDER INTENSIVE LOADING**
Oleg B. Naimark
Institute of Continuous Media Mechanics, Ural Branch of the Russian Academy of Sciences, Perm, Russia
- 4-24 9:20 **COMPUTATIONAL AND THEORETICAL ANALYSIS OF EXPERIMENTS ON ISENTROPIC COMPRESSION OF HEAVY ELEMENTS ON HIGH-POWER LASER FACILITIES**
Konstantin E. Mikheev, A. S. Gnutov
FSUE «RFNC – VNIIEF», Sarov, Russia
- 4-31 9:40 **SHEAR STRENGTH OF BERYLLIUM OXIDE UNDER DYNAMIC LOADING**
Alexey Yu. Nikolaev, A. A. Degtyarev, D. Yu. Kadochnikov, V. A. Karionov, A. K. Muzyrya, F. I. Tarasov, D. T. Yusupov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-58 10:00 **A STUDY OF PHASE FORMATION PROCESSES DURING OXIDATION OF AMORPHOUS BORON AND MODIFIED BY HYDROGEL OF VANADIUM PENTOXIDE**
Vladimir G. Shevchenko, D. A. Eselevich, V. N. Krasil'nikov, A. V. Konyukova
Institute of Solid State Chemistry UB RAS, Ekaterinburg, Russia
- 4-33 10:20 **EFFECT OF HIGH-SPEED DYNAMIC DEFORMATION AND SEVERE PLASTIC DEFORMATION BY HIGH PRESSURE TORSION ON THE STATE OF GRAIN BOUNDARIES IN Ni, Nb AND LOW-ALLOYED BRONZES**
Vladimir V. Popov¹, E. N. Popova¹, E. V. Osinnikov¹, C. A. Sudakova¹, R. M. Falahutdinov¹, E. V. Shorokhov²
¹Mihev Institute of Metal Physics, Ural Branch of RAS, Ekaterinburg, Russia
²FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 10:45 *Coffee-break*
- 4-34 11:15 **REFRACTIVE INDICES AND CORRECTION COEFFICIENTS FOR CERTAIN OPTICALLY TRANSPARENT MEDIA**
Alexandr G. Poptsov, D. G. Pankratov, V. A. Karionov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-29 11:35 **INVESTIGATION OF THE CHANGE IN THE CORRECTION FACTOR TO THE APPARENT VELOCITY OF THE MOVING CONTACT BOUNDARY OF A SAMPLE-WINDOW DURING MODELING OF THE SHOCK COMPRESSION OF A LiF CRYSTAL**
Elisey I. Nesmiyanov¹, A. V. Krasilnikov², A. G. Poptsov¹, A. E. Kovalev¹, A. L. Zhrebtsov¹, E. S. Shestakovskaya²
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²South Ural State University, Chelyabinsk, Russia

SECTION 4

4-55 11:55 **DYNAMIC PLASTICITY AND FRACTURE OF AI 7075 AND V95T1 ALLOYS**
Andrey Ya. Cherepanov, E. S. Rodionov, A. G. Fazlitdinova, T. T. Sultanov,
V. G. Lupanov, P. N. Mayer, A. E. Mayer
Chelyabinsk State University, Chelyabinsk, Russia

4-37 12:15 **SHOCK COMPRESSIBILITY OF AK6 ALUMINUM ALLOY**
Egor M. Savenko^{1, 2}, D. Yu. Kadochnikov¹, A. A. Degtyarov¹, E. B. Smirnov^{1, 2},
D. T. Yusupov¹, K. S. Sidorov¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²South Ural State University (National Research University), Chelyabinsk, Russia

4-59 12:35 **RESULTS OF SHOCK WAVE MEASUREMENTS IN LITHIUM FLUORIDE
BARRIER INTERACTING WITH ACCELERATED AUSTENITIC STEEL PLATE,
PERFORMED BY TWO INDEPENDENT MEASUREMENT METHODS**
Dmitry T. Yusupov, A. V. Petrovtsev, V. D. Buguev, K. S. Sidorov, A. I. Klenov,
D. P. Kuchko, E. B. Smirnov
FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia

13:00 *Lunch*

Section 4 **PROPERTIES OF MATTER AT HIGH-INTENSITY PROCESSES**

MAY 22, THURSDAY

Morning session

Hall 1

Co-chairs: Denis G. Pankratov,
Andrey V. Ivanovskiy

Presentations

- 4-18 9:00 **ELECTROMAGNETIC FLIGHT SENSOR AND THE USE OF PARAMAGNETS
IN THE DESIGN OF THE PROJECTILE**
 Leonid V. Korolkov¹, V. D. Zorin¹, A. S. Dyachkovsky¹, E. A. Chernoguzova²,
V. A. Burakov¹
¹Tomsk State University, Tomsk, Russia
²FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-25 9:20 **MOVING WINDOW METHOD FOR MODELING STATIONARY SHOCK WAVE
IN DIFFERENT MATERIALS**
 Semyon A. Murzov^{1,2}, S. A. Dyachkov^{1,2}, G. V. Vyskvarko^{1,3}, I. S. Galtsov^{1,2,3},
P. R. Levashov^{1,3}
¹Joint Institute for high temperature RAS, Moscow, Russia
²FSUE «Dukhov automatics research institute», Moscow, Russia
³MIPT, Moscow, Russia
- 4-13 9:40 **NEW GENERATION OF DISK EMG (SMALL-CLASS DISK EMG)**
Andrey V. Ivanovskiy, K. N. Klimushkin, V. B. Kudelkin, V. I. Mamyshev,
S. M. Polyushko, Z. S. Tsibikov, E. V. Shapovalov, A. A. Zimenkov
FSUE «RFNC – VNIIEF», Sarov, Russia
- 4-45 10:00 **NEW GENERATION OF DISK EMG (PROJECT OF MIDDLE-CLASS DISK EMG)**
Kiril S. Toropov, A. V. Ivanovskiy, V. B. Kudelkin, V. I. Mamyshev,
E. V. Shapovalov, A. A. Zimenkov
FSUE «RFNC – VNIIEF», Sarov, Russia
- 4-32 10:20 **RFNC – VNIITF LOCALIZING BLAST RESISTANT DEVICES
FOR STUDING TOXIC AND RADIOACTIVE SUBSTANCES**
Denis G. Pankratov, V. V. Orekhov, I. N. Gordeev, I. V. Minaev
FSUE «RFNC – VNIITF named after academ. E. I. Zababakhin», Snezhinsk, Russia
- 10:45 *Coffee-break*
- 4-41 11:15 **ACHIEVEMENTS, NOVELTIES AND DEVELOPMENTS
OF THE MANUFACTURER OF LASERS AND LASER SYSTEMS
LLC “NORDLASE”. PROSPECTS OF USE IN THE FIELD
OF ANALYSIS OF HIGH-INTENSITY PROCESSES**
Egor B. Serdyuk¹, D. V. Sachenko¹, G. A. Mikhailovsky^{1,2}
¹Nordlase LLC, St. Petersburg, Russia
²World-class Scientific Center (WSC) “Advanced Digital Technologies”, St. Petersburg Peter the
Great Polytechnic University, St. Petersburg, Russia

- 4-42 11:35 **EQUIPMENT AND COMPONENTS USED IN THE FIELD OF REGISTRATION OF FAST PROCESSES**
Egor B. Serdyuk¹, A. N. Abdrshin²
¹LLC “Nordlaze”, St. Petersburg, Russia
²JSC “LLS”, St. Petersburg, Russia
- 4-46 11:55 **DIGITAL ROTATING MIRROR CAMERA BASED ON DIRECT RECORDING ONTO A SEQUENCE OF CMOS SENSORS**
Vitaly N. Turkin, A. S. Bychkov, A. M. Myagkov, A. E. Dormidonov, V. G. Kamenev, Yu. D. Arapov
The Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA), Moscow, Russia
- 4-44 12:15 **A CALIBRATION METHOD FOR LASER INTERFEROMETRIC INSTRUMENT COMPLEXES BASED ON STIMULATED MANDELSTAM-BRILLOUIN SCATTERING EFFECT**
Alexey A. Tavleev, P. V. Kubasov, A. A. Tikhov, V. G. Kamenev, Yu. D. Arapov
The Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA), Moscow, Russia
- 4-52 12:35 **APPLICATION OF PERTURBATION METHOD TO DETERMINE ELASTIC-PLASTIC PROPERTIES OF MATTER**
Anton Yu. Fedorov, A. A. Gransky, A. O. Tokmantsev, A. V. Krasilnikov, D. A. Smirnov, M. R. Suleymanov, F. I. Tarasov
FSUE «RFNC – VNIITF named after academ. E. I. Zababakhin», Snezhinsk, Russia
- 13:00 *Lunch*

Afternoon session

Hall 1

Co-chairs: Dmitry P. Kuchko,
Yuriy V. Shcherbakov

Presentations

- 4-51 14:20 **THE INDICATOR FOIL AND WINDOW METHOD TO STUDY SHOCK-INDUCED EJECTA OF METALS**
Anton Yu. Fedorov, A. Yu. Letunov, M. M. Khohlov, D. A. Krasnoslobodtsev, A. A. Granskiy, A. O. Tokmantsev
FSUE «RFNC – VNIITF named after academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-48 14:40 **MULTI-FRACTAL ANALYSIS OF QUANTITATIVE SPECIFICATION OF PHENOMENA OF DYNAMIC FAILURE, DISPERSION OF METAL AND FULLY-DEVELOPED TURBULENCE**
Alexander Ya. Uchaev, N. I. Sel'chenkova
FSUE «RFNC – VNIIEF», Sarov, Russia
- 4-8 15:00 **EXPERIMENTAL STUDY OF THE THERMOPHYSICAL PROPERTIES OF ZIRCONIUM AND HAFNIUM BY THE METHOD OF ELECTRICAL PULSED HEATING**
Andrey V. Dorovatovsky, M. A. Sheindlin, D. V. Minakov
Joint Institute for High Temperatures of the Russian Academy of Sciences, Moscow, Russia

- 4-38 15:20 **EFFECT OF LONG-TERM STORAGE AND FLOWING SEAWATER ON DYNAMIC CHARACTERISTICS OF ALUMINUM BRONZE**
 Georgy G. Savenkov^{1,2}, M. S. Smakovsky¹, E. V. Koptyaev¹, E. A. Itin³, A. K. Lomunov⁴
¹Machine-Building Plant “Armalit”, St. Petersburg, Russia
²Saint-Petersburg State Institute of Technology, St. Petersburg, Russia
³Central Design Bureau for Marine Engineering “Rubin”, St. Petersburg, Russia
⁴Research Institute for Mechanics, National Research Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia
- 4-39 15:40 **EFFECT OF FLOWING SEAWATER ON DYNAMIC CHARACTERISTICS OF TITANIUM ALLOY**
 Georgy G. Savenkov^{1,2}, M. S. Smakovsky¹, E. V. Koptyaev¹, E. A. Itin³, A. M. Bragov⁴
¹Machine-Building Plant “Armalit”, St. Petersburg, Russia
²Saint-Petersburg State Institute of Technology, St. Petersburg, Russia
³Central Design Bureau for Marine Engineering “Rubin”, St. Petersburg, Russia
⁴Research Institute for Mechanics, National Research Lobachevsky State University of Nizhny Novgorod, Nizhny Novgorod, Russia
- 16:00 *Coffee-break*
- 4-7 16:30 **PULSE POWER SUPPLY MODULE FOR THE ELECTROMAGNET OF THE BETATRON OF A MOBILE GAMMA-RADIATION GENERATOR**
 Alexey I. Bunin, V. I. Nizhegorodtsev, K. V. Savchenko, V. D. Selemir, V. A. Fomichev, A. A. Chinin, O. A. Shamro
 FSUE «RFNC – VNIIEF», Scientific and Production Center of Physics, Sarov, Russia
- 4-19 16:50 **ON THE EVALUATION OF SOLID DIELECTRIC STRENGTH UNDER COMBINED ELECTRICAL AND MECHANICAL PULSE ACTION**
 Sergey I. Krivosheev, Yu. E. Adamyan, S. G. Magazinov, I. B. Kuznetsov
 Peter the Great St. Petersburg Polytechnic University, Saint Petersburg, Russia
- 4-11 17:10 **THERMOGRAVIOMETRIC ANALYSIS OF ORGANOPLASTIC TYPE COMPOSITE MATERIAL**
 Arseny E. Zaponov
 The Military Academy of Strategic Rocket Troops after Peter the Great, Balashiha, Russia

Section 4P PROPERTIES OF MATTER AT HIGH-INTENSITY PROCESSES**MAY 19, MONDAY 14³⁰ TO 18⁰⁰****MAY 20, TUESDAY 8⁴⁰ TO 13⁰⁰**

Foyer

*Posters***4-1 THE METALLOGRAPHIC ANALYSIS OF A PESTLE OBTAINED BY COLLAPSING OF A COPPER HEMISPHERICAL SHELL**Darya N. Abdullina¹, V. I. Zel'dovich¹, I. V. Khomskaya¹, A. V. Koval'², E. V. Shorokhov²¹M. N. Mikheev Institute of Metal Physics of Ural Branch of Russian Academy of Sciences, Ekaterinburg, Russia²FSUE «RFNC – VNIITF named after academ. E. I. Zababakhin», Snezhinsk, Russia**4-2 SHOCK WAVES DYNAMIC IN PRESSED ALUMINUM V-ALEX NANOPOWDER AT PRESSURES UP TO 2.4 GPa**Sergey Yu. Anan'ev¹, T. A. Rostilov¹, V. S. Ziborov¹, A. Yu. Dolgoborodov^{1, 2},G. S. Vakorina¹, L. I. Grishin¹¹Joint Institute for High Temperatures of the RAS, Moscow, Russia²N. N. Semenov Federal Research Center for Chemical Physics, RAS, Moscow, Russia**4-4 COPPER AND STEEL CYLINDRICAL SHELLS CONVERGENCE UNDER EXPLOSIVE CIRCULAR LOADING**Sergey V. Balushkin¹, V. I. Zeldovich², I. V. Khomskaya², E. V. Shorokhov¹,D. N. Abdullina², A. E. Timonina²¹FSUE «RFNC – VNIITF named after academ. E. I. Zababakhin», Snezhinsk, Russia²M. N. Mikheev Institute of Metal Physics of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russia**4-12 A METHOD TO DETERMINE SHOCK ADIABAT PARAMETERS WITH HIGH PRECISION**

Ruslan R. Zinatulin, A. E. Kovalyov, A. V. Krasilnikov, A. V. Olkhovsky, A. G. Poptsov

FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia

4-26 MECHANICAL PROPERTIES OF IRON METEORITES IN THE CONTEXT OF ASTEROID HAZARDRazilya F. Muftakhetdinova¹, S. V. Razorenov², I. V. Khomskaya³, V. I. Grokhovsky¹,V. A. Khotinov¹, G. A. Yakovlev¹, E. V. Brusnitsyna¹, A. S. Savinykh², G. V. Garkushin²¹Ural Federal University, Ekaterinburg, Russia²Federal Research Center of Problems of Chemical Physics and Medicinal Chemistry RAS, Chernogolovka, Russia³Mikheev Institute of Metal Physics, Ural Branch, Russian Academy of Sciences, Ekaterinburg, Russia⁴Zavaritsky Institute of Geology and Geochemistry of the Ural Branch of the Russian Academy of Sciences, Ekaterinburg, Russia**4-27 ANALYSIS OF “WINDOW” MATERIALS IN SHOCK-WAVE EXPERIMENTS ON LIGHT-GAS GUN**

Mikhail S. Mytarev, S. D. Toluzarov, M. A. Borshchevsky, S. N. Malyugina, S. S. Mokrushin

FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia

- 4-35 **RESPONSE OF GaAs LASER DIODE TO SHOCK IMPACT INDUCED BY ELECTRON AND LASER BEAM**
 Ivan D. Prikhodko^{1,2}, O. V. Tkachev¹, S. M. Dubrovskiy¹, A. A. Kononov¹,
 D. O. Zamuraev¹, N. A. Ivashin¹
¹FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
²Chelyabinsk State University, Chelyabinsk, Russia
- 4-36 **MULTICHANNEL PDV COMPLEX «DOPPLER-1»**
 Mikhail A. Ralnikov, D. P. Kuchko, A. G. Poptsov
 FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-49 **EFFECT OF SEVERE PLASTIC DEFORMATION ON THE STRUCTURE AND STATE OF GRAIN BOUNDARIES IN HAFNIUM BRONZE**
 Ruslan M. Falahutdinov, V. V. Popov, E. N. Popova
 Miheev Institute of Metal Physics, Ural Branch, Russian Academy of Sciences, Ekaterinburg, Russia
- 4-47 **THE EFFECT OF SINGLE VOLTAGE PULSING ON GaAs AND GaN LIGHT-EMITTING HETEROSTRUCTURES**
 Ivan V. Ulyanov, V. S. Nosovets, I. D. Prikhodko
 FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia
- 4-10 **PROSPECTS FOR OBTAINING NEW CRYSTALLINE FORMS OF CARBON**
 Dmitry A. Zherebtsov, R. Kanthapazham, V. S. Senchurin, S. A. Naifert, A. A. Osipov,
 D. Humayun
 South Ural State University, Chelyabinsk, Russia
- 4-40 **STUDY OF CRITICAL BEHAVIOR OF A NUMBER OF DYNAMIC SYSTEMS**
 Nadezhda I. Sel'chenkova, A. Ya. Uchaev
 FSUE «RFNC – VNIIEF», Sarov, Russia
- 4-61 **ON THE EFFECT OF GAPS ON ACCELERATION DYNAMICS OF TWO-LAYER PLATE**
 Dmitry S. Perevezentsev, A. V. Krasilnikov, A. V. Olkhovsky, A. A. Degtyarev, K. S. Sidorov,
 A. G. Poptsov, R. R. Zinatulin
 FSUE «RFNC – VNIITF named after Academ. E. I. Zababakhin», Snezhinsk, Russia