



**XXXIV INTERNATIONAL CONFERENCE ON
INTERACTION OF INTENSE ENERGY FLUXES WITH MATTER
MARCH 1–6, 2019, ELBRUS, KABARDINO-BALKARIA, RUSSIA**



Conference Program, March 1, 2019

Opening Ceremony 15:00

Introductory words by V. E. Fortov, Yu. K. Al'tudov, K. V. Khishchenko, V. G. Sultanov

Chairman

Prof. G.E.Norman

- 15:15 Thermodynamics of shock-wave and isentropic action on matter (plenary)
Fortov Vladimir Evgenievich (JIHT RAS, Moscow, Russia)
- 15:45 X-ray *K* and *L* terms estimation in free many-electron atoms and ions
Shpatakovskaya Galina Vasilievna (KIAM RAS, Moscow, Russia)
- 16:00 Physical processes during laser ablation into a liquid and during laser shock-wave pinning
Khokhlov Victor Alexandrovich (ITP RAS, Chernogolovka, Russia), Inogamov N. A., Zhakhovsky V. V., Petrov Yu. V., Anisimov S. I.
- 16:15 Signatures of laser-induced silica glass densification in vibration and Raman spectra
Shcheblanov N. S., Povarnitsyn Mikhail Evgenievich (JIHT RAS, Moscow, Russia), Mishchik K. N., Tanguy A.
- 16:30 Fragmentation of water droplet by ultra-short x-ray laser pulse
Grigoryev Sergey Yur'yevich (VNIIA(L), Moscow, Russia), Dyachkov S. A., Parshikov A. N., Zhakhovsky V. V.

16:45



CONFERENCE PHOTO (OUTSIDE)



COFFEE-BREAK

Chairman

Prof. N.E.Andreev

- 17:15 Neutron stars from the collapse to the merging (plenary)
Lutovinov Alexander Anatol'evich (IKI RAS, Moscow, Russia)
- 17:45 Observation of relativistic laser pulse driven magnetic field in wire-shape Cu–Al target
Golovin Daniil Olegovich (Osaka University, ILE, Suita, Japan), Yogo A., Pikuz T. A., Faenov A. Ya., Abe Y., Alkhimova M. A., Arikawa Y., Fujioka S., Honoki Y., Koga K., Lee S., Matsuo K., Okamoto K., Pikuz S. A., Shokita S., Skobelev I. Yu., Nishimura H.
- 18:00 Laser–matter interaction modeling in relation to extreme-ultra-violet source development
Kim Dmitrii Andreevich (KIAM RAS, Moscow, Russia), Basko M. M., Vichev I. Yu.
- 18:15 Towards high-intensity THz pulse generation in two color filaments of terawatt laser radiation
Nazarov Maxim Mihailovich (NRC KI, Moscow, Russia), Mitrofanov A. V., Solyankin P. M., Margushev Z. Ch., Chashin M. V., Shkurinov A. P., Sidorov-Biryukov D. A., Panchenko V. Ya.
- 18:30 New schemes for stochastic electron heating in laser plasma interactions
Bochkarev Sergey Gennad'evich (LPI RAS, Moscow, Russia), d'Humières E., Tikhonchuk V. T., Korneev Ph. A., Barzegar S., Bychenkov V. Yu.
- 18:45–
19:00 Multielectron effects in secondary radiation generation during the interaction of atomic gases with intense laser pulses
Romanov Alexander (IAP RAS, Nizhny Novgorod, Russia), Silaev A. A., Frolov M. V., Sarantseva T. S., Minina A. A., Smirnova D. A., Vvedenskii N. V.



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Conference Program, March 1, 2019

Oral Session 20:00

Chairman

Dr. E.R.Pruel

- 20:00 Polymetodical measurements of high-speed processes (**plenary**)
Petrov Dmitriy Vitalievich (FSUE RFNC–VNIITF, Snezhinsk, Russia), Garmashev A. Yu., Smirnov E. B., Levak K. V.
- 20:30 Research in shock compression and rheology of materials at the “Luch” laser facility
Derkach Vladimir Nickolaevich (FSUE RFNC–VNIIEF, Sarov, Russia), Belkov S. A., Garanin S. G., Rogachev V. G.
- 20:45 The project station “Fast Processes” based on the Siberian Ring Source of Photons
Ten Konstantin Alekseevich (LIH SB RAS, Novosibirsk, Russia), Pruel E. R., Rubtsov I. A., Arakcheev A. S., Tolochko B. P.
- 21:00 Shock treatment of porous cubic zinc sulfide
Schlothauer Thomas (TUBAF, IM, Freiberg, Germany), Schimpf C., Kroke E., Heide G.
- 21:15 On interaction of metastable shock waves with perturbations
Konyukhov Andrey Victorovich (JIHT RAS, Moscow, Russia), Levashov P. R., Likhachev A. P.
- 21:30 Study of the liquid-metal drops fragmentation at a steam explosion
Ivochkin Yu. P., Kubrikov K. G., Teplyakov Igor Olegovich (JIHT RAS, Moscow, Russia), Ankudinov V. B.
- 21:45– **COFFEE-END**
- 22:00



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Conference Program, March 2, 2019

Oral Session 15:00

Chairman

Prof. I.L.Iosilevskiy

- 15:00 Numerical and experimental investigation of integral characteristics of cruise hydrogen scramjet demonstrator (plenary)
Son Eduard Evgenievich (MIPT, Dolgoprudny, Russia), Degtyar V. G., Khlybov V. I., Prokhorov A. N., Arefyev K. Yu., Alexandrov V. Yu., Gouskov O. V., Kalashnikov S. T., Sidorov R. S., Son K. E., Cheshko A. D.
- 15:30 Analysis of the effect of boron-containing compounds and combustion catalysts on the paraffin combustion rate in an oxidizer flow
Lukashevich S. V., Shiplyuk Aleksandr (ITAM SB RAS, Novosibirsk, Russia), Simagina V. I., Netskina O. V., Komova O. V.
- 15:45 The role of gas flame instability mechanisms in its acceleration
Elyanov A. E., Golub Victor V (JIHT RAS, Moscow, Russia), Mikushkin A. Yu., Petukhov V. A., Volodin V. V.
- 16:00 Dynamics of supersonic waves of spin reversal in molecular magnets
Kasimov Aslan Ramazanovich (Skoltech, Moscow, Russia)
- 16:15 Parametric study of the combustion acceleration in lean air-C₃H₈ mixtures activated by nonequilibrium discharge
Dobrovolskaya Anastasia (JIHT RAS, Moscow, Russia), Filimonova E. A., Bocharov A. N., Bityurin V. A.
- 16:30 Chemical inhibition of the processes of ignition of gaseous fuels
Drakon A. V., Eremin Alexander Victorovich (JIHT RAS, Moscow, Russia)
- 16:45 The promotion of detonation wave of condensation in acetylene by methane additions
Eremin A. V., Mikheyeva Ekaterina (JIHT RAS, Moscow, Russia)
- 17:00  **COFFEE-BREAK**

Chairman

Prof. A.A.Lutovinov

- 17:15 Constraining equation of state of neutron stars using astrophysical measurements (plenary)
Poutanen Juri (IKI RAS, Moscow, Russia)
- 17:45 Neutron star structure, equation of state, and thermal evolution
Potekhin Alexander Yurievich (Ioffe Institute, Saint-Petersburg, Russia)
- 18:00 Dynamics of supernova bounce in laboratory
Yudin Andrey Viktorovich (NRC KI, ITEP, Moscow, Russia)
- 18:15 Central engines of superluminous supernovae and their environment
Shidlovskiy Dmitriy Sergeevich (VNIIA(S), Moscow, Russia), Blinnikov S. I., Glazyrin S. I.
- 18:30 Problems of impact craters formation in the light of recent lunar missions
Shpekin Michael Ivanovich (KFU, Kazan, Russia), Barenbaum A. A.
- 18:45 A fluid dynamical model to shape complex craters
Ferreyra Ricardo Tomas (UNC, FCEfYn, Cordoba, Argentina), Shpekin M. I.

19:00



SUPPER

20:00–

POSTER SESSION

23:00



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Conference Program, March 3, 2019

Oral Session 15:00

Chairman

Dr. P.R. Levashov

- 15:00 Secondary sources of super-ponderomotive electrons and hard radiation in relativistic laser–matter interactions
Andreev Nikolay Evgen'evich (JIHT RAS, Moscow, Russia), Pugachev L. P., Rosmej O. N.
- 15:15 Preservation of the electron beam polarization and emittance in the laser plasma accelerator
Pugacheva Daria (JIHT RAS, Moscow, Russia), Andreev N. E.
- 15:30 Development of dislocation plasticity model for description of shock wave dynamics
Mayer Alexander Evgenievich (CSU, Chelyabinsk, Russia), Krasnikov V. S., Pogorelko V. V.
- 15:45 Thermodynamic and transportable properties of sapphire at shock compression
Nikolaev Dmitry Nikolaevich (IPCP RAS, Chernogolovka, Russia), Ostriak A. V.
- 16:00 Measurements of temperature of water in shock waves
Khishchenko Konstantin Vladimirovich (JIHT RAS, Moscow, Russia), Bordzilovskii S. A., Karakhanov S. M.
- 16:15 Thermal destruction of fayalite at high hydrogen pressures
Efimchenko Vadim Sergeevich (ISSP RAS, Chernogolovka, Russia), Barkovskii N. V., Fedotov V. K., Meletov K. P.
- 16:30 Thermal deformation and polymorphic transitions of 1,1-diamino-2,2-dinitroethylene in the temperature range from 145 to 475 K
Stankevich Aleksandr Vasilyevich (FSUE RFNC-VNIITF, Snezhinsk, Russia), Kostitsyn O. V., Taibinov N. P., Garmashev A. Yu.
- 16:45 The sound velocity measurements for liquid lead
Kondratyev Arseniy (JIHT RAS, Moscow, Russia), Rakhel A. D.

17:00



COFFEE-BREAK

Chairman

Dr. K.V. Khishchenko

- 17:15 Thermodynamics of gaseous plasmas in zero-temperature (vacuum) limit
Iosilevskiy Igor L'vovich (JIHT RAS, Moscow, Russia)
- 17:30 The equation of state of a mixture of dense gases taking into account the detailed chemical composition
Pruel Eduard Reinovich (LIH SB RAS, Novosibirsk, Russia), Anisichkin V. F.
- 17:45 Liquid Rb under high pressure: Electron core ionisation
Degtyareva Valentina Feognievna (ISSP RAS, Chernogolovka, Russia)
- 18:00 Equation of state of fluid lead
Rakhel Anatolii Dmitrievich (JIHT RAS, Moscow, Russia)
- 18:15 First-principle description of results of dynamic experiments for refractory metals near the melting and the evaporation curves
Minakov Dmitry Vyacheslavovich (JIHT RAS, Moscow, Russia), Paramonov M. A., Levashov P. R.
- 18:30 On the problem of equation of state for electron gas
Levashov Pavel Remirovich (JIHT RAS, Moscow, Russia), Dyachkov S. A.

18:45 Theoretical investigation of thermodynamic and radiative properties of hot dense plasma using quantum-statistical methods
Kadatskiy Maxim Alekseevich (JIHT RAS, Moscow, Russia), Orlov N. Yu., Khishchenko K. V.

19:00  **SUPPER**

20:00– **POSTER SESSION**

23:00



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Conference Program, March 4, 2019

Oral Session 16:00

Chairman

Dr. V.G.Sultanov

- 16:00 State of trapped matter inside graphene nanobubbles
Zhilyaev Petr Alexandrovich (Skoltech, Moscow, Russia), Iakovlev E. S., Akhatov I. Sh.
- 16:15 Volume-localized excited states in ionized C_{60}
Arutyunyan R. V., Orekhov N. D., Stegailov Vladimir (JIHT RAS, Moscow, Russia)
- 16:30 An extension of a linearized finite-difference model of gas dynamics with the property of entropy nondecreasing to 2D case
Godunov S. K., Klyuchinskiy Dmitriy Vladimirovich (NSU, Novosibirsk, Russia), Fortova S. V., Denisenko V. V.
- 16:45 The use of the modified algorithm for calculating contact boundaries in the finite element complex EFES
Radchenko P. A., Radchenko Andrey (TSUAB, Tomsk, Russia), Batuev S. P.

17:00  **COFFEE-BREAK**

Chairman

Prof. V.V.Stegailov

- 17:15 Surface self-diffusion and bubble diffusivity in bcc metals
Antropov Alexander Sergeevich (JIHT RAS, Moscow, Russia), Stegailov V. V.
- 17:30 Wave-packet molecular dynamics plus density-functional theory method for nonideal plasma simulations
Lavrinenko Yaroslav Sergeevich (JIHT RAS, Moscow, Russia), Morozov I. V., Valuev I. A.
- 17:45 Wave packet molecular dynamic approach for plasma phase transition in warm dense hydrogen
Fedorov Ilya Dmirtievich (JIHT RAS, Moscow, Russia), Orekhov N. D., Stegailov V. V.
- 18:00 Calculations of viscosities of liquid hydrocarbon mixtures using molecular dynamics simulations and correlation rules
Pisarev Vasily (JIHT RAS, Moscow, Russia)
- 18:15 The viscosity predictions for branched alkanes at pressures up to 1 GPa by molecular-dynamics methods
Kondratyuk Nikolay (HSE, Moscow, Russia), Pisarev V. V.
- 18:30 Shear viscosity from diffusivity based molecular dynamics methods
Kondratyuk N. D., Orekhov Maksim Aleksandrovich (MIPT, Dolgoprudny, Russia)
- 18:45–
19:00 Continuum modeling of two-phase flows in porous media
Zakharov Stepan (JIHT RAS, Moscow, Russia), Pisarev V. V., Chudanov V. V.

19:30–
23:00  **BANQUET**



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Conference Program, March 5, 2019

Oral Session 16:00

Chairman

Prof. L.G.Dyachkov

- 16:00 Diffusion in ultracold strongly coupled multiply charged plasma
Zelener Boris Borisovich (JIHT RAS, Moscow, Russia), Bobrov A. A., Bunkov A. M., Bronin S. Ya., Klyarfeld A. B., Zelener B. V.
- 16:15 Study of the spectra of Calcium-40 Rydberg atoms in magneto-optical trap
Vilshanskaya Evgeniya Vladimirovna (JIHT RAS, Moscow, Russia), Saakyan S. A., Sautenkov V. A., Bobrov A. A., Zelener B. B., Zelener B. V.
- 16:30 Plasma phase transition in warm dense hydrogen
Norman Genri Edgarovich (JIHT RAS, Moscow, Russia), Saitov I. M.
- 16:45 Metastable conducting solid hydrogen at high pressures
Saitov Ilnur (HSE, Moscow, Russia)
- 17:00  **COFFEE-BREAK**

Chairman

Prof. B.B.Zelener

- 17:15 Stopping power and velocity diffusion for a proton moving in a gas of super magnetized electrons
Bobrov Andrei Alexandrovich (JIHT RAS, Moscow, Russia)
- 17:30 Low bond viscosity limit for strongly coupled systems under shock wave loading
Naimark Oleg (ICMM UB RAS, Perm, Russia)
- 17:45 Betatron oscillations, synchrotron radiation and emittance of electron bunches accelerated in guiding structures
Veysman Mikhail Efimovich (JIHT RAS, Moscow, Russia), Andreev N. E., Kuznetsov S. V.
- 18:00 Rotation of the dust structure in the region of the narrowing of the dc glow discharge current channel in a strong magnetic field
Dyachkov Lev Gavriilovich (JIHT RAS, Moscow, Russia), Dzlieva E. S., Ermolenko M. A., Novikov L. A., Pavlov S. I., Karasev V. Yu.
- 18:15 Effect of the non-linear screening on thermodynamics of complex plasmas
Martynova Inna Aleksandrovna (JIHT RAS, Moscow, Russia), Iosilevskiy I. L.
- 18:30 Melting of dusty plasma structures in a trap
Nikolaev Vladislav Sergeevich (MIPT, Dolgoprudny, Russia), Timofeev A. V.
- 18:45 Charge of a single grain and the grain in a cloud: Theory and experiments
Zobnin Andrey Vjacheslavovich (JIHT RAS, Moscow, Russia), Usachev A. D., Lipaev A. M., Molotkov V. I., Pustyl'nik M. Y., Thoma M. A., Thomas H. M.
- 19:00– **CLOSING CEREMONY**
- 19:20 Concluding words by K. V. Khishchenko, V. G. Sultanov