



# XXXIII International Conference on Equations of State for Matter

March 1–6, 2018  
Elbrus, Kabardino-Balkaria  
Russia

1978  
Anniversary 40  
of the first session  
2018

## *Conference Program, March 1, 2018*

### *KBSU Base 16:00*

### *Opening Ceremony*

Introductory words by V. E. Fortov, V. P. Efremov, A. P. Savintsev

Chairman

*Prof. G. V. Shpatakovskaya*

16:15 Is there chemistry at megabars? (plenary)  
*Fortov Vladimir Evgenievich (JIHT RAS, Moscow, Russia)*

16:45  **CONFERENCE PHOTO (OUTSIDE)**

 **COFFEE-BREAK**

Chairman

*Prof. G. E. Norman*

17:15 Relativistic effects analysis of the electron binding energies in many-electron atoms  
*Shpatakovskaya Galina Vasilievna (KIAM RAS, Moscow, Russia)*

17:30 Melting  $T$ - $P$  curves for alkali metals with negative slope and minimum: Electronic origin  
*Degtyareva Valentina Feognievna (ISSP RAS, Chernogolovka, Russia)*

17:45 Verification of anomalous thermodynamic properties of sodium near its melting curve  
*Levashov Pavel Remirovich (JIHT RAS, Moscow, Russia), Minakov D. V., Fokin L. R.*

18:00 Wide-range equation of state for gold  
*Lomonosov Igor Vladimirovich (IPCP RAS, Chernogolovka, Russia)*

18:15 Phase transitions in silicon at high pressures and temperatures  
*Khishchenko Konstantin Vladimirovich (JIHT RAS, Moscow, Russia)*

18:30  **SUPPER**

### *Pension Elbrus Tegenekli 20:00*

Chairman

*Dr. V. P. Efremov*

20:00– How we climbed Everest

21:30 *Starikovskiy Andrey Yuryevich (PU, Princeton, United States)*



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## Conference Program, March 2, 2018

### *Pension Elbrus Tegenekli 15:30*

Chairman

*Prof. V. B. Mintsev*

- 15:30 Anomalous thermodynamics and entropic fluid–fluid phase transition problem in highly compressed hydrogen and nitrogen (**plenary**)  
*Iosilevskiy Igor L'vovich (JIHT RAS, Moscow, Russia), Gryaznov V. K.*
- 16:00 Thermodynamic properties of hydrogen and helium in megabar pressure range  
*Gryaznov Victor Konstantinovich (IPCP RAS, Chernogolovka, Russia), Iosilevskiy I. L.*
- 16:15 Brightness temperature and electric conductivity of multiple shocked initially gaseous deuterium and helium up to 0.4 TPa  
*Ternovoi V. Ya., Nikolaev Dmitry Nikolaevich (IPCP RAS, Chernogolovka, Russia), Shutov A. V., Ostriuk A. V.*
- 16:30 Mechanism of the transition to the conducting state in solid hydrogen at high pressures  
*Norman G. E., Saitov Ilmur (HSE, Moscow, Russia)*
- 16:45 Metastable states of fluid–fluid phase transition of warm dense hydrogen. Interpretation of experimental data scatter for the fluid–fluid phase transition in hydrogen  
*Norman G. E., Saitov I. M., Sartan Roman Alexandrovich (JIHT RAS, Moscow, Russia)*

17:00  **COFFEE-BREAK**

Chairman

*Prof. A. A. Golubev*

- 17:15 Accelerator driven high energy density science: Status of high-energy-density physics at FAIR and GSI (**plenary**)  
*Hoffmann Dieter H.H. (XJTU, Xi'An, China), Zhao Y.*
- 17:45 Kilojoule-level multifunctional laser system ELF-MEPhI  
*Belkov S. A., Derkach V. N., Garanin S. G., Gubskiy K. L., Kuznetsov Andrey Petrovich (NRNU MEPhI, Moscow, Russia), Voronich I. N.*
- 18:00 Electromagnetic information technology for human body investigation  
*Gulyaev Yu. V., Cherepenin V. A., Pavlyukova Elena Rail'evna (IRE RAS, Moscow, Russia), Taranov I. V.*
- 18:15 The ion-correlation average-atom model in the limit of weak non-ideality  
*Ovechkin Anton Aleksandrovich (FSUE RFNC–VNIITF, Snezhinsk, Russia), Falkov A. L., Loboda P. A.*
- 18:30 Pseudo-atom molecular dynamics for the equation of state and ionic microstructure applications  
*Ovechkin A. A., Falkov Andrei Leonidovich (FSUE RFNC–VNIITF, Snezhinsk, Russia), Sapozhnikov F. A., Loboda P. A.*

18:45  **SUPPER**

### *KBSU Base 21:00*

21:00–  
23:00  **POSTER SESSION**



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## Conference Program, March 3, 2018

### Pension Elbrus Tegenekli 15:30

Chairman

Prof. A. V. Eremin

- 15:30 Investigation into shock compression of the materials (plenary)  
*Petrov Dmitry Vitalievich (FSUE RFNC-VNIITF, Snezhinsk, Russia), Garmashev A. Yu., Smirnov E. B.*
- 16:00 Structural changes of calcite after shock treatment in the Mbar-range  
*Schlothauer Thomas (TUBAF, IIC, Freiberg, Germany), Schimpf C., Kempe U., Heide G., Kroke E.*
- 16:15 Combustion of foamed emulsions containing biochar microparticles: Foam as a medium for incomplete oxidation of hydrocarbons  
*Kichatov B. V., Korshunov Alexey Mikhailovich (JIHT RAS, Moscow, Russia), Korshunova E. E., Kiverin A. D.*
- 16:30 Numerical study of various factors influence on the efficiency of hydrogen combustion in high-speed air flow  
*Kukshinov Nikolay Vladimirovich (CIAM, Moscow, Russia)*
- 16:45 Numerical study of combustion wave propagation initiated by discharge  
*Dobrovolskaya Anastasia Sergeyevna (JIHT RAS, Moscow, Russia), Filimonova E. A., Bityurin V. A., Bocharov A. N.*

17:00  **COFFEE-BREAK**

Chairman

Prof. I. L. Iosilevskiy

- 17:15 Thermodynamic parameters of lithium deuteride in pressure ranges 5–1000 GPa  
*Maevskii Konstantin Konstantinovich (LIH SB RAS, Novosibirsk, Russia)*
- 17:30 First-principle study of critical parameters of tungsten  
*Minakov Dmitry (JIHT RAS, Moscow, Russia), Levashov P. R.*
- 17:45 On consistency of dynamic experiments on thermodynamic properties of expanded liquid molybdenum  
*Paramonov Mikhail Anatol'evich (JIHT RAS, Moscow, Russia), Minakov D. V., Levashov P. R.*
- 18:00 The supercooled diamond melt at near normal pressure  
*Basharin Andrey Yurievich (JIHT RAS, Moscow, Russia), Dozhdikov V. S.*
- 18:15 Liquid drop model of nuclei capillary oscillations with account of viscosity  
*Khokonov Azamat Khazret-Alievich (KBSU, Nalchik, Russia)*
- 18:30 On distribution of particles over the constituent clusters  
*Khokonov Murat Khazratalievich (KBSU, Nalchik, Russia), Khokonov A. Kh.*

18:45  **SUPPER**

### KBSU Base 21:00

21:00–  
23:00  **POSTER SESSION**



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## Conference Program, March 4, 2018

### *Pension Elbrus Tegenekli 15:30*

Chairman

*Prof. V. V. Golub*

- 15:30 Stability of relativistic shock waves: Theory and numerical experiment  
*Konyukhov Andrey Victorovich (JIHT RAS, Moscow, Russia), Likhachev A. P., Levashov P. R., Iosilevskiy I. L.*
- 15:45 Failure and phase transitions in solid ceramics under uniaxial shock compression  
*Grigoryev Sergey Yurievich (VNIIA(S), Moscow, Russia), Dyachkov S. A., Parshikov A. N., Zhakhovskiy V. V.*
- 16:00 Smooth-particle-hydrodynamic mesomodeling of shock-produced ejecta from a randomly bulked layer of spherical particles  
*Egorova Maria Sergeevna (VNIIA(S), Moscow, Russia), Dyachkov S. A., Parshikov A. N., Zhakhovskiy V. V., Rogozkin D. B., Kuratov S. Ye.*
- 16:15 Modeling of contact boundary destruction in impact interaction of solid bodies  
*Radchenko Pavel Andreevich (TSUAB, Tomsk, Russia), Batuev S. P., Radchenko A. V.*
- 16:30 Numerical simulation of the propagation of elastoplastic waves in transtropic materials  
*Krivoshaina Marina Nikolaevna (ISPMS SB RAS, Tomsk, Russia), Tuch E. V., Strebkova E. A., Kobenko S. V.*
- 16:45 Formation of craters, seas and mascons on the Moon by galactic comets  
*Barenbaum Azary Aleksandrovich (OGRI RAS, Moscow, Russia), Shpekin M. I.*

17:00  **COFFEE-BREAK**

Chairman

*Prof. I. V. Lomonosov*

- 17:15 High energy density physics at the Facility for Antiproton and Ion Research  
*Golubev Alexander Alexandrovich (NRC KI, ITEP, Moscow, Russia)*
- 17:30 The dynamics of carbon nanoparticles size at the detonation of TNT–RDX charges  
*Rubtsov Ivan Andreevich (LIH SB RAS, Novosibirsk, Russia), Ten K. A., Titov V. M., Prueel E. R., Kashkarov A. O., Kremenko S. I.*
- 17:45 The study of linear inductive accelerator bremsstrahlung generation in two pulse mode of operation  
*Li Elena Sergeyevna (FSUE RFNC–VNIITF, Snezhinsk, Russia), Kolesnikov P. A., Nikitin O. A., Akhmetov A. A., Khrenkov S. D., Syskov D. V., Politov V. Yu., Legonkov V. V., Skovorodin D. I., Trunyov Yu. A., Kurkuchekov V. V., Popov S. S., Danilov V. V., Burdakov A. V., Astrelin V. T., Arakcheev A. S., Atlukhanov M. G., Starostenko D. A., Starostenko A. A., Kulenko Ya. V., Vyacheslavov L. N., Sinitskiy S. L., Timofeev I. V., Kuzmenko A. E., Zhelezkin D. A.*
- 18:00 Ultra-intense K-shell emission from medium  $Z$  foils irradiated by optical femtosecond laser pulses with intensity higher than  $10^{21}$  W/cm<sup>2</sup>  
*Alkhimova Mariya Andreevna (JIHT RAS, Moscow, Russia), Faenov A. Ya., Pikuz T. A., Skobelev I. Yu., Pikuz S. A., Nishiuchi M., Sakaki H., Pirozhkov A. S., Sagisaka A., Dover N. P., Kondo Ko., Ogura K., Fukuda Y., Kiriyaama H., Kando M., Nishitani K., Miyahara T., Watanabe Y., Kodama R., Kondo K.*
- 18:15–  
18:30 Laboratory studying of matter accretion in young stars by means of x-ray spectrometry  
*Filippov Evgeny Dmitrievich (JIHT RAS, Moscow, Russia), Ryazantsev S. N., Pikuz S. A., Skobelev I. Yu., Revet G., Chen S., Fuchs J., Khaghani D.*

*Polyana Cheget 19:30*

19:30–  
23:00



**BANQUET**



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## Conference Program, March 5, 2018

### *Pension Elbrus Tegenekli 15:30*

Chairman

*Prof. N. E. Andreev*

- 15:30 Studying the damage effect of high-power coherent terahertz pulses on living cells  
*Sitnikov Dmitry Sergeevich (JIHT RAS, Moscow, Russia), Ilyina I. V., Kosheleva N. V., Zurina I. M., Gorkun A. A.*
- 15:45 Simulation of single-, double- and multi-pulse laser ablation of metals  
*Povarnitsyn Mikhail Evgenievich (JIHT RAS, Moscow, Russia), Levashov P. R.*
- 16:00 Laser ablation thresholds for optical and x-ray lasers  
*Khokhlov Victor Alexandrovich (ITP RAS, Chernogolovka, Russia), Inogamov N. A., Faenov A. Ya.*
- 16:15 On factors controlling emittance of electron bunches accelerated in guiding structures  
*Veysman Mikhail Efimovich (JIHT RAS, Moscow, Russia), Andreev N. E., Kuznetsov S. V.*
- 16:30 Nonlinear resonance interactions of laser beam with dense atomic vapor  
*Sautenkov Vladimir Alekseevich (JIHT RAS, Moscow, Russia), Shneider M. N., Saakyan S. A., Vilshanskaya E. V., Zelener B. B., Zelener B. V., Fortov V. E.*
- 16:45 The use of molecules and solids to search for a new physics  
*Titov Anatoly Vladimirovich (NRC KI, PNPI, Gatchina, Russia), Petrov A. N., Skripnikov L. V., Mosyagin N. S., Isaev T. A.*

17:00  **COFFEE-BREAK**

Chairman

*Prof. L. G. Dyachkov*

- 17:15 Acceleration of metallic flyers on the Angara 5-1 installation  
*Oleinik Georgy Mikhailovich (SRC RF TRINITI, Troitsk, Russia), Tkachenko S. I., Grabovski E. V., Gribov A. N., Shishlov A. O., Khishchenko K. V.*
- 17:30 The impact of local current density increase on conductor destruction  
*Krivoshchev Sergey Ivanovich (SPbPU, Saint-Petersburg, Russia), Adamian Yu. E., Alekseev D. I., Magazinov S. G., Chernenkaya L. V.*
- 17:45 Multiscale modeling and simulation of nuclear materials  
*Stegailov Vladimir Vladimirovich (JIHT RAS, Moscow, Russia)*
- 18:00 Temperature measurement of light atoms by using two-photon resonances  
*Saakyan Sergey Aramovich (JIHT RAS, Moscow, Russia), Sautenkov V. A., Zelener B. B., Bobrov A. A., Zelener B. V.*
- 18:15 Properties of ultracold Rydberg gas and plasma  
*Zelener Boris Borisovich (JIHT RAS, Moscow, Russia), Bobrov A. A., Bronin S. Ya., Saakyan S. A., Sautenkov V. A., Vilshanskaya E. V., Zelener B. V.*
- 18:30 Diffusion coefficients of charged particles of ultracold in a magnetic field  
*Zelener Boris Vigdorovich (JIHT RAS, Moscow, Russia), Zelener B. B., Bobrov A. A., Bronin S. Ya., Khikhlyukha D. R.*

18:45  **SUPPER**

Chairman

*Dr. P.R. Levashov*

- 20:00 Coulomb logarithm in nonideal and degenerate plasmas  
*Filippov Anatoly Vasilievich (SRC RF TRINITI, Troitsk, Russia), Starostin A. N., Gryaznov V. K.*

- 20:15 Criteria of runaway electrons in a gas diode with a sharply nonuniform electric field  
*Zubarev Nikolay Mikhailovich (IEP UB RAS, Ekaterinburg, Russia)*
- 20:30 Effect of non-linear screening on thermodynamic properties of complex plasma  
*Martynova Inna Aleksandrovna (JIHT RAS, Moscow, Russia), Iosilevskiy I. L.*
- 20:45 Configurational entropy in dusty plasma model  
*Timofeev Alexey Vladimirovich (HSE, Moscow, Russia)*
- 21:00 Lunar dust under investigation of future Russian space mission  
*Dolnikov Gennady Gennadjevich (IKI RAS, Moscow, Russia), Zakharov A. V., Kuznetsov I. A., Shashkova I. A., Lyash A. N., Popel S. I., Bednyakov S. A.*
- 21:15 Spectroscopic investigation of Hall and helicon grid thrusters and low-temperature xenon-lamp plasma  
*Krivoruchko Dariya Dmitrievna (MIPT, Dolgoprudny, Russia), Skrylev A. V., Gorbunov A. V., Kharlan Y. A.*
- 21:30 Spectral investigations of arc helium plasma: Density effects  
*Dyachkov Lev Gavriilovich (JIHT RAS, Moscow, Russia), Kavyrshin D. I., Korshunov O. V., Chinnov V. F.*
- 21:45 **CLOSING CEREMONY**  
Concluding words by V. P. Efremov, K. V. Khishchenko, V. G. Sultanov
- 22:00–  **COFFEE-END**
- 22:30