



Conference Program, March 1, 2021

Opening Ceremony 15:00

Introduction by B. S. Karamurzov, Yu. K. Al'tudov, K. V. Khishchenko, V. G. Sultanov

Chairman

Prof. A. V. Eremin

15:45 Fortov equations of state (plenary)

Khishchenko Konstantin Vladimirovich (JIHT RAS, Moscow, Russia)

16:15 [zoom] Features of phase transitions in non-ideal plasmas (plenary)

Iosilevskiy Igor L'vovich (JIHT RAS, Moscow, Russia)

16:45



CONFERENCE PHOTO (OUTSIDE)

17:00



[ZOOM] CONFERENCE PHOTO



COFFEE-BREAK

Chairman

Prof. N. E. Andreev

17:15 Laser action: Structuring, peening and microfabrication of laminates (plenary)

Ashitkov S. I., Khokhlov V. A., Zhakhovsky V. V., Petrov Yu. V., Romashevskiy S. A., Ignatov A. I., Inogamov Nail Alimovich (ITP RAS, Chernogolovka, Russia)

17:45 Picosecond laser action on iron films: Elastic, plastic and polymorphic transformations

Khokhlov Victor Alexandrovich (ITP RAS, Chernogolovka, Russia), Ashitkov S. I., Inogamov N. A., Komarov P. S., Mursov S. A., Struleva E. V., Zhakhovsky V. V.

18:00 [zoom] Heating effects of high power THz pulses on water

Sitnikov Dmitry Sergeevich (JIHT RAS, Moscow, Russia), Ilina I. V., Pronkin A. A., Revkova V. A.

18:15 X-ray and THz generation from metal foil irradiated by laser pulses


Nazarov Maxim Mikhailovich (NRC KI, Moscow, Russia), Mitrofanov A. V., Margushev Z. Ch., Shcheglov P. A., Sidorov-Birykov D. A., Chaschin M. V., Zheltikov A. M., Panchenko V. Ya.

18:30 Hard x-ray focus characterization at the European X-ray Free Electron Laser using a fluorescent crystal detector

Makarov Sergey Stanislavovich (MSU, Moscow, Russia), Pikuz S. A., Pikuz T. A., Chernyaev A. P., Vagovic P., Mikes L., Grunert J., Kujala N., Schropp A., Nagler B., Lee H., David C., Seniutinas G., Bougiatioti P., Chalupsky J., Hajkova V., Burian T., Vozda V., Juha L., Nakatsutsumi M., Zastrau U., Makita M.

18:45 X-ray diagnostics of laser-induced plasma embedded in strong magnetic field with misaligned orientation

Filippov Evgeny Dmitrievich (JIHT RAS, Moscow, Russia), Makarov S. S., Yao W., Revet G., Khair B., Bolaños S., Burdonov K. F., Chen S. N., Starodubtsev M., Higginson D. P., Ciardi A., Pikuz S. A., Skobelev I. Yu., Fuchs J.

- 19:00 [zoom] Benchmark experiment to prove the influence of projectile excited states on the ion stopping in plasma
Zhao Y. T., Zhang Y. N., He B., Cheng R., Liu C. L., Zhou X. M., Ren J. R., Golubev A. A., Hoffmann Dieter H. H. (XJTU, Xi'An, China)
- 19:15  **SUPPER**
- Chairman *Prof. N.A.Inogamov*
- 20:00 [zoom] Atomistic simulations of nanoparticle generation by short pulse laser ablation of AgCu bilayers in liquid (plenary)
Shih C.-Y., Chen C., Shugaev M. V., Huang H., Zhigilei Leonid (UOVA, Charlottesville, United States)
- 20:30 Laser-driven relativistic electrons for high energy density research
Andreev Nikolay Evgen'evich (JIHT RAS, Moscow, Russia), Popov V. S., Rosmej O. N.
- 20:45 [zoom] High-current well-directed relativistic electron beams for multidisciplinary research
Rosmej Olga Nikolaevna (GSI, Darmstadt, Germany), Pukhov A., Skobliakov A., Popov V. S., Andreev N. E.
- 21:00 Synchrotron radiation as a tool for diagnostic of accelerated electrons dynamic in guiding structures
Veysman Mikhail Efimovich (JIHT RAS, Moscow, Russia), Andreev N. E.
- 21:15 [zoom] Proton–boron fusion in a compact scheme of plasma oscillatory confinement
Kurilenkov Yuri Konstantinovich (JIHT RAS, Moscow, Russia), Oginov A. V., Tarakanov V. P., Samoylov I. S., Gus'kov S. Yu.
- 21:30–
22:30 Infodemia as a new phenomenon in the COVID-19 era
Zykov Kirill Alekseevich (NIIP FMBA, Moscow, Russia)



Conference Program, March 2, 2021

Oral Session 15:30

Chairman

Prof. V. P. Veiko

- 15:30 [zoom] One-dimensional model of the indirect compression of targets under conditions close to the National Ignition Facility
Vergunova Galina Alekseevna (LPI RAS, Moscow, Russia)
- 15:45 [zoom] Localization and amplification of light in the explosion of porous-silicon-based composite
Zegrya G. G., Shashkov E. V., Karpova Anastasia Andreevna (Ioffe Institute, Saint-Petersburg, Russia), Vorobiev N. S., Freiman V. M., Zegrya A. G., Solomonov Yu. S.
- 16:00 Quantum coherence versus thermal noise: Ultrafast Bose-like electron self-trapping in preheated diamond
Kudryashov Sergey Ivanovich (LPI RAS, Moscow, Russia), Danilov P. A., Levchenko A. O., Smirnov N. A., Stsepuro N. G., Kovalev M. S., Oleynichuk E. A., Khmel'nitskii R. A.
- 16:15 [zoom] Impulse laser cutting of diamond accompanied by phase transitions to fullerene-type onions
Popov Mikhail Yurievich (TISNUM, Troitsk, Russia), Bondarenko M., Kulnitskiy B., Zholudev S., Blank V., Terentyev S.
- 16:30 Generation of mid-infrared pulses during interaction of two-color laser field with atomic clusters
Romanov Alexander Alekseevich (IAP RAS, Nizhny Novgorod, Russia), Silaev A. A., Vvedenskii N. V.
- 16:45 Heat transfer enhancement due to the spinodal decomposition of highly superheated solutions with lower critical dissolution temperature
Volosnikov Dmitriy Vladimirovich (ITP UB RAS, Ekaterinburg, Russia), Povolotskiy I. I., Vasin M. G., Skripov P. V.

17:00



COFFEE-BREAK

Chairman

Dr. K. V. Khishchenko

- 17:15 Oxygen-free combustion—one of the latest ideas of V E Fortov (plenary)
Eremin Alexander Victorovich (JIHT RAS, Moscow, Russia)
- 17:45 **[ZOOM] POSTER SESSION**
- 17:45 [zoom] Fragmentation of a metal droplet irradiated by a polarized ultrashort laser pulse
Grigoryev Sergey Yurievich (VNIIA(S), Moscow, Russia), Lakatosh B. V., Zhakhovskiy V. V., Dyachkov S. A., Medvedev V. V.
- 17:50 [zoom] Method for precise wavelength measurements of middle-Z ions He- and Li-like satellites emitted by laser plasma of mineral targets
Ryazantsev Sergey Nikolayevich (NRNU MEPhI, Moscow, Russia), Skobelev I. Yu., Martynenko A. S., Filippov E. D., Mishchenko M. D., Krüs M., Renner O., Pikuz S. A.

- 17:55 [zoom] Stochastic electron dynamics in microdroplet plasma irradiated by an ultrashort, intense laser pulse
Gozhev Denis Alexeyevich (LPI RAS, Moscow, Russia), Bochkarev S. G., Brantov A. V., Bychenkov V. Yu.
- 18:00 [zoom] New strategies of the hybridized carbyne-based nano-matrix spatially controlled growth during ion-assisted pulse-plasma deposition
Lukin Alexander Nickolaievich (WCRC, Tuapse, Russia), Gulseren O.
- 18:05 [zoom] Shock-induced elastic, plastic and polymorphic transformations in iron films by picosecond laser pulse
Murzov Semeon Alexandrovich (VNIIA(S), Moscow, Russia), Inogamov N. A., Zhakhovsky V. V., Khokhlov V. A., Ashitkov S. I., Struleva E. V., Romashevsky P. S.
- 18:10 [zoom] Damage of titanium alloys under tensile at high strain rates
Skripnyak V. V., Iohim K. V., Skripnyak E. G., Skripnyak Vladimir Albertovich (TSU, Tomsk, Russia)
- 18:15 [zoom] Simulation of Richtmyer–Meshkov instability in solids via smoothed particle hydrodynamics
Dyachkov Sergey Alexandrovich (VNIIA(S), Moscow, Russia), Grigoryev S. Yu., Parshikov A. N., Zhakhovsky V. V.
- 18:20 [zoom] Numerical modelling of combustion and electrization processes in a solid-fueled ramjet afterburning chamber
Yagodnikov D. A., Shukhov A. V., Bernikov V. V., Papyrin Pavel Vitalievich (BMSTU, Moscow, Russia)
- 18:25 [zoom] Ab initio calculations of transport and optical properties of Zr in the vicinity of melting
Fokin Vladimir Borisovich (JIHT RAS, Moscow, Russia), Minakov D. V., Levashov P. R.
- 18:30 [zoom] Calculation of electron transport properties of hot metallic plasma using semiclassical average atom model
Polyukhin Alexander Sergeevich (JIHT RAS, Moscow, Russia), Dyachkov S. A., Levashov P. R.
- 18:35 [zoom] Investigation of new metastable crystal structures of solid molecular hydrogen
Khalafyan Edvard Arsenovich (MIPT, Dolgoprudny, Russia), Obzhairov A. Y., Saitov I. M.
- 18:40 [zoom] Anharmonic lattice dynamics calculations of crystalline hydrogen
Obzhairov Anatoly Evgenievich (JIHT RAS, Moscow, Russia), Saitov I. M.
- 18:45 [zoom] Equations of state and elasticity of brucite and portlandite at high temperatures and pressures from classical atomistic simulations
Tararushkin Evgeny Victorovich (HSE, Moscow, Russia), Kalinichev A. G.
- 18:50–18:55 [zoom] Equations of state of the Mie–Grüneisen type as applied to problems of laser hardening of materials
Shepelev V. V., Inogamov N. A., Fortova S. V., Petrov Yuri Vasilievich (ITP RAS, Chernogolovka, Russia)
- 19:00  **SUPPER**
- 20:00–23:00 **POSTER SESSION**



Conference Program, March 3, 2021

Oral Session 15:30

Chairman

Prof. S. I. Krivosheev

- 15:30 Numerical study of converging secondary shocks in neutrally-stable shock waves
Konyukhov Andrey Viktorovich (JIHT RAS, Moscow, Russia), Levashov P. R., Likhachev A. P.
- 15:45 [zoom] Behavior of porous matter along boundaries at the micro-scale under dynamic compression
Schlothauer Thomas (TUBAF, IM, Freiberg, Germany), Keller K., Schimpf C., Kroke E., Heide G.
- 16:00 [zoom] One- to two-dimensional front crossover in laser-induced shock-waves modeling
Shepelev Vadim Vladimirovich (ICAD RAS, Moscow, Russia), Inogamov N. A., Petrov Yu. V., Fortova S. V., Zhakhovsky V. V., Perov E. V., Khokhlov V. A.
- 16:15 [zoom] Molecular-dynamics-informed neural networks for predicting the nucleation of dislocations and modelling of shock waves in thin metal films
Mayer Alexander Evgenievich (CSU, Chelyabinsk, Russia), Krasnikov V. S., Pogorelko V. V., Fomin E. V., Grachyova N. A., Lekanov M. V.
- 16:30 [zoom] Multiscale modeling of dynamical plasticity in Al–Cu alloy
Krasnikov Vasily Sergeevich (CSU, Chelyabinsk, Russia), Mayer A. E., Pogorelko V. V., Ebel A. A., Fomin E. V., Latypov F. T., Voronin D. S.
- 16:45 [zoom] Investigation of flames of methane–air mixtures stabilized on a flat porous burner
Mislavskii Vladimir Vladimirovich (LPI RAS, Moscow, Russia), Gubernov V. V., Pestovskii N. V., Tskhai S. N., Miroshnichenko T. P.

17:00



COFFEE-BREAK

Chairman

Prof. V. G. Sultanov

- 17:15 [zoom] Atomic number similarity law in individual electronic shells of all natural elements (plenary)
Shpatakovskaya Galina Vasilievna (KIAM RAS, Moscow, Russia)
- 17:45 Problem of South Pole–Aitken basin origin
Barenbaum Azary Alexandrovich (OGRI RAS, Moscow, Russia), Shpekin M. I.
- 18:00 **[ZOOM] POSTER SESSION**
- 18:00 [zoom] Molecular-dynamical model of crystalline lysozyme
Polyachenko Yury Anatolievich (MIPT, Dolgoprudny, Russia), Kondratyuk N. D., Stegailov V. V.
- 18:05 [zoom] Molecular dynamics modeling of protein diffusion in an aqueous solution
Tsikoridze Artyom Dmitrievich (MIPT, Dolgoprudny, Russia), Kondratyuk N. D., Stegailov V. V.
- 18:10 [zoom] Transport processes in aqueous sucrose solutions
Deshchenia Vladimir Igorevich (JIHT RAS, Moscow, Russia), Kondratyuk N. D., Lankin A. V., Norman G. E.

- 18:15 [zoom] Study of the threshold crystallization rate of Si–Al and Si–Au nanoparticles with molecular dynamics method
Zelenina Anastasiya Ilyichna (JIHT RAS, Moscow, Russia), Gordeev I. S., Kolotova L. N.
- 18:20 [zoom] THERMOS Toolkit: Taking into account non-equilibrium plasma effects in radiational hydrodynamical calculations
Grushin Alexander Sergeevich (KIAM RAS, Moscow, Russia), Vichev I. Yu., Solomyannaya A. D., Kim D. A., Tsygvintsev I. P.
- 18:25 [zoom] Atomic volumes of elements: Modern computational methods and experiment
Malyugin Alexander Alekseevich (JIHT RAS, Moscow, Russia), Burov A. S., Minakov D. V., Levashov P. R.
- 18:30 [zoom] Nucleation of soot nanoparticles from polycyclic aromatic hydrocarbon precursors
Potapov Denis Olegovich (MIPT, Dolgoprudny, Russia), Orekhov N. D.
- 18:35 [zoom] Kinetics of carbon soot growth from polycyclic aromatic hydrocarbon precursors: Atomistic modeling
Goldshstein Klim Dmitrievich (JIHT RAS, Moscow, Russia), Orekhov N. D.
- 18:40 [zoom] Disentanglement process during deformation of carbon-nanotubes-filled polyethylene
Logunov Mikhail Alexandrovich (JIHT RAS, Moscow, Russia), Orekhov N. D.
- 18:45 [zoom] Structural properties of liquid carbon: Atomistic modeling
Dereka Stanislav Arturovich (MIPT, Dolgoprudny, Russia), Orekhov N. D.
- 18:50 [zoom] The investigation of opto-polarizing properties of shock-compressed warm dense matter
Zaporozhets Yuri Borisovich (IPCP RAS, Chernogolovka, Russia), Mintsev V. B., Gryaznov V. K., Reinholz H., Röpke G.
- 18:55 [zoom] Production of quasimonoenergetic electron bunches in the interaction of a laser pulse with an inhomogeneous plasma
Popov Vyacheslav Sergeevich (JIHT RAS, Moscow, Russia)
- 19:00 [zoom] Classification of particle interaction potentials based on physical parameters of particle system
Gevorgyan Davit Gevorgovich (MIPT, Dolgoprudny, Russia)
- 19:05  **SUPPER**
- 20:00–
23:00 **POSTER SESSION**



Conference Program, March 4, 2021

Oral Session 15:30

Chairman

Dr. K. V. Khishchenko

- 15:30 [zoom] Thermodynamics of nonideal plasma in the SAHA model (plenary)
Gryaznov Victor Konstantinovich (IPCP RAS, Chernogolovka, Russia), Iosilevskiy I. L., Ivanova A. N., Starostin A. N.
- 16:00 [zoom] Anomalies of spatial ions distribution in trap with different restraining potential
Chigvintsev Alexander Yrievich (MIPT, Dolgoprudny, Russia), Iosilevskiy I. L., Noginova I. Yu., Zorina I. G.
- 16:15 [zoom] The thermal and “cold” ionization mechanism for conductivity of metal vapors in the near-critical region
Khomkin A. L., Shumikhin Aleksey Sergeevich (JIHT RAS, Moscow, Russia)
- 16:30 [zoom] Equation of state and the topology of hydrogen bonding networks in water at high temperatures and pressures
Kalinichev Andrey Gennadievich (HSE, Moscow, Russia)
- 16:45 Effect of high pressure torsion at different temperatures on the structure-phase transformations in amorphous iron-based alloys
Sundeev Roman Vjacheslavovich (RTU MIREA, Moscow, Russia), Shalimova A. V., Glezer A. M., Veligzhanin A. A., Perov N. S.

17:00




COFFEE-BREAK

Chairman

Dr. M. A. Kadatskiy

- 17:15 $V(P)$ equations of state of novel lanthanum and yttrium superhydrides
Kuzovnikov Mikhail Alexandrovich (ISSP RAS, Chernogolovka, Russia)
- 17:30 [zoom] Volatile nature of liquid–liquid phase transition in dense hydrogen
Levashov Pavel Remirovich (JIHT RAS, Moscow, Russia), Minakov D. V.
- 17:45 [zoom] Ab initio calculations of thermophysical properties of liquid metals in the vicinity of the liquid–gas coexistence curve
Minakov Dmitry Vyacheslavovich (JIHT RAS, Moscow, Russia), Paramonov M. A., Levashov P. R.
- 18:00 [zoom] Semimetallic and metallic states of crystalline molecular hydrogen
Saitov Ilnur Minnigazyevich (HSE, Moscow, Russia)
- 18:15 Consideration of a heterogeneous medium taking into account the microstructure
Mishin Aleksey Vladimirovich (ITAM SB RAS, Novosibirsk, Russia)
- 18:30 [zoom] Comparative estimation of the properties of liquid metals at high temperatures and pressures using the methods of classical and ab initio molecular dynamics
Gelchinski Boris Rafailovich (IMET UB RAS, Ekaterinburg, Russia), Yurev A. A., Belaschenko D. K.
- 18:45 Nanobubbles diffusion in metals: Theory and atomistic modelling
Stegailov Vladimir Vladimirovich (HSE, Moscow, Russia), Antropov A. S.

- 19:00 The formation energies of magnetite vacancies within DFT+U
Shutikova Maria Igorevna (JIHT RAS, Moscow, Russia), Stegailov V. V.
- 19:15– [zoom] Defect formation energies in FeO: A comparison of molecular statics and molecular dynamics
- 19:30 *Fominykh Nikita Alekseevich (MIPT, Dolgoprudny, Russia), Shutikova M.I., Stegailov V. V.*
- 20:00–  **BANQUET**
- 23:00




Conference Program, March 5, 2021

Oral Session 15:30

Chairman

Prof. V. V. Stegailov

- 15:30 [zoom] Exciton dissociation in warm dense molecular hydrogen
Fedorov Ilya Dmitrievich (JIHT RAS, Moscow, Russia), Stegailov V. V.
- 15:45 Polymorphic transformations and melting of ice XVII: Molecular dynamics modeling
Barseghyan Alvard Tigranovna (MIPT, Dolgoprudny, Russia), Stegailov V. V.
- 16:00 [zoom] Transport properties of confined liquid hydrocarbons in slit pores
Pisarev Vasily Vyacheslavovich (HSE, Moscow, Russia)
- 16:15 [zoom] Collective motion of atoms in solids
Negodin Vladislav Dmitrievich (JIHT RAS, Moscow, Russia), Fleita D. Iu., Pisarev V. V., Norman G. E.
- 16:30 [zoom] Molecular dynamics study of uranium-dioxide sintering process
Orlova Yuliia Vladimirovna (MIPT, Dolgoprudny, Russia), Kolotova L. N.
- 16:45 [zoom] Molecular dynamics study of the glass transition temperature and elastic properties of the Zr-Nb amorphous alloy
Kliavinek Sergei Sergeevich (EPFL, Lausanne, Switzerland), Kolotova L. N.
- 17:00  **COFFEE-BREAK**

Chairman

Prof. L. G. Dyachkov

- 17:15 THERMOS Toolkit: Self-consistent solution of the radiation transfer equation with kinetics in one-dimensional geometries
Vichev Ilya Yurievich (KIAM RAS, Moscow, Russia), Solomyannaya A. D., Grushin A. S., Kim D. A.
- 17:30 [zoom] WPMD-DFT simulations of shock-compressed deuterium
Lavrinenko Yaroslav Sergeevich (JIHT RAS, Moscow, Russia), Morozov I. V., Valuev I. A.
- 17:45 [zoom] Many-body quantum dynamics by means of the TDDFT-based reduced density matrix theory
Nazarov Vladimir Yurievich (MIPT, Dolgoprudny, Russia)
- 18:00 Territorial protection utilising seismic barriers using granular metamaterials
Bratov Vladimir Andreevich (IPME RAS, Saint-Petersburg, Russia), Kuznetsov S. I., Morozov N. F., Ilyashenko A.
- 18:15 [zoom] Pressure-produced ionization of non-ideal degenerate plasmas and electrical conductivity
Röpke Gerd (UR, Rostock, Germany), Reinholz H.
- 18:30 [zoom] Study of nonideal ultracold calcium plasma based on autoionization of Rydberg states
Vilshanskaya Evgeniya Vladimirovna (JIHT RAS, Moscow, Russia), Saakyan S. A., Sautenkov V. A., Bobrov A. A., Galstyan K. P., Zelener B. B.

18:45 Some approach diagnostic electric and kinetic parameters dusty plasma system
Dolnikov Gennady Gennadiyevich (IKI RAS, Moscow, Russia), Kuznetsov I. A., Kartasheva A. A., Lyash A. N., Dubov A. E., Bychkova A. S., Shehovtseva A. V., Bednyakov S. A., Poroykov A. Yu., Shashkova I. A., Zakharov A. V.

19:00  **SUPPER**

Chairman

Prof. S. I. Kudryashov

20:00 [zoom] Non-linear screening scaling in a highly asymmetric complex plasma
Martynova Inna Aleksandrovna (JIHT RAS, Moscow, Russia), Iosilevskiy I. L.

20:15 Confinement impact on the complex plasmas structure
Klumov Boris Aleksandrovich (JIHT RAS, Moscow, Russia)

20:30 Conversion of energy of fast charged particles into electricity due to non-uniform inert gas ionization
Filippov Anatoly Vasilievich (JIHT RAS, Moscow, Russia), Babichev V. N., Pal' A. F.

20:45 [zoom] Experimental study of the spectral characteristics of stochastic motion in chain structures of microparticles in a dc gas discharge
Sametov Eduard Aleksandrovich (JIHT RAS, Moscow, Russia), Lisin E. A., Kononov E. A., Vaulina O. S., Vasiliev M. M., Petrov O. F.

21:00 Mechanisms of dust particle rotation in stratified dc discharges in inhomogeneous magnetic fields
Dyachkov Lev Gavriilovich (JIHT RAS, Moscow, Russia)

21:15 [zoom] Numerical modeling of ns discharge development in strong magnetic field
Starikovskiy Andrey Yurievich (PU, Princeton, United States), Aleksandrov N. L., Shneider M. N.

21:30 [zoom] Study of interaction of He plasma with W divertor modules in the PLM plasma installation
Kavyrshin Dmitry Igorevich (JIHT RAS, Moscow, Russia), Chinnov V. F., Budaev V. P., Fedorovich S. D., Karpov A. V., Martynenko Yu. V., Gubkin M. K., Lukashovsky M. V., Zakharenkov A. V., Lubenchenko A. V., Marchenkov A. Y., Vasiliev G. B., Chan Quang V., Rogozin K. A., Konkov A. A.

21:45– **CLOSING CEREMONY**

22:00 Concluding words by *K. V. Khishchenko, V. G. Sultanov*