

## PROGRAM

### Scientific-Coordination Session on "Non-Ideal Plasma Physics" (December 6-7, 2012, Presidium RAS, Leninskiy avenue, 32a, Moscow) Chair - academician Vladimir Fortov

#### December 6 2012

#### 9:30 Fortov V.E. - Opening Talk

#### Physics of non-ideal plasma under strong laser and heavy-ion beams

1. 09:45- **Pikuz Sergey A.** (JIHT RAS, Moscow, Russia), Faenov A.Ya., Colgan J., Abdallah Jr. J.,  
10:00 Zhidkov A., Wagenaars E., Culfa O., Dance R.J., Rossall A., Booth N., Lancaster K.L.,  
Evans R.G., Gray R.J., McKenna P., Kaempfer T., Schulze K.S., Uschmann I., Skobelev  
I.Yu., Woolsey N.C. *Exotic dense matter states pumped by relativistic laser plasma in a  
radiation dominated regime*
2. 10:00- **Ashitkov Sergey Igorevich** (JIHT RAS, Moscow, Russia), Komarov P.S., Ovchinnikov  
10:15 A.V., Struleva E.V., Agranat M.B., Inogamov N.A., Khokhlov V.A., Zhakhovsky V.V., Emirov  
Yu.N., Oleynik I.I. *Femtosecond laser ablation and strength of liquid metals at extremely  
high strain rates*
3. 10:15- **Romashevskiy Sergey Andreevich** (JIHT RAS, Moscow, Russia), Agranat M.B., Andreev  
10:30 N.E., Ovchinnikov A.V., Chefonov O.V., Rosmej O.N. *Characteristic x-ray generation in  
femtosecond laser-nanostructured target interaction*
4. 10:30- **Orlov Nikolay Yurievich** (JIHT RAS, Moscow, Russia), Denisov O.B., Vergunova G.A.,  
10:45 Rosmej O.N. *Theoretical and experimental studies of radiative and gas dynamic properties  
of substances and their applications to laser and heavy ion beams experiments.*
5. 10:45- **Ksenofontov Dmitri Mikhailovich** (ILC MSU, Moscow, RU), Ivochkin A.Yu., Karabutov  
11:00 A.A., Kaptilniy A.G., Trofimov A.D. *High energy states of thermally thin metal foils induced  
by nanosecond laser pulse*

#### Physics of Extreme States of Matter and Astrophysics

6. 11:00- **Zakharov Valentin Ivanovich** (SSC RF ITEP, Moscow, Russia) *Anomalously slow  
11:15 equilibration of quark-gluon plasma*
7. 11:15- **Polikarpov Mikhail Igorevich** (ITEP, Moscow, RU) *Quark gluon plasma in the magnetic  
11:30 field*
8. 11:30- **Filinov Vladimir Sergeevich** (JIHT RAS, Moscow, Russia), Ivanov Yu.B., Bonitz M. I.,  
11:45 Levashov P.R. *Color path-integral Monte-Carlo simulations of strongly coupled of quark-  
gluon plasma: thermodynamic and transport properties*
9. 11:45- **Mintsev Victor Borisovich** (IPCP RAS, Chernogolovka, Russia), Fortov V.E., *On quantum  
12:00 bound of nonideal plasma shear viscosity*
10. 12:00- **Gordon Eugene Borisovich** (IPCP RAS, Chernogolovka, Russia) *The processes of*

- 12:15 *neutral, charged and dusty particles in superfluid helium*
11. 12:15- **Yakub Eugene S.** (ONEU, Odessa, UA) *Ionic model of phase IV of solid hydrogen*  
12:30
- 12:30- **LUNCH**
- 14:00

## Experimental Investigations of Strongly Coupled Plasma

### Combined presentation (20 + 5)

- 12, 13 14:00- **Zhernokletov Mikhail Vasilievich** (RFNC-VNIIEF, Sarov, Russia), Arinin V.A., Buzin V.N.,  
14:25 Davydov N.B., Kirshanov S.I., Mezhevov A.B., Novikov M.G., Orlov V.D., Khrustalyov  
V.V. *Quasi-isentropic and shock-wave compressions of dense gaseous deuterium in  
pressure range up to 500~GPa. Shock compression of gaseous nitrogen*
- Novikov Mikhail Gennadievich** (RFNC-VNIIEF, Sarov, Russia), Zhernokletov M.V.,  
Kanunova L.I., Kirshanov S.I., Kovalev A.E., Luzin A.A., Mezhevov A.B., *Measurement of  
sound velocity in porous aluminum in megabar pressure range*

### Combined presentation (20 + 5)

- 14, 15 14:25- **Mochalov Mikhail Alexeevich** (RFNC-VNIIEF, Sarov, Russia) *New experiments and  
14:50 perspectives of investigation of materials properties in megabar range of pressures*
- Blikov Anton Olegovich** (RFNC-VNIIEF, Sarov, Russia), Mochalov M.A. *Measurement of  
quasi-isentropic compressibility of deuterium and helium at pressures 1500-5000 GPa*
16. 14:50- **Nikolaev Dmitry Nikolaevich** (IPCP RAS, Chernogolovka, Russia), Ternovoi V., Kim V.,  
15:05 Shutov A., Zharkov A. *High pressure pulse generators, based on Mach reflection of shock  
waves*
17. 15:05- **Molodets Alexander Mikhailovich** (IPCP RAS, Chernogolovka, Russia), Shakhray D.V.,  
15:20 Golyshev A.A. *Physical-chemical properties of lithium and titanium hydrides in the megabar  
pressure range of shock compression*
18. 15:20- **Pinchuk Mikhail Ernestovich** (IEE RAS, Saint-Petersburg, Russia), Bogomaz A.A., Budin  
15:35 A.V., Rutberg Ph.G. *Energy density increasing in the channel of super-high pressure  
megaampere discharge due to resonance of different type oscillations of the channel*
19. 15:35- **Fedorovich Oleg Antonovich** (KINR NASU, Kiev, UA), Voitenko L.M. *About the influence  
15:50 of the parameters of dense plasma on its decay coefficient at the electron concentration  
 $10^{17} \text{cm}^{-3} \leq N_e \leq 10^{22} \text{cm}^{-3}$*

## Theoretical and Numerical Investigation of Strongly Coupled Plasma

20. 15:50- **Volkov Nikolay Borisovich** (IEP UB RAS, Ekaterinburg, Russia), Chingina E.A. A  
16:05 *mesoscopic model for solid metals at high energy densities*
21. 16:05- **Ivanovskis G.** (JIHT RAS, Moscow, Russia), Norman G.E., Stegailov V.V. *Anomalous  
16:15 diffusivity of ionic liquids. A classical molecular dynamics study*
22. 16:15- **Zhilyaev Petr Aleksandrovich** (JIHT RAS, Moscow, Russia), Stegailov V.V. *Ab-initio*

- 16:25 *calculation of electrical and thermal conductivity of warm dense matter*
23. 16:25- **Saitov I.M.** (JIHT RAS, Moscow, Russia), Norman G.E., Stegailov V.V., Zhilyaev  
16:35 *P.A. Reflectivity of shocked xenon plasma*
- 16:35- **Poster Session**
- 17:35

## December 7 2012

- 10:00- **Poster Session**  
17:00

## Theoretical and Numerical Investigation of Strongly Coupled Plasma

24. 09:30- **Gryaznov Viktor Konstantinovich** (IPCP RAS, Chernogolovka, Russia), Iosilevskiy I.L.,  
09:45 Starostin A.N., Roerich V.C. *SAHA-S model of solar plasma thermodynamics*
25. 09:45- **Vorob'ev Vladimir Sergeevich** (JIHT RAS, Moscow, Russia), Grushin A.S., Novikov  
10:00 V.G. *Application of average atom model to calculations of thermodynamic properties of some substances at megabar pressures*
26. 10:00- **Khomkin Alexander Lvovich** (JIHT RAS, Moscow, Russia), Shumikhin A.S. *Phase  
10:15 transitions in dense hydrogen and deuterium*
27. 10:15- **Larkin Alexander Sergeevich** (JIHT RAS, Moscow, Russia), Filinov V.S. *Semi-relativistic  
10:30 description of quantum bound state in harmonic approximation*
28. 10:30- **Veklenko Boris Alexandrovich** (JIHT RAS, Moscow, Russia) *Theory of maxwell plasma  
10:45 from quantum electrodynamics point of view*
29. 10:45- **Maevskiy Konstantin Konstantinovich** (LIH SB RAS, Novosibirsk, Russia), Kinelovskiy  
11:00 S.A. *Characteristics of shock-wave loading of high porous mixes*
30. 11:00- **Lankin A.V.** (JIHT RAS, Moscow, Russia), Norman G.E., Amirov R. Kh. *Recombination in  
11:15 dense ion plasma*

## Ultra-cold non-ideal plasma

31. 11:15- **Dumin Yurii Viktorovich** (SRI RAS, Moscow, RU) *Simulation of the recombination in non-  
11:30 ideal ultracold plasmas*

Combined presentation (15 + 5)

- 32, 33 11:30- **Khikhlukha Danila Romanovich** (JIHT RAS, Moscow, Russia), Bobrov A.A., Bronin S.J.,  
11:40 Manykin E.A., Zelener B.B., Zelener B.V. *Recombination rate in ultracold plasma in a magnetic field*

**Bobrov Andrei Alexandrovich** (JIHT RAS, Moscow, Russia), Khikhlukha D.R., Zelener B.B., Zelener B.V. *The influence of nonideality on recombination rate in ultracold plasma*

- 11:50- **LUNCH**  
13:30

## Investigation of Dusty Plasma

34. 13:30- **Usachev Alexander Dmitrievich** (JIHT RAS, Moscow, Russia), Zobnin A., Petrov O.,  
13:45 Thoma M., Hoefner H., Fink M., Pustynnik M., Morfill G. *Experimental results from the Plasma Kristall-4 experiment under microgravity conditions aboard the A300-Zero-G plane in 2010 and 2012.*
35. 13:45- **Zhukhovitskii Dmitry Igorevich** (JIHT RAS, Moscow, Russia), Molotkov V.I., Lipaev A.M.,  
14:00 Naumkin V.N., Thomas H.M., Ivlev A.V., Morfill G.E. *Nonviscous motion of a slow particle in the dust crystal under microgravity conditions*
36. 14:00- **Klumov Boris Alexander** (JIHT RAS, Moscow, Russia) *How to quantify order-disorder transition: from dusty plasmas to Lennard-Jones and hard sphere systems*  
14:15
37. 14:15- **Shalenov Erik Ongarovich** (al Farabi KazNU, Almaty, KZ), Dzhumagulova  
14:30 K.N., *Investigation of the cross sections of the semiclassical plasma particles on the basis of the dynamic interaction potential*

Combined presentation (20 + 5)

- 38, 39 14:30- **Lapitskiy Dmitry Sergeevich** (JIHT RAS, Moscow, Russia), Filinov V.S., Deputatova L.V.,  
14:55 Vasilyak L.M., Vladimirov V.I., Pechorkin V.Ya. *Dust particles behavior in linear Paul trap*
- Shumova Valeria Valerievna** (JIHT RAS, Moscow, Russia), Polyakov D.N., Vasilyak L.M. *Peculiarities of glow discharge positive column with dust particles in neon*
40. 14:55- **Khrapak Alexey Georgievich** (JIHT RAS, Moscow, Russia) *Energy spectrum of vacancies and melting*  
15:10
41. 15:10- **Vasilieva Elena Veler'evna** (JIHT RAS, Moscow, Russia), Vaulina O.S. *Orientational order and formation of topological defects in two-dimensional non-ideal systems*  
15:25
42. 15:25- **Timofeev Alexey Vladimirovich** (JIHT RAS, Moscow, Russia), Norman G.E., *Energy transfer in dusty plasma*  
15:40
43. 15:40- **Dyachkov L.G.** (JIHT RAS, Moscow, Russia), Myasnikov M.I., Petrov O.F. *Small Coulomb clusters in a cusp magnetic trap: the transition from 2D to 3D*  
15:55

## 16:00-18:00 Chronicles of Scientific Events and Discussion. Closing Ceremony

### Poster Presentations

1. **Iosilevskiy I.L., Borovikov D.S.** *Semi-analytical calculations for parameters of boiling layer in isentropic expansion of warm dense matter with Van der Waals equation of state*
2. **Minakov D.V., Levashov P.R.** *Estimation of average degree of ionization in quantum molecular dynamics calculations*
3. **Vaulina O.S., Lisina I.I., Koss X.G** *The formation of quasi-one-dimensional structures of particles with isotropic pair interaction potentials*
4. **Lebo I.G., Lebo A.I.** *The model of energy transport in turbulent under critical laser plasma of porous target*
5. **Uspenskiy Yu.A., Kulatov E.T., Magnitskaya M.V., Lepeshkin S.V., Baturin V.S., Matsko N.L.** *Ab*

*initio studies of novel complex-structure materials for spintronics and nanoelectronics*

6. **Oreshkin V.I., Chaikovsky S.A.** *Formation of a neck in an X-pinch*
7. **Stepanenko A.A., Krasheninnikov S.I.** *On the dynamics of rotationally symmetric dust grain in magnetized plasma*
8. **Golyshev A.A., Shakh-ray D.V., Kim V.V., Molodets A.M.** *Electrical resistance of polytetrafluoroethylene (PTFE) at stepwise shock compression up to 150 GPa*
9. **Sadykova S.P., Rukhadze A.A., Samkharadze T.G., Khishchenko K.V.** *Amplification of a surface electromagnetic wave by running over plasma surface ultrarelativistic electron bunch as a new scheme for generation of terahertz radiation*
10. **Kurilenkov Yu.K., Tarakanov V.P., Guskov S.Yu.** *Oscillating plasmas: from strong nonideality to fusion temperatures*
11. **Fedoseev A.V., Sukhinin G.I.** *Dust cloud radial confinement in the positive column of a glow discharge*
12. **Yakub L.N.** *Melting line of polymeric nitrogen*
13. **Antipov S.N., Vasiliev M.M., Petrov O.F.** *Two-component dust systems in dc glow discharge at cryogenic temperatures*
14. **Munirov V.P., Filippov A.V.** *Electrostatic interaction of a charged dielectric spherical particle with a point charge in plasmas*
15. **Anisimov S.I., Inogamov N.A., Khokhlov V.A., Migdal K.P., Petrov Yu.V.** *Metals under the action of femtosecond laser pulse: specifics of kinetic characteristics and shock waves*