

INTERNATIONAL CONFERENCE ON STRONGLY COUPLED COULOMB SYSTEMS

June 20-25, 2005

Moscow, Russia

<http://www.ihed.ras.ru/sccs2005>



FINAL ANNOUNCEMENT

Travel Information

Meeting will be organized for those participants who arrive to the airports Domodedovo and Sheremet'ev on the 19th, 20th, and 21st of June. Several buses will be provided to take travelers to the hotel Sputnik or the city center. If you want to be met please inform the LOC about you arrival date, time and flight number.

Conference Location

The conference will be held in the Building of Presidium of the Russian Academy of Sciences. The lecture hall is on the first floor. Please follow the signs to reach the hall. The poster sessions will be held in the next hall. Room for the Internet access will be available close to the lecture hall.

Accommodation

Preferred accommodation for the participants is the hotel Sputnik which is located close to the Conference site (15 minutes on foot, see the map on the web site). For lodging details please contact the official tour operator of the Conference (International Ecology Fund-Traveller, Director: Zakharova Olga, e-mail: meftra@kks.com.ru).

Payment for the hotel can be made by a credit card (Visa or MasterCard) at the hotel reception. No guarantee deposit is required for the Sputnik hotel.

Presentation Instructions

Oral presentations. The time allocated for a plenary invited talk is 45 minutes including 5 minutes for discussion, for a topical invited talks is 30 minutes including 5 minutes for discussion. Presenters must keep strictly to time. Electronic presentations are strongly recommended, although overhead projectors will be available upon request. Speakers are recommended to use the PCs and projector systems permanently available in the lecture hall; the presentations can be loaded from CD-ROM, flash drive or floppy. If it is unavoidable to use your personal laptop, please make sure that it has the standard VGA output for a CCD projector.

The official language of the Conference is English.

Poster presentations. Each author of a poster presentation will be provided with a board able to accommodate A0 landscape sized poster. Boards are 120 cm wide by 90 cm high. The photo of the board is presented on the web site.

All posters should be exposed by **9:00** on the proper day. Presenting author should be available for discussions at least during the coffee breaks.

Conference Proceedings

Full conference proceedings including invited talks and selected posters will be published as a special issue of Journal of Physics A: Mathematical & General by IOP Publishing Ltd. The deadline for paper submission is **September 19, 2005**. All papers will be refereed following the guidelines for referees issued by the Journal.

Normal refereeing standards of the Journal shall be maintained. The proceedings will be distributed to the SCCS participants in April 2006. Instructions for authors will be presented here after the Conference.

The Special Issue Guest Editors will be Vladimir E. Fortov (Russian Academy of Sciences, Russia), Kenneth Golden (University of Vermont, USA), Genri E. Norman (Institute for High Energy Densities, Russia).

Social Events

- **Welcome party (Monday, June 20)** is planned to be held aboard a comfortable ship which will give a wonderful opportunity to see the historical sites on scenic banks of the Moskva-river.
- **Moscow sightseeing bus tour (Wednesday, June 22)** will include visiting the Red Square, Cathedral of Christ the Savior, memorial complex on Poklonnaya Gora, panorama of Moscow from Vorob'yovi Gori.
- **Conference banquet (Thursday, June 23)** will take place in the Building of the Presidium of RAS next to the lecture hall.

Additional information about social events is available at the web site.

Organizers and Sponsors

- Russian Academy of Sciences
- Institute for High Energy Densities
- Institute of Problems of Chemical Physics
- Moscow Institute of Physics and Technology
- Ministry of Education and Science of the Russian Federation
- Russian Foundation for Basic Research
- Moscow Committee of Science and Technologies
- Russian Joint Stock Company "Unified Energy System of Russia"
- The International Association for the Promotion of Cooperation with Scientists from the New Independent States (NIS) of the Former Soviet Union

Program Committee

Kenneth Golden (chair)	USA	James Dufty	USA	Vladimir Fortov	Russia
Jean Clerouin	France	Gabor Kalman	USA	Genri Norman	Russia
John Bollinger	USA	Sankar das Sarma	USA		

Local Organizing Committee (LOC)

Vladimir Fortov	chairman	Oleg Petrov	Genri Norman
Vladimir Vorob'ev	vice-chairman	Yury Lebedev	Alexander Khomkin
Igor Morozov	secretary	Victor Mintsev	Konstantin Khishchenko
Valery Sultanov	secretary	Edward Son	Pavel Levashov
Vladimir Efremov		Igor Iosilevskiy	Nikolay Shilkin

Correspondence and Information

LOC secretaries: Dr. Igor Morozov and Dr. Valery Sultanov
Institute for High Energy Densities RAS, Izhorskaya 13/19, Moscow 125412, Russia
Tel: +7 (095) 484 2456, Fax: +7 (095) 485 7990
E-mail: sccs2005@ihed.ras.ru

Chairman Prof. Vladimir Fortov
Phone: +7 (095) 485 7988

Official tour operator of the Conference: International Ecology Fund-Traveller (IEF-Traveller)
Director: Zakharova Olga
Leninsky Prospekt, 42/3, office 3233, Moscow 119119, Russia
Tel: +7 (095) 938-73-19, 938-73-95, Fax: +7 (095) 137-06-36, 930-99-56
E-mail: meftra@kks.com.ru

Conference Schedule

SUNDAY, JUNE 19

14:00 Registration opening

19:00 Welcome reception

MONDAY, JUNE 20

Opening Remarks

9:00 Vladimir E. Fortov, Russian Academy of Sciences

Session I: Dense Plasmas and Warm matter

(Chair: Gerd Roepke)

9:15 **I2.** Victor B. Mintsev, V.E. Fortov, Dense plasma properties from shock wave experiments

10:00 **T2.** Dieter H.H. Hoffmann, A. Blazevic, S. Neff, P. Ni, O. Rosmej, M. Roth, N.A. Tahir, A. Tauschwitz, S. Udrea, D. Varentsov, K. Weyrich, Frontiers of dense plasma physics with intense beams and accelerator technology

10:30 Coffee break and Poster Session

Session II: Dense Plasmas and Warm Matter

(Chair: Friedrich Hensel)

11:00 **I1.** Werner Ebeling, The method of effective potentials in the quantum-statistical theory of plasmas

11:45 **T1.** Alan W. DeSilva, A.D. Rakhel, Direct measurements of the electrical resistivity of dense metal plasmas

12:15 **T4.** Anatoly D. Rakhel, V.N. Korobenko, A.I. Savvatimski, Electrical conductivity and thermodynamic functions of aluminum in the metal-nonmetal transition region

12:45 **T9.** Mikhail A. Mochalov, M.V. Zhernokletov, R.I. Il'kaev, A.L. Mikhailov, V.V. Khrustalev, V.A. Arinin, V.K. Gryaznov, I.L. Iosilevskiy, V.B. Mintsev, V.E. Fortov, Study of thermodynamic and optical properties of deuterium under shock and quasiisentropic compression

13:15 - 14:45 Lunch

Session III: Astrophysics and Dense Hydrogen

(Chair: Jean Clerouin)

14:45 **I3.** Gilles Chabrier, Recent progress in dense astrophysical plasmas: giant planets, White Dwarfs, neutrons stars

15:30 **T6.** Werner Däppen, The equation of state for the interior of the Sun

16:00 Coffee break and Poster Session

18:00 Excursion aboard a ship on the Moskva-river

POSTER SESSIONS (start at 9:00)

Dusty Plasmas (P39-P69)

TUESDAY, JUNE 21

Session IV: Astrophysics and Dense Hydrogen

(Chair: Werner Ebeling)

9:00 I4. Vladimir S. Filinov, *M. Bonitz, V.E. Fortov, W. Ebeling, H. Fehske, D. Kremp, W.D. Kraeft, V. Bezukrovniy, P.R. Levashov*, Monte Carlo simulations of dense quantum plasmas

9:45 T7. Giulia Galli, First principles simulations of dense hydrogen

10:15 T10. Alexander Y. Potekhin, *G. Chabrier, D. Lai, W.C.G. Ho, M.I. van Adelsberg*, Nonideal strongly magnetized plasmas of neutron stars and their electromagnetic radiation

10:45 Coffee break

Session V: Astrophysics and Dense Hydrogen

(Chair: Gilles Chabrier)

11:15 I5. Andrey N Starostin, *V.C. Roerich*, Equation of state of weakly nonideal plasmas and electroneutrality condition

12:00 T11. Ronald Redmer, *H. Juranek, N. Nettelmann, V. Schwarz*, Thermodynamic and transport properties of dense H-He mixtures

12:30 T5. Jerome O. Daligault, *M.S. Murillo*, Impact of impurity sedimentation on cooling of White Dwarfs

13:00-14:30 Lunch

Session VI: Dense Hydrogen and Warm Matter

(Chair: Vladimir Filinov)

14:30 T3. Konstantin V. Khishchenko, *A.E. Kovalev, I.V. Lomonosov, M.A. Mochalov, Yu.N. Sutulov, M.V. Zhernokletov*, Shock compression of low density SiO₂ aerogel and equation of state for silica at high pressures and temperatures

15:00 T8. Pavel R. Levashov, *V.S. Filinov, M. Bonitz, V.E. Fortov*, Path-integral Monte Carlo calculations of helium and hydrogen-helium plasma thermodynamics and deuterium shock Hugoniot

15:30 Coffee break

16:30 Symposium on High-Energy-Density Matter Generated by Intense Heavy Ion Beams: Industry Application Outlooks

POSTER SESSIONS (start at 9:00)

Non-Neutral and Ultracold Plasmas (P70-P74)

Condensed Matter and Two-Dimensions (P75-P79, P81-P86)

Coulomb Liquids (P87-P89)

High-Energy-Density Matter Generated by Intense Heavy Ion Beams (P111-P121)

WEDNESDAY, JUNE 22

Session VII: Non-Neutral and Ultracold Plasmas

(Chair: Michael Murillo)

9:00 I7. Dan Dubin, Measurement of screening enhancement to nuclear reaction rates using a strongly-magnetized, strongly correlated nonneutral plasma

9:45 T17. Eduard A. Manykin, Ultracold plasma and Rydberg-like state of matter formed by Rydberg atoms

10:15 T20. Thomas Pohl, *T. Pattard, J.M. Rost*, Relaxation of expanding ultracold neutral plasmas

10:45 Coffee break

Session VIII: Ultracold and Dusty Plasmas

(Chair: Dan Dubin)

11:15 **T18.** *Michael S. Murillo, J. Daligault*, Ultra-cold plasma temperature oscillations

11:45 **T12.** *Péter Hartmann, G.J. Kalman, Z. Donkò*, Two-dimensional Yukawa liquids: structure and collective excitations

12:15 **T13.** *Yasuaki Hayashi*, Structural transition of dusty plasma Coulomb crystal like martensitic transformation

12:45 **T15.** *Hiroo Totsuji*, Equilibrium properties of 2D Yukawa plasmas

13:15 - 14:45 Lunch

15:30 Moscow sightseeing bus tour

POSTER SESSIONS (start at 9:00)

Astrophysics and Dense Hydrogen (P31-P38)

Statistical Theory of SCCS (P90-P110)

THURSDAY, JUNE 23

Session X: Dusty Plasmas

(Chair: Gregor Morfill)

9:00 **I6.** *Hubertus M. Thomas*, Complex (dusty) plasmas: theory and experiment

9:45 **T16.** *Vadim N. Tsytovich*, New paradigm for plasma crystal formation

10:15 **T14.** *Oleg F. Petrov, V.E. Fortov, O.S. Vaulina*, Structure and transport phenomena in dusty plasma liquid

10:45 Coffee break

Session XI: Condensed Matter and Two-Dimensions

(Chair: Gabor Kalman)

11:15 **I8.** *Gaetano Senatore, S. De Palo, M. Marchi, S. Moroni*, Understanding the spin susceptibility of the 2D electron gas in real devices

12:00 **T24.** *Vladislav T. Timofeev*, Bose-condensation of 2D interwell excitons in coupled quantum wells

12:30 **T22.** *Vittorio Pellegrini*, Spectroscopy of correlated electron phases in low-dimensional semiconductor quantum structures

13:00 - 14:30 Lunch

Session XII: Condensed Matter and Two-Dimensions, Statistical Theory of SCCS

(Chair: Gaetano Senatore)

14:30 **T23.** *Subramanian Ranganathan, R.E. Johnson*, Simulations of bilayer electron liquids: structure and collective modes

15:00 **T21.** *Yurii E. Lozovik*, Strongly coupled and strongly correlated electron and electron-hole quantum 2D systems: state of art

15:30 **T29.** *M. Howard Lee*, Testing Boltzmann's ergodic hypothesis by electron gas models

16:00 Coffee break

Session XIII: Coulomb Liquids

(Chair: Alan DeSilva)

16:30 T26. *Igor V. Lomonosov*, Problems of EOS of matter at high energy densities

17:15 T27. *Vladimir S. Vorob'ev, S.P. Malysenko, S.I. Tkachenko*, Formation of strongly coupled plasma due to thermodynamical instability fracture at high energy densities

19:00 Conference banquet

POSTER SESSIONS (start at 9:00)

Dense Plasmas (P1-P16)

Warm Matter (P17-P30)

Condensed Matter and Two-Dimensions (P80)

FRIDAY, JUNE 24

Session XIV: Coulomb Liquids, Statistical Theory of SCCS

(Chair: Manfred Schlanges)

9:00 T32. *Gerd Röpke, H. Reinholz*, Bound states in strongly coupled Coulomb systems

9:30 T30. *Igor V. Morozov, A.V. Lankin, G.E. Norman*, Collisions and plasma waves in nonideal plasmas

10:00 T28. *Eugene S. Yakub*, Effective computer simulation of strongly coupled Coulomb fluids

10:30 Coffee break

Session XV: Coulomb Liquids, Statistical Theory of SCCS

(Chair: Michael E. Fisher)

11:00 I10. *Marcia C. Barbosa*, Charged DNA beyond mean field theory

11:45 T25. *Roland Kjellander, B. Forsberg*, Classical ionic fluids with dispersion-like pair interactions have power-law electrostatic screening

12:15 T31. *Jean-Christophe Pain, G. Dejonghe, T. Blenski*, Self-consistent statistical approach to electronic properties of hot dense plasmas

12:45 - 14:15 Lunch

Session XVI: Coulomb Liquids, Statistical Theory of SCCS

(Chair: Kenneth Golden)

14:15 I11. *Michael E. Fisher*, Criticality in ionic systems

15:00 I9. *Friedrich Hensel*, Liquid metals

15:45 Final announcements

POSTER SESSIONS (continuation, start at 9:00)

Dense Plasmas (P1-P16)

Warm Matter (P17-P30)

Condensed Matter and Two-Dimensions (P80)

Abstracts of all submitted presentations are available on the web site as the whole book or individual pages.