



**Russian Academy of Sciences  
Joint Institute for High Temperatures  
Institute of Problems of Chemical Physics  
Russian Foundation for Basic Research  
Dynasty Foundation  
Federal Agency of Russia for Atomic Energy  
RAO Unified Energy System of Russia  
Krzhizhanovsky Power Engineering Institute**

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**8<sup>th</sup> International Workshop on  
Subsecond  
Thermophysics  
Program**

**Moscow, Russia, September 26-28, 2007**

## WORKSHOP SCHEDULE

*TUESDAY, SEPTEMBER 25, 2007*

### **Hotel Sputnik, Leninsky prospekt 38**

Registration and Welcome Reception 19:00 – 22:00

*WEDNESDAY, SEPTEMBER 26, 2007*

### **Krzhizhanovsky Power Engineering Institute, Leninsky prospekt 19**

Registration 9:00 – 10:00  
Opening Remarks 10:00 – 10:30  
Oral session 1. Ohmic heating 10:30 – 12:50  
Coffee Break 11:15 – 11:35  
Lunch 13:00 – 14:00  
Oral session 2. Pulse heating 14:00 – 15:40  
Coffee Break 15:40 – 16:00  
Oral session 3. Pulse heating 16:00 – 18:05  
Conference Dinner aboard the «Knyaz Yury» ship  
on the Moskva-river 19:30 – 23:00

*THURSDAY, SEPTEMBER 27, 2007*

### **Krzhizhanovsky Power Engineering Institute, Leninsky prospekt 19**

Oral session 4. Shock waves 9:00 – 10:40  
Coffee Break 10:40 – 11:00  
Oral session 5. Shock waves 11:00 – 12:40  
Lunch 13:00 – 14:00  
Social Excursions, sightseeing bus tour 14:00 – 19:00

*FRIDAY, SEPTEMBER 28, 2007*

### **Krzhizhanovsky Power Engineering Institute, Leninsky prospekt 19**

Oral session 6. Laser heating 9:00 – 10:35  
Coffee Break 10:35 – 10:55  
Oral session 7. Laser heating 10:55 – 13:00  
Lunch 13:00 – 14:00  
Poster session 14:00 – 15:00  
Oral session 8. Laser heating 15:00 – 16:15  
Coffee Break 16:15 – 16:35  
Oral session 9. Pulse heating 16:35 – 17:50  
Closing remarks 17:50 – 18:00

## **Organizers and Sponsors**

Russian Academy of Sciences  
Joint Institute for High Temperatures (JIHT RAS)  
Institute of Problems of Chemical Physics (IPCP RAS)  
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Svetlana Tkachenko	JIHT RAS, Moscow

## WORKSHOP PROGRAM

25.09.2007 (TUESDAY)

19:00-22:00 **Registration and Welcome Reception**

26.09.2007 (WEDNESDAY)

9:00-10:00 **Registration**  
10:00-10:30 **Opening remarks**

10:30-12:50 **Oral session 1. Ohmic heating. Kaschnitz E., chairman**  
10:30-11:15 Keynote lecture: *Boivineau M., Pottlacher G.* Thermophysical properties of metals at very high temperatures obtained by dynamic ohmic heating: recent advances

11:15-11:35 **Coffee Break**

11:35-12:00 *Savvatimskiy A.I.* Liquid carbon density  
12:00-12:25 *Hüpf T., Cagran C., Lohöfer G., Pottlacher G.* Electrical resistivity of high temperature metallic melts  
12:25-12:50 *Schick C., Huth H., Zhuravlev E., Minakov A.A.* Non adiabatic thin-film (chip) nanocalorimetry for fast ( $10^5$  K/s) scanning and AC-calorimetry

13:00-14:00 **Lunch**

14:00-15:40 **Oral session 2. Pulse heating. Savvatimskiy A.I., chairman**  
14:00-14:25 *Minakov A.A., Schick C.* Membrane based ultrafast nanocalorimetry for submillisecond measurements at heating and cooling rates up to  $10^6$  K/s  
14:25-14:50 *Cagran C., Hüpf T., Wilthan B., Daemon R., Pottlacher G.* Remodeled optical expansion camera for a fast pulse-heating experiment  
14:50-15:15 *Cagran C., Hüpf T., Wilthan B., Pottlacher G.* Physical properties and normal spectral emissivity of hafnium up to 3500 K  
15:15-15:40 *Kostanovskiy A.V., Presnyakov D.V., Kostanovskaya M.E.* Experimental determination of the normal spectral emissivity of titanium at the melting point by the thin plate method

15:40-16:00 **Coffee Break**

16:00-18:05 **Oral session 3. Pulse heating. Pottlacher G., chairman**  
16:00-16:25 *Martynuk M.M., Kravchenko N.Yu.* Spinodal decay of unstable liquid phase in the process of pulse heating

16:25-16:50 *Tkachenko S.I., Ananov S.S., Bakshaev Yu.L., Bartov A.V., Blinov P.I., Chernenko A.S., Dan'ko S.A., Kalinin Yu.G., Kingsep A.S., Smirnov V.P., Zhuzhunashvili A.I.* Study of dynamics of plasma generated under electrical explosion of metal tube by megaampere current

16:50-17:15 *Kaschnitz E., Küblböck M.* Thermal diffusivity of the aluminum alloy Al-5Mg-2Si-Mn (Magsimal-59) in the solid and liquid state  
17:15-17:40 *Milosevic N.D., Maglic K.D.* Thermophysical properties of solid-phase titanium in a wide temperature range  
17:40-18:05 *Egry I.* Dynamics of a drop in a drop — the matroshka problem

19:30-23:00 **Conference Dinner aboard the «Knyaz Yury» ship on the Moskva-river**

27.09.2007 (THURSDAY)

9:00-10:40 **Oral session 4. Shock waves. Eremin A.V., chairman**  
9:00-9:25 *Ternovoi V.Ya., Nikolaev D.N., Kvitov S.V., Pyalling A.A., Trukhanyonok A.N.* Investigation of near critical point states of tantalum, lithium and sodium by pulse heating under launching  
9:25-9:50 *Skipov P.V., Efremov V.P., Shishkin A.V., Starostin A.A.* Comparison of the short-time thermal stability for polymeric samples by the shock heating method  
9:50-10:15 *Emelyanov A.N., Nikolaev D.N., Pyalling A.A., Ternovoi V.Ya.* Investigation of near critical states of liquid-vapor phase transition of magnesium from results of shock-wave experiments  
10:15-10:40 *Khishchenko K.V., Zhernokletov M.V., Fortov V.E., Kirshanov S.I., Kovalev A.E., Lomonosov I.V., Mochalov M.A., Shuikin A.N.* Adiabatic expansion of shock-compressed chromium and zinc at high temperatures and pressures

10:40-11:00 **Coffee Break**

11:00-11:50 **Oral session 5. Shock waves. Khishchenko K.V., chairman**  
11:00-11:25 *Molodets A.M., Shakhray D.V., Avdonin V.V., Golyshev A.A., Zhukov A.N., Kim V.V., Osip'yan Yu.A., Sidorov N.S., Shulga J.M., Fortov V.E.* Physical chemistry of strong shock compression  
11:25-11:50 *Drakon A.V., Emelianov A.V., Eremin A.V.* Nonequilibrium radiation and ionization of iron clusters in shock wave front

13:00-14:00 **Lunch**

14:00-19:00 **Social Excursions, sightseeing bus tour**

28.09.2007 (FRIDAY)

- 9:00-10:35** **Oral session 6. Laser heating. Petrov V.A., chairman**  
9:00-9:45 Keynote lecture: *Agranat M., Sheindlin M.* Laser heating in high-temperature thermophysics: from seconds to femtoseconds  
9:45-10:10 *Kim Y.W.* Development of transport property-composition relationship by thermal modification of alloy composition profile  
10:10-10:35 *Pflieder R., Sheindlin M., Colle J.-Y.* Mass spectrometric study of the laser vaporisation of uranium dioxide up to 3500 K
- 10:35-10:55** **Coffee Break**
- 10:55-13:00** **Oral session 7. Laser heating. Kim Y.W., chairman**  
10:55-11:20 *Vlahovic L., Manara D.M., Heinz W.H.* Continuous-wave laser surface heating set-up at ITU  
11:20-11:45 *Petrov V.A.* Jump of the absorption coefficient of molten alumina at subsecond laser heating  
11:45-12:10 *Salikhov T.P., Kan V.V.* Peculiarities of interaction of infrared laser irradiation with refractory oxides  
12:10-12:35 *Gurentsov E.V., Eremin A.V., Schulz C.V.* Experimental investigation of iron nanoparticles properties by pulse laser heating  
12:35-13:00 *Manara D., Utton C., Vlahovic L., Heinz W.* Experimental investigation of melting in generation IV nuclear material systems via subsecond laser methods
- 13:00-14:00** **Lunch**
- 14:00-15:00** **Poster session. Sheindlin M.A., chairman**  
*Peletsky V.E.* Study of thermophysical properties of the zirconium fuel claddings with the technique of the subsecond pulse resistive heating  
*Minakov A.A., Wurm A., Schick C.* Advanced ultrafast nanocalorimetry: superheating in linear polymers  
*Sun X.G., Yuan G.B., Dai J.M.* Multi-spectral thermometry based on GA-BP algorithm  
*Wille G., Rifflet J.C., Sarou-Kanian V., Millot F.* Density and surface tension of liquid iron oxides  
*Kostenko O.F., Andreev N.E.* Dynamics of metal cluster ionization produced by intense femtosecond laser field  
*Samokhin A.S., Mazhukin V.I., Demin M.M.* Numerical analysis of spinodal decay beginning in superheated liquid  
*Zhakhovskii V.V., Inogamov N.A., Nishihara K.* Front and back side nanopalliations of foil after ultrashort laser pulse (uslp) and proposal for precise ultrafast optical diagnostics of the back spallation  
*Samokhin A.A., Vovchenko V.I., Pivovarov P.A., Klimentov S.M.* Pressure pulses generated in water by 3 micron laser radiation

- Wünsch K., Vorberger J., Gericke D.O.* Plasma diagnostics by X-ray Thomson scattering  
*Basharin A.Yu., Turchaninov M.A.* Experimental investigation of carbon phase diagram in the vicinity of solid-vapor-liquid triple point  
*Ivochkin A.Yu., Kaptilnyi A.G., Karabutov A.A.* Near-critical states and phase transitions induced by high power laser irradiation of confined metal surface  
*Eremin A.V., Makeich A.A., Schulz C.* Experimental study of heat release of carbon nanoparticles formation from  $C_3O_2$  behind shock waves  
*Ziborov V.S., Efremov V.P., Fortov V.E.* Nonequilibrium radiation and conductivity in the weak shock waves in He and Ar feebly diluted by  $Mo(CO)_6$   
*Sokolov S.N., Milyavskiy V.V., Borodina T.I., Zhuk A.Z.* Shock-induced phase transformations of fullerite  $C_{70}$   
*Avdonin A.A., Sidorov N.S., Shakhray D.V., Golyshev A.A., Molodets A.M.* Conductivity of  $C_{70}$  fullerene under multi-step dynamic compression  
*Bespalov E.V., Efremov V.P., Fortov V.E., Luk'yanchikov L.A., Merzhievsky L.A., Pruel E.R., Ten K.A., Titov V.M., Tolochko B.P., Zhogin I.L.* Study of shock compressed  $SiO_2$  aerogel by synchrotron radiation  
*Abramenko T.N., Anisovich A.G., Belskaya E.A.* Heat transfer process in aluminium-silicon alloys  
*Sokolov N.A.* A new method and standard for reproduction of the unit of thermal conductivity  
*Baidakov V.G.* Phase transitions on a picosecond time scale  
*Mamchuev M.O., Karpenko S.V., Savintsev A.P.* The metallization of alkali-halide crystals under the high pressure  
*Shumikhin A.S., Khomkin A.L.* Conductivity of dense vapor metal plasma  
*Starikov S.V., Stegailov V.V.* Premelting of solid Fe at the contact with amorphous Ar at high pressure  
*Apfelbaum E.M.* The transport coefficients and the chemical composition of simple metals in liquid and gaseous phases  
*Shablovsky O.N., Kroll D.G.* Thermal locally-nonequilibrium properties of an undercooled melt  
*Golubev V.K.* Strength and fracture of thin metal plates under conditions of fast heating by X-ray radiation  
*Rusin S.P., Leonov A.S.* Computer modeling of true temperature recovery from thermal radiation spectrum during subsecond heating  
*Kupershtokh A.L., Medvedev D.A.* Electrostriction waves and instabilities of dielectric liquids in non-uniform electric field  
*Golyshev A.A., Molodets A.M.* Thermal conductivity of solids under high compressive and tensile pressure  
*Shakhray D.V., Golyshev A.A., Molodets A.M., Fortov V.E.* Thermophysical properties and electrical conductivity of scandium under shockwave compression

- 15:00-16:15** **Oral session 8. Laser heating. Iosilevskiy I.L., chairman**  
 15:00-15:25 Inogamov N.A., Anisimov S.I., Petrov Yu.V., Khokhlov V.A., Zhakhovskii V.V., Agranat M.B., Ashitkov S.I., Sitnikov D.S., Ovchinnikov A.V., Nishihara K., Oparin A.M., Shepelev V.V. Femtosecond ablation (fsa): calculated and measured ablation thresholds agree for the first time
- 15:25-15:50 Povarnitsyn M.E., Khishchenko K.V., Levashov P.R. Metastable states of metals after ultrashort laser irradiation
- 15:50-16:15 Samokhin A.A., Klimentov S.M., Pivovarov P.A. Pressure dynamics of explosive boiling in transparent liquids on absorbing targets exposed to pairs of short laser pulses
- 16:15-16:35** **Coffee Break**
- 16:35-17:50** **Oral session 9. Pulse heating. Egry I., chairman**  
 16:35-17:00 Gericke D.O. Energy transfer in dense, strongly coupled two-temperature plasmas
- 17:00-17:25 Smotriskiy A.A., Gorbatov V.I., Skripov P.V., Starostin A.A. Investigation of the thermophysical properties of substances in superheated states
- 17:25-17:50 Iosilevskiy I.L. Critical point location problem for uranium-bearing compounds
- 17:50-18:00** **Closing remarks**