**Joint Meeting of High Energy Density Science at FAIR Collaboration and 10th International Workshop on Plasma Physics with Intense Laser and Heavy Ion Beams (HED@FAIR & WLIB 2018)**

**Venue: Presidium RAS (Blue Hall, Leninsky Prospekt 32A, Moscow, Russia)**

# Preliminary program

## Monday May 28, 2018

**9:30 – 10:35 Introduction: HED@FAIR collaboration**

**Chair: A. A. Golubev**

| | | |
|---|---|---|
| 9:30 – 9:35 | Vladimir Fortov | Introductory words |
| 9:35 – 9:55 | Alexander Golubev | Status of HED@FAIR collaboration |
| 9:55 – 10:15 | Vincent Bagnoud | Latest developments at GSI |
| 10:15 –10:35 | Stephan Neff | APPA experimental area preparation for "Day 1 experiment" |

**10:35 – 14:40 HIHEX experiments**

| | | |
|---|---|---|
| 10:35 – 10:55 | Paul Neumayer | The HHT HIHEX platform and plans for ionization potential depression measurements in phase-0 |
| 10:55 – 11:15 | Vincent Bagnoud | The laser infrastructure at HHT |

**11:15 – 11:30 Coffee break**

| | | |
|---|---|---|
| 11:30 – 11:50 | Igor Lomonosov | Numerical simulation of HIHEX experiments at SIS-18 |
| 11:50 – 12:10 | Igor Iosilevskiy | **Iosilevskiy I.L.** HIB for study of anomalous thermodynamic properties of hot dense matter |
| 12:10 – 12:30 | Dmitry Nikolaev | Diagnostic techniques for HIHEX experiment |
| 12:30 – 12:50 | Olga Rosmej | X-ray diagnostics for HIHEX |
| 12:50 – 13:10 | Konstantin Gubskiy | **Gubskiy K.L., Kuznetsov A.P., Mikhaylyuk A.V., Derkach V.N., Alekseev V.V., Pikalova M.A.**, Diagnostic system for measuring mass velocity of matter under the influence of intense laser radiation |

**13:10 – 14:00 Lunch break**

**Chair: N. Andreev**

| | | |
|---|---|---|
| 14:00 – 14:20 | Alexey Kantsyrev | **Kantsyrev A.V.**, Data acquisition system for HHT experiments |
| 14:20 – 14:40 | Nikolay Shilkin | **Tauschwitz A., Damjanovic S., Roth M., Jacoby J., Shilkin N.**, Target chamber for phase0 experiments at HHT experimental area at FAIR |

**14:40 – 17:35 Fundamentals of heavy-ion and laser interaction with plasma: Status of high-energy-density research**

| | | |
|---|---|---|
| 14:40 – 14:55 | Nikolay Orlov | **Orlov N.Yu.**, Theoretical and experimental studies of radiative and gas dynamic properties of plasma for combined laser and heavy ion beam experiments |
| 14:55 – 15:10 | Artem Korzhimanov | **Korzhimanov A.V., Golubev S.V.**, Achieving gigabar pressures in solids with heavy ions accelerated by kj-level picosecond lasers |
| 15:10 –15:25 | Oleg Belozerov | **Belozerov O.S., Danko S.A.**, Ion source based on a relativistic electron beam generator and methods of its diagnostics |
| 15:25 – 15:40 | Nail Inogamov | **Anisimov S.I., Inogamov N.A., Zhakhovsky V.V., Petrov Y.V., Khokhlov V.A., Migdal K.P., Ilnitsky D.K., Shepelev V.V.**, Laser action on refractory metals: their high temperature properties, dynamics, and applications |
| 15:40 – 15:55 | Yuliy Chashechkin | **Chashechkin Yu.D.**, Ligaments effect on the randomization and thermalization of radiation and ion beams energy |

**15:55 – 16:10 Coffee break**

| | | |
|---|---|---|
| 16:10 – 16:25 | Punit Kumar | **Kumar P., Singh S., Ahmad N.**, Role of spin-up and spin-down interaction in energy exchange in quantum magnetoplasma |
| 16:25 – 16:40 | Sergey Ryzhkov | **Ryzhkov S.V., Kuzenov V.V.**, Modeling of magnetized plasmas compression by high energy laser pulse |
| 16:40 – 16:55 | Oleg Kostenko | **Kostenko O.F., Andreev N.E., Rosmej O.N.**, X-rays diagnostics of the hot electron energy distribution in the intense laser interaction with metal targets |
| 16:55 – 17:10 | Iurii Kochetkov | **Korneev Ph., Kochetkov I., Santos J.J., Ehret M., Abe Y., Law F., Fujioka S., Stepanishchev V., Tikhonchuk V., Schaumann G., Kuznetsov A.**, Optical generation of strongly-magnetized plasma structures at PHELIX |
| 17:10 –17:25 | Igor Boriev | **Boriev I.A.**, Effective creation of positrons in the matter under strong electric field of laser pulse |

| | | |
|---|---|---|
| 17:25 – 17:30 | Alexey Kiverin | **Kiverin A.D., Efremov V.P.**, Hydrodynamic behavior of fused quartz under the action of laser pulses: two regimes of medium fracture |
| 17:30 – 17:35 | Oleg Mkrtychev | **Mkrtychev O.V., Shemanin V.G.**, Thermal model and method of moments in the study of laser ablation |

**Posters**

**Efremov V.P., Zakatilova E.I.**, Diamond-containing targets for phase 0 experiment

**Kiverin A.D., Efremov V.P.**, Hydrodynamic behavior of fused quartz under the action of laser pulses: two regimes of medium fracture

**Khokonov M.Kh., Khokonov A.Kh., Bekulova I.Z.**, Strong field effects of powerful lasers and oriented crystals at high energies

**Mkrtychev O.V., Shemanin V.G.**, Thermal model and method of moments in the study of laser ablation

**17:35 – 18:00 Discussion**

- Work-packages definition
- Forming of the experimental group on HIHEX experiment
- Responsibility
- Roadmap

## Tuesday May 29, 2018

**9:30 – 13:25 PRIOR on phase "0"**

**Chair: V. Bagnoud**

| | | |
|---|---|---|
| 9:30 – 9:50 | Stephan Neff | Status of PRIOR at GSI |
| 9:50 – 10:10 | Anatoly Rakhel | **Rakhel A.D., Kondratyev A.M., Korobenko V.N.**, Experimental study of fluid metals in the metal-nonmetal transition region |
| 10:10 –10:30 | Victor Mintsev | Physics of explosive driver experiments at PRIOR |
| 10:30 – 10:50 | Thomas Schlothauer | Explosive driver at PRIOR |
| 10:50 – 11:10 | Valentina Mochalova | Experiments with gas-gun |

**11:10 – 11:30 Coffee break**

| | | |
|---|---|---|
| 11:30 – 11:50 | Anton Bogdanov | Numerical simulation of PRIOR experiments |
| 11:50 – 12:10 | Dmitry Kolesnikov | Reconstruction of a proton radiography images |

| | | |
|---|---|---|
| 12:10 – 12:25 | Maxim Stoliarov | **Hoffmann D.H.H., Stoliarov M.N.**, SC quadrupole development for final focusing system of the HED@FAIR beamline |
| 12:25 – 12:40 | Sergey Razorenov | **Razorenov S.V., Kanel G.I.**, Application of proton radiography method for investigations of dynamic fracture of condensed matter |
| 12:40 – 12:55 | Nikolay Shilkin | **Shilkin N.** Explosive chamber for proton radiography at FAIR |
| 12:55 – 13:10 | Roman Belikov | **Senchenko V.N., Belikov R.S.**, Thermal expansion measurements at high temperatures by pulse volumetric heating |
| 13:10 – 13:25 | Konstantin Khishchenko | **Khishchenko K.V., Guskov S.Yu., Kadatskiy M.A., Krasyuk I.K., Semenov A.Yu., Stuchebryukhov I.A.** Equations of state and fragmentation of materials under action of intense laser and ion beams |

**13:25 – 14:00 Discussion**

- Work-packages definition
- Forming of the experimental group on PRIOR experiment
- Responsibility
- Roadmap
- Funding

**14:00 Conclusion**