40th International Workshop on High-Energy-Density Physics with Intense Ion and Laser Beams

January 26th - February 1st, 2020

Darmstädter Haus (Waldemar Petersen Haus)

Hirschegg, Austria

P r o g r a m

SAVE THE DATE

HED@FAIR Annual Meeting

July 1st – 3rd, 2020

Ingelheim, Germany

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Monday (January 27)

Start	Duration	Speaker	Title
Session 1: HED and HED Facilities I (Chair: Vincent Bagnoud)			
8:30	10’	HOFFMANN/BAGNOUD	Opening
8:40	25’ (+5’)	GOLUBEV, Alexander	Status of the FAIR facility
9:10	25’ (+5’)	STADLMANN, Jens	Status of SIS18 for the FAIR Phase 0 Experimental Program
9:40	25’ (+5’)	SHARKOV, Boris	Advanced Heavy-Ion Accelerators for HED Research
10:10	25’ (+5’)	TAHIR, N.A.	Journey from Heavy-Ion Fusion to High-Energy-Density Physics over the Past 40 Years
10:40	**00:20**	**Coffee break**	
Session 2: HED and HED Facilities II (Chair: Thomas Kühl)			
11:00	25’ (+5’)	CANAUD, Benoit	Direct-Drive Inertial Confinement Fusion Studies for LMJ at CEA
11:30	15’ (+5’)	SCHOENBERG, Kurt	Status of the HED@FAIR Collaboration
11:50	25’ (+5’)	NEFF, Stephan	Experimental Facilities for High-Energy-Density and Warm-Dense-Matter Experiments at FAIR
12:20		**Lunch break**	
Session 3: Activities of HED@FAIR (Chair: Alexander Golubev)			
17:00	20’ (+5’)	MAJOR, Zsuzsanna	Laser-driven X-ray Sources for Investigating Extreme States of Matter Generated by Intense Heavy-Ion Beams
17:25	20’ (+5’)	SCHANZ, Martin	PRIOR-II - Proton Radiography for FAIR
17:50	20’ (+5’)	ZÄHTER, Sero	Development of Poly- and Monochromatic X-Ray-Imaging Techniques for Phase-0 and FAIR
18:15	20’ (+5’)	IOSILEVSKIY, Igor	On perspectives of HED@FAIR Experimental Study of Dual Unexplored Phenomenon - Anomalous Thermodynamics Regions Nearby Entropic Phase Transitions
18:40	20’ (+5’)	ZHAO, Yongtao	HEDP at HIAF in China, the Status and Perspectives
19:15		**Dinner**	
20:30		**Hirschegg 40th Anniversary Celebration**	

Tuesday (January 28)

Start	Duration	Speaker	Title
Session 4: High-Intensity Lasers and Applications in HED Science I (Chair: Paul Neumayer)			
8:30	25’ (+5’)	KARSCH, Stefan	Status and First Results of ATLAS-3000 at CALA
9:00	20’ (+5’)	CHITGAR, Zahra	Towards Laser Acceleration of Spin-Polarized Helium-3 Ions
9:25	20’ (+5’)	ROSMEJ, Olga	Generation of Relativistic Electrons and Gammas in Interaction of Relativistic Laser Pulses with Plasma of Near Critical Density
9:50	20’ (+5’)	SCHANZ, Victor	Picosecond-Contrast Degradation in CPA Laser Systems
10:15	**00:20**	**Coffee break**	
Session 5: High-Intensity Lasers and Applications in HED Science II (Chair: Markus Roth)			
10:35	20’ (+5’)	HORNUNG, Johannes	Estimation of Preplasma Properties via Time-resolved Spectroscopy of Back-reflected Light
11:00	20’ (+5’)	EHRET, Michael	Strong Laser-Driven Magnetostatic Fields for Magnetized High Energy-Density Physics
11:25	20’ (+5’)	ANDREEV, Nikolay	Electrons Acceleration in Intense Laser-Plasma Interaction
11:50	20’ (+5’)	GLENZER, Siegfried	Pushing the Frontiers of High-Energy Density Science with X-rays on LCLS and NIF
12:15		**Lunch break**	
Session 6: Dynamics in Plasmas (Chair: Naeem Tahir)			
17:00	20’ (+5’)	SUN, Yuanbo	Geometrical Effects on Hydrodynamic Instabilities in High-Energy-Density Matters
17:25	20’ (+5’)	PIRIZ, A. Roberto	Stability Boundaries for the Rayleigh-Taylor Instability in Elastic-plastic Solid Slabs
17:50	20’ (+5’)	KRASIK, Yakov	Recent Advances in Research of Underwater Electrical Explosion of Wires and Shock-Wave Generation
18:15	20’ (+5’)	BRET, Antoine	Density Jump as a Function of Magnetic Field for Collisionless Shocks in Pair Plasmas: The Perpendicular Case
18:40	20’ (+5’)	STEGAILOV, Vladimir	Non-Adiabatic Effects and Exciton-like States during Insulator-to-Metal Transition in Warm Dense Hydrogen
19:15		**Dinner**	

Wednesday (January 29)

Start	Duration	Speaker	Title
Session 7: Fusion Studies I (Chair: Benoit Canaud)			
8:30	25’ (+5’)	ROTH, Markus	Building a Fast-Ignition Fusion Power Plant
09:00	20’ (+5’)	WURDEN, Glen A.	Laser Inverse Compton Scattering on Relativistic Electrons in a Tokamak
09:25	20’ (+5’)	LOGAN, B. Grant	Increased R&D Preparing for First Magnetized Targets on NIF in 2020
09:50	20’ (+5’)	DEUTSCH, Claude	Meson-catalyzed Fusion in Ultradense Plasmas
10:15	**00:20**	**Coffee break**	
Session 8: Fusion Studies II (Chair: Dieter H.H. Hoffmann)			
10:35		HOFFMANN, Dieter	Introduction in Revisiting Proton Boron Fusion
10:40	20’ (+5’)	HORA, Heinrich	About Thermal and Non-Thermal Ignition of Nuclear Fusion Reactions
11:05	20’ (+5’)	LAN, Ke	Progress in spherical hohlraum studies and experimental campaign on high energy laser facilities in China
11:30	20’ (+5’)	HONRUBIA, Javier	Charged-Particle Guiding in Magnetized Cylindrical Targets
11:55	20’ (+5’)	BOLLER, Pascal	Online Detection of Radioactive Fission Isotopes Following Laser-Accelerated-Proton-Induced Fission of ^{238}U
12:20		**Lunch break**	
17:00	1:30	**Poster session**	
19:00		**Conference Dinner**	

Thursday (January 30)

Start	Duration	Speaker	Title
Session 9: High-Intensity Lasers and Applications in HED Science III (Chair: Ke Lan)			
8:30	20’ (+5’)	NDIONE, Pascal	Band Occupation and Optical properties of Warm Dense Gold
8:55	20’ (+5’)	SANDER, Steffen	Enhancement of Laser-driven, Cold X-ray Sources through Front Side Modification
09:20	20’ (+5’)	FOLDES, Istvan	Reflectivity and Spectral Shift from Plasma Mirrors Generated by KrF Laser
09:45	20’ (+5’)	ZIMMER, Marc	Laser Based Neutron Sources as a Tool for Material Analysis
10:10	**00:20**	**Coffee break**	
Session 10: Applications of Plasmas (Chair: Kurt Schoenberg)			
10:30	20’ (+5’)	SAVEL'EV, Andrei	Parametric Instabilities, Electron Injection and Acceleration from Relativistic Laser Interaction with Solid Targets
10:55	20’ (+5’)	WEI, Wenqing	Optically-Tunable Proton Acceleration in Femtosecond Ultraintense Laser-Foil Interaction
11:20	20’ (+5’)	BOHLENDER, Bernhard	Development and Plasma Physical Investigation of a Plasma Window for the Generation of High Pressure Differences
11:45	20’ (+5’)	MICHEL, Andre	Setup and Investigation of a Plasma Window with Optimized Apertures for Intense Particle Beam Transmission to High Pressure Targets
12:10		**Lunch break**	
Session 11: Modelling HED Physics (Chair: Roberto Piriz)			
17:00	25’ (+5’)	RUHL, Hartmut	The problem of Radiation Reaction in Intense Laser Fields
17:30	20’ (+5’)	LIPP, Vladimir	Two-dimensional Energy and Carrier Diffusion in Silicon upon X-ray Irradiation or Swift Heavy Ion Impact
17:55	20’ (+5’)	KHISHCHENKO, Konstantin	Equation of State for Vanadium at High Energy Densities
18:20	20’ (+5’)	VEYSMAN, Mikhail	Quantum Statistical Operator Approach to Optical Properties of Metallic and Classical Plasmas
18:45	20’ (+5’)	ROEPKE, Gerd	Ionization in High-Density Plasmas: an ab Initio Study for Carbon at Gbar Pressures
19:30		**Transfer to**	**Hüttenabend at Sonna-Alp**

Friday (January 31)

Start	Duration	Speaker	Title
Session 12: Special Session on PIC Simulations (Chair: Hartmut Ruhl)			
08:30	25’ (+5’)	GIBBON, Paul	Exascaling Strategies for the EPOCH Community PIC Code
09:00	20’ (+5’)	PAUW, Viktoria	PIC Simulation of Laser-Irradiated Micro-Plasma with Varying Density
09:25	20’ (+5’)	GRECH, Mikhail	The Open-Source Particle-In-Cell Code SMILEI
09:50	20’ (+5’)	SINHA, Ujjwal	Modeling Radiation Spectra and Polarization from Particle-in-Cell Simulations
10:15	**00:20**	**Coffee break**	
10:35	20’ (+5’)	BUSSMANN, Michael	Taming the Complexity of Laser-Plasma Accelerators
11:00	20’ (+5’)	FONSECA, Ricardo	OSIRIS: A Highly Scalable Kinetic Plasma Simulation Platform
11:25	20’ (+5’)	PUKHOV, Alexander	Towards the QED Limits
11:50	20’ (+5’)	RAMAKRISHNA, Bhuvanesh	Investigation of QED Effects in Thin Foil Targets
12:15	10’	**Concluding Remarks (Dieter Hoffmann, Vincent Bagnoud)**	

Poster session (Wednesday, 17:00-18:30)

1	AMOURETTI, Alexis	Hematite Phase Diagram under Laser Shock Compression
2	EFREMOV, Vladimir	Physical Processes in Condensed and Hollow Optical Fibers under Laser Action
3	KHAGHANI, Dimitri	Charged Particle Detector for Breit-Wheeler Pair-Production Experiments
4	NEUMAYER, Paul	Nanosecond Laser Driven X-ray Backlighter for Diagnostic Applications at the HHT-cave
5	KLAMMES, Sebastian	The GSI and FAIR Laser Cooling Activities
6	FEDOROV, Ilya	Ab-initio Methods for Modelling and Simulation of Warm-dense Hydrogen: How to Get Beyond Born-Oppenheimer Approximation?
7	YAN, Zixiang	Non-equilibrium Effects on the Yield of D3He and DT Reaction
8	TAVANA, Parysatis	Study of Gamma-rays Produced by Intense Laser Interactions with Low-Density Foams Using Nuclear Diagnostic
9	OHLAND, Jonas Benjamin	An approach to phase retrieval of non-paraxial foci
10	KRASIK, Yakov	Wake-field Formation by High Power Microwave Interaction with Plasma
11	MAIOROV, Sergey	The Formation of Shock Waves during Explosive Processes at the Cathode
12	ZOBUS, Yannik	Development of a New Ultra-high Contrast Module at PHELIX
13	SADYKOVA, Saltanat	Amplification of a Surface Electromagnetic Wave by a Running over Plasma Surface Ultrarelativistic Electron Bunch as a New Scheme for Generation of Terahertz Radiation
14	GÜNTHER, Marc	New Findings on Laser Electron Acceleration and Enhanced Multi MeV High Intense γ-ray Generation at Moderate Laser Intensities
15	ROEDER, Simon	A SPIDER for an Improved Laser-Plasma Back-Reflection Module at PHELIX
16	NIKOLAEV, Dmitry	Measurement of the Compressibility and Temperature of Shock Compressed Monocrystalline Silicon up to 500 GPa
17	FENG, Jianhua	Proton-^{11}Boron Fusion Revisited
18	REN, Jieru	Charge Transfer Measurement of Laser-Accelerated Carbon Ions in Dense Ionized Matter
19	DROMEY, Brendan	Nanoscale Dynamics in Ultrafast Relaxation from Radiation Damage in SiO_2
20	CHIGVINTSEV, A. Yu.	Phase transition-like anomalies in spatial distribution for strongly non-ideal ionic systems in traps
21	SCHMITZ, Benedikt	Modelling of Laser Driven Neutron Sources