

44th International Workshop on High-Energy-Density Physics with Intense Ion and Laser Beams

January 28th – February 3rd, 2024

Darmstädter Haus (Waldemar Petersen Haus)

Hirschegg, Austria



P r o g r a m

Monday (January 29th)

Start	Duration	Speaker	Title
Session 1: HED Facilities (Chair: Y. Zhao)			
08:45	0:10	ZHAO, Yongtoa	Welcome and Introduction
08:55	0:25	SPILLER, Peter	tba
09:20	0:25	ZHAN, Wenlong	Status of HIAF
09:45	0:25	SCHOENBERG, Kurt	Updates on the HED@FAIR Collaboration
10:10		Coffee break	
Session 2: Upcoming HED Drivers (Chair: V. Bagnoud)			
10:40	0:20	KORN, Georg	Efficient, High Peak-Power, Short Pulse Lasers for Fusion Applications
11:00	0:20	HAWKER, Nicholas	Present and Future HED Facilities at First Light Fusion
11:20	0:20	MAJOR, Zsuzsanna	Applications and User Demands of Next Generation High Energy, High Repetition Rate Lasers
11:40	0:20	ZHAO, Xiaoui	High-Power Low-Coherence Laser Driver Facility
12:00	0:20	SCHRAMM, Ulrich	Advancement of High Intensity Laser Driven Particle Accelerators to Application Readiness
12:20		Lunch break	
Session 3: Planetary Interiors and Lab Astro (Chair: B. Canaud)			
17:00	0:20	PIRIZ, Roberto	Peaks and Valleys Asymmetry in the Linear Rayleigh-Taylor Instability on Elastic-Plastic Solids
17:20	0:20	KRAUS, Dominik	The Liquid Structure of Carbon Elucidated by In Situ Probing at EuXFEL
17:40	0:20	HESELBACH, Philipp	Laser-Driven X-ray Diagnostics of Heavy-Ion Heated Matter at the HHT Station of GSI
18:00	0:20	TAHIR, Naeem	Low-Entropy Compression of Matter Using Intense Heavy Ion Beams at FAIR: Application to Planetary Physics
18:20	0:20	PREISING, Martin	Ab Initio Calculations of Conductivities Under Planetary Interior Conditions
18:40	0:20	GLENZER, Siegfried	The Dawn of Inertial Fusion Energy Research
19:15		Dinner	(only for house guests)
20:30		HED@FAIR Executive Meeting	

Tuesday (January 30st)

Start	Duration	Speaker	Title
Session 4: Proton-Boron Fusion and Other Approaches (Chair: J. Honrubia)			
08:30	0:20	ZHOU, Weimin	Production and Application of High-energy Particles Based on High-intensity Lasers
08:50	0:20	MURAKAMI, Masakatsu	Proton-Boron (pB11) Fusion as an Application of Microbubble Implosions
09:10	0:20	LIU, Bing	Recent Progress in ENN's Proton-Boron Fusion Research
09:30	0:20	ZHENG, Chuan	New Developments for Polarized Fusion
09:50	0:20	MATEO, Alfonso	Two-Dimensional Simulations of Proton Fast Ignition Cone-In-Shell targets
10:10	00:30	Coffee break	
Session 5: IFE Concepts (Chair: D. H. H. Hoffmann)			
10:40	0:20	RUHL, Hartmut	A Novel ICF Concept Based on Mixed Nuclear Fuels Heated with the Help of Nano-Structured Meta Materials
11:00	0:20	MEYER-TER-VEHN, Juergen	New Ideas Concerning Inertial Fusion Energy (IFE)
11:20	0:20	MOSES, Ronald	Performance Limits for Magneto Inertial Fusion Reactors
11:40	0:20	CANAUD, Benoit	Direct-Drive Inertial Confinement Fusion Studies for LMJ at CEA: Status and Prospect
12:00	0:20	SAUFI, Abd Essamade	FLAIM: a Volume Ignition Model for the Compression and Thermonuclear Burn of Spherical Fuel Capsules
12:20		Lunch break	
Session 6: Laser Technology and IFE (Chair: S. LePape)			
17:00	0:20	WENG, Suming	Control of Parametric Instabilities in Inertial Confinement Fusion with Low-Coherence Lasers
17:20	0:20	ZÄHTER, Sero	Investigation of Laser Plasma Instabilities Driven by 527 nm Laser Pulses Relevant for Direct Drive Inertial Confinement Fusion
17:40	0:20	HANGHANG, Ma	A Parallel GPU Code for the Simulation of Laser Plasma Instabilities in Large Scale Plasmas with Kinetic Effects
18:00	0:20	SAUFI, A. E.	FuSE: A Rapid, Full-System Tool For Projectile-Driven Inertial Confinement Fusion Design And Optimisation
18:20	0:20	WANG, Peipei	Backward Scattering of Laser Plasma Interactions from Hundreds-of-Joules Broadband Laser on Thick Target
18:40	0:20	VOLPE, Luca	The ELI-Germany Laser-Induced-Fusion Project
19:15		Dinner	(only for house guests)
20:30		IFE Round Table	

Wednesday (January 31st)

Start	Duration	Speaker	Title
Session 7: Laser-Ion Acceleration (Chair: J. Ren)			
08:30	0:20	PUKHOV, Alexander	Peeler Regime of Laser-Plasma Interaction: Electron and Ion Acceleration, X-Ray Emission
08:50	0:20	GEULIG, Laura	Laser-Driven Acceleration of Gold Ions at the Centre for Advanced Laser Applications
09:10	0:20	HONRUBIA, Javier	Proton Beam Generation for Fast Ignition of Inertial Fusion Targets
09:30	0:20	REICHWEIN, Lars	Collisionless Shock Acceleration of Spin-Polarized 3He
09:50	0:20	SCHOLLMEIER, Marius	Experimental Evaluation of Nanorods Interacting with Ultra-Short High-Power Laser Pulses
10:10	00:30	Coffee break	
Session 8: Electron Acceleration (Chair: A. Pukhov)			
10:40	0:20	REN, Jieru	Brilliant Electron Beam Generation Through Laser-NCD Plasma Interactions
11:00	0:20	KALLA, Réne	Experimental concept for the detection of fission isotopes of ²³⁸ U, produced by laser-driven gamma rays
11:20	0:20	LE PAPE, Sebastien	The Apollon Research Infrastructure: a Journey to a Multi-PetaWatt Multi Beam Laser Facility
11:40	0:20	KUSCHEL, Stephan	Orbital Angular Momentum Beams for Laser Driven Particle Acceleration
12:00	0:20	KARSCH, Stefan	Multi-GeV Monoenergetic Electron Beams from an Optical Shock Front Accelerator
12:20		Lunch break	
17:00	1:30	Poster Session	
18:40	00:20	Conference Board Meeting	
20:00		Conference Dinner at Birkenhöhe	

Thursday (February 1st)

Start	Duration	Speaker	Title
Session 9: Proton Beamlines (Chair: G. Xiao)			
08:30	0:20	FREEMAN, Matthew	Proton Radiography at LANSCE over the Next 10 Years
08:50	0:20	SCHANZ, Martin	PRIOR-II – Towards Probing of HE Driven Shock Wave Experiments
09:10	0:20	DEWITT, Daniel	Capture and Transport of High-Energy Laser Accelerated Ions
09:30	0:20	GRIMM, Sarah	Towards Stopping Power Experiments With LIGHT
09:50	0:20	SCHMIDT, John	The LANL Proton Radiography Facility and Investigations Toward Achromatic Imaging
10:10	00:30	Coffee break	
Session 10: Laser Technology and Targetry (Chair: Z. Major)			
10:40	0:20	HORNUNG, Johannes	Synchronized Off-Harmonic Probe Laser with Highly Variable Pulse Duration for Laser–Plasma Interaction Experiments
11:00	0:20	SEUPEL, Thomas	Development of a High Repetitive Target for Laser Driven Radiation Sources
11:20	0:20	BAGNOUD, Vincent	Temporal-Contrast Improvements and Current Limits at PHELIX
11:40	0:20	RAMAKRISHNA, Bhuvanesh	Probing Bulk Electron Temperature via X-Rays in a Solid Density Plasma
12:00	0:20	FÖLDES, Istvan	Temporal Pulse Cleaning by Fourier Filtering: from the UV to the Infrared
12:20		Lunch break	
Session 11: Phase Transitions and Lab Astro (Chair: B. Rethfeld)			
17:00	0:20	LIPP, Vladimir	Non-Thermal Structural Transformation of Diamond Driven by X-Rays
17:20	0:20	LÜTGERT, Julian	Temperature and Structure Measurements of Heavy-Ion-Heated Diamond Using in Situ x-Ray Diagnostics
17:40	0:20	BISTONI, Oliviero	Electron-Phonon Coupling in Warm Dense Metals
18:00	0:20	SCHREINER, Stephan	Grating-Based Phase-Contrast Imaging of Laser-Driven Shock-Waves
18:20	0:20	FILINOV, Alexey	Ab Initio Approach to Static and Dynamic Properties of Partially Ionized Plasmas and Strongly Coupled Uniform Liquids of Charged Fermions
18:40	0:20	RETHFELD, Bärbel	Ultrafast Melting of Copper: Experiment and Theory

Friday (February 2nd)

Start	Duration	Speaker	Title
Session 12: Diagnostics and Targets (Chair: T. Kühl)			
08:30	0:20	QI, Wei	High Efficient and High Directionality Neutron Source Driven by Short-pulse Laser
08:50	0:20	CHENG, Rui	Progress of the Preliminary HEDP Research Based on HIRFL
09:10	0:20	YANG, Jie	Electron-Ion Three-Body Recombination in Strongly Coupled Ultracold Plasma
09:30	0:20	RACZKA, Piotr	Target Charging and Electromagnetic Pulse Emission in Laser-Driven Ion Acceleration
09:50	00:30	Coffee break	
Session 13: Implosions and Astrophysical Plasmas (Chair: P. Neumayer)			
10:20	0:20	BARRETT, Sean	First Light's Multi-Physics Codes for ICF
10:40	0:20	YADAV, Naveen	Designing Ion Accelerators Using the High-Power Laser Nanorod Interaction: A Numerical Investigation
11:00	0:20	ALLISON, James	EoS Uncertainty Quantification Applied to First Light Fusion Amplifier Design
11:20	0:20	PAUW, Viktoria	Advanced Data Analysis on Laser-Plasma Interaction Simulations with Particle-In-Cell Codes
11:40	0:20	PANDEY, Rishav	Detector and Physics Simulation Using Heavy Ion Collisions at NICA-SPD
12:00			Conclusion and End of Workshop

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

1	BOLLER, Pascal	Numerical Optimization of the Target Thickness for Experiments in the Relativistic Transparency Regime at PHELIX
2	FÖLDES, Istvan	Hot Electrons from Laser-Plasma Interactions with the ABC Laser System
3	WANG, Xing	Ion-Induced Alignment and Magnetic Sub-State Ionization in L3-Subshell
4	NEFF, Stephan	Experimental Facilities for High-Energy Density and Warm Dense Matter Experiments at FAIR
5	MISHCHENKO, Mikhail	Ionization and Relaxation Dynamics in Laser Plasmas Using X-Ray Free Electron Lasers
6	WASSER, Florian	Investigation of Laser Plasma Instabilities Driven by 527 nm Laser Pulses Relevant for Direct Drive Inertial Confinement Fusion
7	XU, Zhongfeng	Experimental Determination of Atomic Alignment of ^{42}Mo , ^{48}Cd and ^{49}In with Differential X-Ray Intensity Ratios by 100-250 keV Proton Impact
8	VÁZQUEZ-MOYANO, José	Analysis of 4+ Carbon Projectiles Energy Loss Passing Through Carbon Plasma Experiment within LIGHT Project at GSI
9	BESPALOV, Dmitrii	Target Design for High-Pressure Temperature Matter Using Inelastic X-Ray Scattering at the HED Instrument at the European XFEL
10	FRASER, Adam	SpK - A Fast Atomic Physics Code for Generating Tabulated EoS and Opacity Data for Use in HEDP Simulations
11	DAUERER, Leon	Laser Pumping with LEDs
12	BARRIGA-CARRASCO, Manuel	Theoretical Methods and Simulations of the Magnetized Plasmas Stopping Power
13	ZHAO, Yongtao	Activities on High Energy Density Physics at Xi'an Jiaotong University
14	GAO, Yifang	Measurements and Determinations for the Charge Quantity of Brilliant Electron Beams Generated Through Laser-NCD Plasma Interaction
15	WEGERT, Leonard	Observing the Interaction of Shocks with Interstellar Clouds in the Lab
16	RIPS, Johannes	Exploring the Phase Diagram and Diamond Formation of Double Shocked PET Using In Situ X-Ray Diffraction
17	BRÖNNER, Matthias	Objective Functions in Isochoric Design Studies for Proton Fast Ignition
18	ZOBEL, Nick	Alternative Hydrogen Storage Concepts