

45th International Workshop on High-Energy-Density Physics with Intense Ion and Laser Beams

January 26th - February 1st, 2025

Darmstädter Haus (Waldemar Petersen Haus)

Hirschegg, Austria



P r o g r a m

Monday (January 27th)

Start	Duration	Speaker	Title
Session 1: HED and LPA Facilities (Chair: M. Zepf)			
08:40	0:10	MATT, Zepf & BAGNOUD, Vincent	Welcome and Introduction
08:50	0:30	SCHOENBERG, Kurt	The HED@FAIR Collaboration Status Report
09:20	0:30	SPILLER, Peter	Progress in Construction of SIS100 and Beam Performance of SIS18
09:50	0:30	SCHRAMM, Ulrich	Status and Application Perspectives of Laser Plasma Accelerators
10:20		Coffee break	
Session 2: LPA Facilities (Chair: Zs. Major)			
10:50	0:30	MUGGLI, Patric	AWAKE: Plasma Wakefield Acceleration and Beam-Plasma Interactions
11:20	0:30	SEIDEL, Andreas	Advanced Characterization of Passive Plasma Lensing for Ultrashort Electron Bunches
11:50	0:20	NAZARY, Haress	The LIGHT beamline - Current and Future Projects
12:10		Lunch break	
Session 3: Relativistic Laser Plasma Interaction (Chair: S. Kuschel)			
17:00	0:30	SEIPT, Daniel	Nonlinear Breit-Wheeler Pair Production Using Polarized Photons from Inverse Compton Scattering
17:30	0:30	VIEIRA, Jorge	Modeling Structured Light in Plasma-Based Accelerators and Light Sources
18:00	0:20	ZHAO, Yu	Relativistic Solitons in the Wake of a High-Power Laser Pulses in Underdense Plasmas
18:20	0:20	PUKHOV, Alexander	e-e+ Plasma Generation and Dynamics in Laser Interaction with Solid-State Targets
18:40	0:20	SALGADO, Felipe Cezar	Pair Production in the Non-Perturbative Regime at CALA
19:15		Dinner	(only for house guests)
20:30		HED@FAIR Executive Meeting	

Tuesday (January 28th)

Start	Duration	Speaker	Title
Session 4: Laser-Driven Ion Sources I (Chair: V. Bagnoud)			
08:30	0:20	REICHWEIN, Lars	Acceleration of Spin-Polarized ^3He Beams with Laguerre-Gaussian Laser Pulses
08:50	0:20	GRIMM, Sarah J.	Multispecies Targets for Spectral Control in Laser-Ion Acceleration
09:10	0:20	MURAKAMI, Yuliya	Generation of Giga-Electron-Volt Proton Beams by Micronozzle Acceleration
09:30	0:20	WANG, Pengjie	Laser Acceleration of Diverse Ion Species from Different Novel Targets
09:50	0:20	GEULIG, Laura D.	Acceleration of In-Target Fission Fragments with the ATLAS-3000 Laser System
10:10	00:30	Coffee break	
Session 5: Laser-Driven Ion Sources II (Chair: S. Glenzer)			
10:40	0:20	BOLLER, Pascal	Prepulse-Induced Changes in Ion Beam Direction: Insights from TNSA Regime Experiments and Simulations at PHELIX
11:00	0:20	ASSENBAUM, Stefan	Prediction of Laser-Induced Breakdown in Sub-Micron-Thick Dielectric Targets for Laser-Ion Acceleration
11:20	0:20	HILZ, Peter	Proton Acceleration from Ultrathin Foils
11:40	0:20	DEWITT, Daniel	Beam Line Optimization for Laser-Accelerated Ions
12:00	0:20	SCHILZ, Joshua D.	Solenoid Design Optimization for Improved Beam Transport and Operation at High Repetition Rate
12:20		Lunch break	
Session 6: Basic Properties of WDM/HED I (Chair: K. Schoenberg)			
17:00	0:20	MITCHELL, Nicholas	A Reduced Kinetic Method for Investigating Non-Local Heat Transport in Ideal Multi-Species Plasmas
17:20	0:20	PIRIZ, Roberto	Nonlinear Model for the Single Mode Rayleigh-Taylor Instability
17:40	0:20	TAHIR, Naeem	Simulations of Low-Entropy Compression of Carbon Sample in LAPLAS Scheme Using Intense Heavy Ion Beams at GSI/FAIR
18:00	0:20	LÜTGERT, Julian	Measuring the Temperature and Structure of Heavy-Ion-Heated Diamond in Situ with X-Ray Diagnostics
18:20	0:20	RETHFELD, Bärbel	Aspects of Electron-Phonon Coupling in Laser-Excited Solids
19:00		Dinner	(only for house guests)

Wednesday (January 29th)

Start	Duration	Speaker	Title
Session 7: Basic Properties of WDM/HED II (Chair: B. Rethfeld)			
08:30	0:30	DROMEY, Brendan	Ultrafast Nanodosimetry – Unlocking the Role of Nanoscale Structure and Ultrafast Dynamics During Radiation Interactions in Matter
09:00	0:20	WEGERT, Leonard	Observing the Evolution of Proton-Heated Foam Microstructure Using X-Ray Talbot Interferometry
09:20	0:20	MUTHREICH, Nils	Non-Linear X-Ray Scattering of Ultrathin Fe and Au Foils at SACLA
09:40	0:20	BESPALOV, Dmitrii	High-Resolution Plasmon Dispersion in Compressed Aluminum at the EuXFEL
10:00	00:50	Coffee break	
10:50	1:30	Poster Session 1	
12:20		Lunch break	
17:00	1:30	Poster Session 2	
18:40	00:20	Conference Board Meeting	
20:00		Conference Dinner at Birkenhöhe	

Thursday (January 30th)

Start	Duration	Speaker	Title
Session 8: Transient Phenomena and Dynamic Transitions in WDM (Chair: P. Neumayer)			
08:30	0:30	KRAUS, Dominik	Dynamic Megabar Chemistry for Planetary Interiors, New Materials and IFE
09:00	0:20	LEUTLOFF, Jan	Transient Resonances in Few nm Au Nanoparticles at LCLS
09:20	0:20	KLEINSCHMIDT, Uwe	A Conductivity Model for Hydrogen Based on Ab Initio Simulations
09:40	0:30	HESELBACH, Philipp	X-ray Absorption Spectroscopy of Heavy-Ion Heated Aluminum at the HHT Station of GSI
10:10	00:20	Coffee break	
Session 9: Laser-Driven Electron Acceleration (Chair: J. Ren)			
10:30	0:30	KARSCH, Stefan	Towards Ultracold Electron Beams - High-Transfer Efficiency in Hybrid PWFA-LWFA
11:00	0:30	KIRCHEN, Manuel	High Average Power Laser Plasma Acceleration at DESY
11:30	0:30	HIDDING, Bernhard	Paving the Frosted Path to Ice-Cold, Ultra-Low Emittance Beams Low Emittance
12:00	0:20	PAUW, Viktoria	Data Management for Post-Processing on PIC-Simulations of Laser-Plasma Acceleration
12:20		Lunch break	
Session 10: Laser-Driven Fusion (Chair: S. Neff)			
17:00	0:20	GLENZER, Siegfried	Demonstration of Laser-Driven Energetic Ion Beams with Unprecedented Flux for Inertial Fusion Research
17:20	0:20	PECOVER, James	Reaching TPa Pressures for EoS Measurements on Modest Machines (and the Z Machine)
17:40	0:20	MEYER-TER-VEHN, Juergen	Selfsimilar Compression Solutions, Useful for IFE
18:00	0:20	RUHL, Hartmut	Non-Cryogenic DTs and Their Relevance for Nuclear Fusion
18:20	0:20	SCHOLLMEIER, Marius	First Experimental Evaluation of Laser Absorption, Ion Acceleration Efficiency, and Neutron Generation Utilizing a 10-PW-Driven Nano Accelerator Embedded in a Proton-Boron-Deuterium Compound Target
18:40	0:20	MURAKAMI, Masakatsu	New Self-Similar Solution for Multi-Stacked Converging Shocks and High Compression of Matter
19:15		Dinner	(only for house guests)

Friday (January 31st)

Start	Duration	Speaker	Title
Session 11: Laser Technology (Chair: tba)			
08:30	0:20	MAJOR, Zsuzsanna	Technology for High-Repetition-Rate Intense Laser Laboratories: THRILL
08:50	0:20	LOATA, Gabriel	Phase Conjugation of High-Energy Nd:glass Laser Pulses with Spatial and Temporal Fidelity
09:10	0:20	BAGNOUD, Vincent	The FLARE Project: a High-Energy Laser Facility at FAIR for Fusion Research
09:30	0:20	ZOBUS, Yannik	Holistic High-Intensity Laser System Modeling Using OPOSSUM: an Open-Source Optical Simulation Framework
09:50	0:20	SAEVERT, Alexander	The TAF-project: Synchronized High Power Laser Experiments @ HI Jena
10:10	00:20	Coffee break	
Session 12: Frontiers in Simulation, Optimization, and Fusion Energy Research (Chair: tba)			
10:30	0:30	DOEPP, Andreas	Bayesian Approaches to Measurement and Optimization
11:00	0:20	BOOS, Carl Georg	Laser Wakefield Acceleration Simulations with Orbital Angular Momentum Beams
11:20	0:20	HOFFMANN, Dieter H.H.	The Quest for Proton Boron Fusion and Related Topics
11:40	0:20		
12:00			Conclusion and End of Workshop

Poster Session 1 (Wednesday, 10:50-12:20)

1	REN, Jieru	Observation of QED Effects and Configuration Interaction in Highly Charged Au Ions Produced by High Power Laser
2	MATHIAK, Oliver	Filamentation in Matter-Antimatter Plasma
3	REICHWEIN, Lars	Preparations and Target Fabrication for Investigating the Peeler Scheme at JETi200
4	KIESEL, Stefan	Combining a Penning Trap with a 200 TW Laser: Experimental Setup for High Intensity Laser-Ion Interaction
5	NÖTH, Markus	Five-Moment Model for Alpha and Neutron Energy Deposition
6	MARUYAMA, Sota	Generation of MT Magnetic Field by Bladed-Microtube Implosion
7	SCHREINER, Stephan	X-ray Talbot Interferometry for HED Experiments
8	AMOGH, Amogh	Large-Aperture, Liquid-Cooled Glass Amplifier Development at PHELIX
9	VALIALSHCHIKOV, Maksim	Numerical Optimization of Quantum Vacuum Signals
10	BARRIGA-CARRASCO, Manuel	Analysis of 4+ Carbon Projectiles Energy Loss Passing Through Carbon Plasma Experiment within LIGHT Project at GSI
11	NEFF, Stephan	Experimental Facilities for High-Energy Density and Warm Dense Matter Experiments at FAIR
12	GAO, Yifang	A Robust Method to Generate Brilliant Electrons Through Laser Interaction with NCD Plasma Converted from Hohlraum Radiation of Foam Target
13	NEUFELD, Finn	Integration of Measured Beam Profiles into PIC Simulations

Poster Session 2 (Wednesday, 17:00-18:30)

1	ZARROUK, Karim	Using Radiochromic Films for Angular Resolved Ion Spectrum Reconstruction
2	WINTER, Victor	High Density Gas Jet Characterization for Electron Acceleration Experiments at PHELIX
3	LERNER, Kristina	Stopping Power Experiments with the LIGHT Beamline
4	DAUERER, Leon	A Nd:YLF Laser Pumped by High-Power LEDs
5	HORNUNG, Johannes	Commissioning of High Brightness X-Ray and Gamma Source from Self-Modulated Laser-Wakefield Accelerated Electrons at PHELIX
6	HERBERT, Marie-Luise	Convergent Shock Compression of Thin Wire Targets Using a Joule-Class Short-Pulse Laser
7	HOLLATZ, Dominik	A Control System for JETi200, POLARIS and TAF at HI Jena
8	KOZAN, Alperen	All Optical Emittance Characterization of Laser-Accelerated Electron Beams
9	KUHLKE, Jonas	A Pathway to Boron Doped Nanodiamonds: The Shock Compression of Waxes
10	LINDQVIST, Björn	Small Angle X-ray Scattering on Low-Z-Materials at Planetary Interior Conditions to Investigate Formation of Diamond
11	RIVAS, Daniel	Experimental Platform for the Investigation of 10-PW-driven Nano Accelerator Embedded in a Proton-Boron-Deuterium Compound Target
12	ZOBEL, Nick	Relevance of Superconducting Accelerator Technologies for Future Energy Systems