

52nd Annual Anomalous Absorption Conference
Big Sky Resort, Big Sky, MT
June 9th–14th, 2024



52nd Anomalous Absorption Conference Agenda

Sunday, June 9, 2024

Peaks Restaurant & Terrace of the Summit Hotel

Time

5:00pm Registration

6:00pm Welcome Reception

Monday, June 10, 2024 in the Talus Room of the Summit Hotel

7:00am-

8:15am Breakfast in the Huntley Dining Room

7:00am-8:30am

Welcome and Oral Sessions 1 & 2 in the Talus Room of the Summit Hotel

8:15am Introduction/Welcome

Mark Schmitt

Time Session 1: Inertial Confinement Fusion

Chair: Dustin Froula

8:30 *(Invited) A path towards experimentally validated implosion designs for future inertial confinement fusion facilities*

Follett, Russ
LLNL

9:00 *First inertial confinement fusion implosions using low gas-filled hohlraums on the Laser Mega Joule facility*

Lafon, Marion
CEA

9:20 *Multi-MJ target designs for Inertial Fusion Energy*

Christopherson,
Alison, Xcimer
Energy

9:40 *Integrated radiation-magneto-hydrodynamic simulations of magnetized burning plasmas*

Djordjevic, Blagoje,
LLNL

10:00 *Shape evolution of imploding shocks and shells and its effects on burn wave propagation in magnetized ICF for high yield*

Ho, Darwin, LLNL

10:20am Coffee Break

Session 2: Laser-Plasma Interactions

Chair: Frank Tsung

10:40 *(Invited) Experimental Evidence of the Effect of a Moderate External Magnetic Field on Stimulated Raman Scattering*

Winjum, Ben
UCLA

11:10 *Laser-plasma interaction considerations for an enhanced yield capability at the National Ignition Facility*

Chapman, Tom,
LLNL

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11:30	<i>Exploration of cross-beam energy transfer mitigation constraints and chamber geometry designs for ignition-scale direct-drive ICF</i>	Colaitis, Arnaud, LLE
11:50	<i>Statistical theory of the broadband two plasmon decay instability</i>	Ruskov, Rusko, Oxford
12:10	<i>Machine learning for laser backscatter at the National Ignition Facility</i>	Kur, Eugene, LLNL
12:30	Lunch in the Huntley Dining Room	
7:00pm	Plenary Session I in the Talus Room of the Summit Hotel <i>In Memory of Harvey A. Rose: Honoring His Science and Impact on Laser-Plasma Interactions</i>	Rozmus, Wojciech (Univ. of Alberta), Michel, Pierre (LLNL), Montgomery, David (LANL)
8:00pm	Poster Session I in the Gallatin Ballroom (see end of this file)	

Tuesday, June 11, 2024

7:00am-

8:30am **Breakfast in the Huntley Dining Room**

Oral Sessions 3 & 4 in the Talus Room of the Summit Hotel

Time	Session 3: Laser effects & applications	Chair: Archis Joglekar
8:30am	(Invited) <i>A Laser-Based 100 GeV Electron Plasma Accelerator</i>	Ludwig, Joshua, LLNL
9:00	<i>Review and Meta-analysis of Electron Temperatures from High-Intensity Laser-Solid Interactions</i>	Rusby, Dean, LLNL
9:20	<i>Multi-mJ THz Pulses from Picosecond Laser Irradiation of Wires</i>	Bruhaug, Gerrit, LANL
9:40	<i>Twisting High Intensity Lasers to Produce Extreme Magnetic Fields</i>	Longman, Andrew, LLNL
10:00	<i>How nonlocal heat transport impacts self-focusing and LPI in a laser speckle</i>	Belyaev, Mikhail, LLNL
10:20am	Coffee Break	

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Time	Session 4: Kinetics, PIC and Laser Absorption	Chair: Blake Wetherton
10:40am	(Invited) <i>VPIC 2.0: Performance-Portable Particle-in-Cell for Present and Future Supercomputers</i>	Luedtke, Scott, LANL
11:10	<i>The role of plasma kinetics in neutron capture experiments on NIF</i>	Appelbe, Brian, Imperial College
11:30	<i>Short-time scaling of the laser-driven ablation front with 1D kinetic simulations</i>	Veauvy, Corentin, CEA
11:50	<i>General-Purpose Model of Laser Absorption for Radiation-Hydrodynamic Simulation</i>	Strozzi, David, LLNL
12:10	<i>Ionization lag in laser ionized mid-Z plasmas</i>	Milder, Avi, LLE
12:30pm	Lunch in the Huntley Dining Room	
7:00pm	(Plenary) <i>Photochemically-induced acousto-optics in gases</i>	Michel, Pierre, LLNL
8:00pm	Poster Session II in the Gallatin Ballroom (see end of this file)	

Wednesday, June 12, 2024

7:00am-

8:30am **Breakfast in the Huntley Dining Room**

Oral Sessions 5 & 6 in the Talus Room of the Summit Hotel

Time	Session 5: Laser effects	Chair: Alex Seaton
8:30am	(Invited) <i>Investigating the Dynamics of Short-Pulse Laser Beam Filamentation in Underdense Plasmas</i>	McMillen, Kyle, LLE
9:00	<i>Planar LPI experiments on the Laser Megajoule: first results</i>	Myatt, Jason, Univ. of Alberta
9:20	<i>Neural design of bandwidth schemes for mitigating the Two-Plasmon Decay instability</i>	Joglekar, Archis, Ergodic, LLC
9:40	<i>Space-time structured plasma waves</i>	Palastro, John LLE

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10:00	<i>Self-generated magnetic fields in the hot spot of direct-drive cryogenic implosions at OMEGA</i>	Bose, Arijit, U. Delaware
10:20	Coffee Break	
Time	Session 6: Transport & complex target modeling	Chair: Rick Olson
10:40am	(Invited) <i>A reduced kinetic method for investigating nonlocal ion heat transport</i>	Mitchell, Nic, Imperial College
11:10	<i>Electromagnetic Spokes in Laser-Solid Interactions</i>	Walsh, Chris, LLNL
11:30	<i>Nonlocal effects on Thermal Transport in MagLIF-Relevant Gaspipes on NIF</i>	Lau, Ryan, Univ. of Colorado, Boulder
11:50	<i>Estimating the Density and Temperature Profiles of Laser Preheated MagLIF Targets at NIF using Bremsstrahlung Emission</i>	Meyer, Henry, LLNL
12:10	<i>Modeling for a Planar Heterogeneous Ablation Experiment on OMEGA</i>	Wetherton, Blake, LANL
12:30	Lunch in the Huntley Dining Room	
1:15pm	Business Meeting (All invited)	Dustin Froula
6:00pm	Banquet Reception	
7:00pm	Banquet	

Thursday, June 13, 2024

7:00am-

8:30am **Breakfast in the Huntley Dining Room**

Oral Sessions 7 & 8 in the Talus Room of the Summit Hotel

Time	Session 7: SBS, SRS & viscosity	Chair: Jason Myatt
8:30am	(Invited) <i>Stimulated Brillouin Scattering in the Rare Gases in Deep UV</i>	Mironov, Andrey, Xcimer Energy
9:00	<i>Nonuniformity in direct-drive implosions on OMEGA induced by bandwidth and polarization</i>	Edgell, Dana, LLE
9:20	<i>Mitigation study of absolute stimulated Raman scattering with 527 nm broadband driver</i>	Nguyen, Linh, Focused Energy

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9:40	<i>Platform development for broadband laser mitigation of stimulated Raman scattering and two-plasmon–decay instabilities on OMEGA</i>	Solodov, Andrey, LLE
10:00	<i>Observing the transition to turbulence as an indirect method for validating plasma viscosity models</i>	Keenan, Brett, LANL
10:20	Coffee Break	
Time	Session 8: Ignition concerns	Chair: Jose Milovich
10:40am	(Invited) <i>Target gain greater than unity at the NIF and routes to even higher</i>	Casey, Dan, LLNL
11:10	<i>Characterizing the Effects of Drive Asymmetries, Component Offsets, and Joint Gaps in Double Shell Capsule Implosions</i>	Sagert, Irina, LANL
11:30	<i>AI-enabled generative design of polymer AM targets</i>	Perumal, Vignesh, CAMMINO
11:50	<i>A KrF Laser Approach for High-Gain, High-TBR ICF Targets</i>	Holmes, Richard, Innoven Energy
12:10	<i>Computational studies of polar direct drive wetted foam ICF target implosions</i>	Olson, Rick, LANL
12:30	Lunch in the Huntley Dining Room	
7:00pm	(Plenary) <i>The road to first liquid DT-filled double shell implosions at NIF</i>	Loomis, Eric, LANL
8:00pm	Poster Session III in the Gallatin Ballroom (see end of this file)	

Friday, June 14, 2024

7:00am-

8:30am **Breakfast in the Huntley Dining Room**

Oral Sessions 9 & 10 in the Talus Room of the Summit Hotel

Time	Session 9: Diagnostics	Chair: Kevin Meaney
8:30am	(Invited) <i>Quantitative measurements of MeV photon spectra using a filter stack spectrometer</i>	Wong, Tim, LANL

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9:00	X-Ray Conversion Efficiencies for Diffraction Experiments on Z	Geissel, Matthias, SNL
9:20	<i>Progress in high-resolution x-ray spectroscopic measurements of radiation flow and compressed matter</i>	Kozlowski, Pawel, LANL
9:40	<i>Nuclear imaging and shape characteristics of ignition shots at the National Ignition Facility</i>	Durocher, Mora, LANL
10:00	<i>Diagnosing hot-spot symmetry via secondary DT-neutron spectroscopy at the NIF</i>	Adrian, Patrick, LANL
10:20	Coffee Break	
Time	Session 10: Physics modeling and experiments	Chair: Josh Sauppe
10:40am	<i>(Invited) Progress on understanding the drive deficit in indirect-drive NIF experiments</i>	Chen, Hui, LLNL
11:10	<i>Experimental demonstration of ozone grating created by interfering ultraviolet lasers</i>	Ou, Ke, Stanford
11:30	<i>Photochemically-Induced Acousto-Optic Fluid Simulations</i>	Oudin, Albertine, LLNL
11:50	<i>Simulating Radiation Flow through Lattices</i>	Recamier, Claire, LANL
12:10	<i>The Thinned Hohlräum Optimization for Radflow Experiments (THOR) Campaign on the National Ignition Facility</i>	Lester, Ryan, LANL
12:30	Conference adjourns	

Monday Poster Session I: Laser plasma interactions

8:00pm in the Gallatin Ballroom

Carleton, Daniel	<i>U Alberta</i>	Ray tracing model of side scattering instabilities in laser produced plasmas
Leal, Luis	<i>LLNL</i>	HYDRA simulations modeling magnetized CBET gas-jet experiments at OMEGA
Moloney, Philip	<i>Imperial</i>	Modelling Cross-Beam Energy Transfer in Magnetized Direct-Drive Implosions
Moody, John	<i>LLNL</i>	Thomson scattering from a magnetized CBET experiment

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Poole, Patrick	<i>LLNL</i>	X-ray source development with laser plasma interactions at NIF
Shi, Yuan	<i>UC-Boulder</i>	Status of the magnetized cross beam energy transfer
Sinclair, Mitchell	<i>UCLA</i>	Does the WKB approximation predict the Amplification Length of the B-SRS instability in a Density Gradient Plasma?
Thomas, Izzy	<i>UCSD</i>	Nonlinear evolution of helical plasma waves
Tsung, Frank	<i>UCLA</i>	Particle-in-cell simulations high-frequency hybrid instability (HFHI) dominated rescattering relevant to inertial fusion energy (IFE)
Weichman, Kale	<i>LLE</i>	Challenges and progress in kinetic modeling of broadband laser-plasma interaction with WarpX
Sutcliffe, Graeme	<i>LLNL</i>	Investigation of late-time nonlinear evolution of ion-Weibel filaments
Lumos, Nuno	<i>LLNL</i>	Forward Brillouin scattering experiments at the NIF
Atiyah, Danny	<i>UC-Irvine</i>	Spatio-Temporal Light Springs: An Exotic State of Light to Explore Novel Laser-Plasma Interactions

Tuesday Poster Session II: Rad-hydro, fields, ions, & electrons 8:00pm in the Gallatin Ballroom

Lawrence, Yousef	<i>MIT</i>	Characterization of self-generated E and B Fields in the coronae of direct-drive implosions at OMEGA
Samulski, Camille	<i>LANL</i>	Hot-electron preheat effects on direct-drive Rayleigh-Taylor instability experiments at the NIF and Omega- EP
Velechovsky, Jan	<i>LANL</i>	Shock-Induced Material Separation in Heterogeneous Mixtures inside ICF Targets
Feinberg, Eli	<i>LANL</i>	Pre-shot assessment of the Xflows NIF experiment
Feltman, Jacob	<i>LANL</i>	Characterizing Radiation Hydrodynamics Through Lattices Using Mean Chord Length
Angus, Justin	<i>LLNL</i>	Energy-preserving coupling of explicit particle-in-cell with binary Monte Carlo collisions
Cao, Sida	<i>Stanford</i>	GeV Ion Acceleration with a Transverse Flying Focus
Huang, C.K.	<i>LANL</i>	Characterization of ion beams from solid targets driven by a 0.5kJ short-pulse laser
Obst-Huebl, Lieselotte	<i>LBL</i>	High energy density science and applications experiments at BELLA iP2
Riedel, Will	<i>LLNL</i>	Magnetic Collimation of Relativistic Electron Beams through Resistivity Gradients
Seaton, Alex	<i>LANL</i>	Modelling electron-beam converter interactions in laser-driven X-ray radiography

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Taitano, Will	LANL	DT- α Fusion Package in the Vlasov-Fokker-Planck Code, iFP
Van Dervort, Robert (Woody)	LANL	Impact of inertial confinement fusion capsule parameters on time-dependent ion temperature

Thursday Poster Session III: Ablation, mix, implosions & high yield 8:00pm in the Gallatin Ballroom

Crilly, Aidan	<i>Imperial</i>	Lagr-ADEPT: Lagrangian (AutoDifferentiable) Hydrodynamics for LDD simulations
Farrell, Audrey	UCLA	Simultaneous Biermann battery and Weibel instability generated magnetic fields in near critical density plasmas
Huff, Maggie	LANL	Studying the fill tube interaction in double shell targets for inertial confinement fusion
Kuczek, John	LANL	Analysis of Tungsten Dopant on Simulated 1D/2D Implosions on the National Ignition Facility
Meaney, Kevin	LANL	Evolution of fusion ignition burn through ultrafast reaction history measurements
Milovich, Jose	LLNL	Development of an indirect-drive target producing 50 MJ of fusion energy for a prototype IFE power plant
Mohamed, Zaarah	LANL	Experimental design for planar experiments to characterize shock properties of wetted foams
Sauppe, Josh	LANL	Modeling of a Proposed Mitigation Mechanism for the Double Shell Ablator Joint
Schmitt, Mark	LANL	Simulation of polar direct drive wetted-foam capsule physics
Vold, Erik	LANL	Hydrodynamic versus Kinetic Mixing in ICF
Cheng, Baolian	LANL	Mode coupling and evolution in Rayleigh-Taylor instabilities and ICF applications
Wilks, Scott	LLNL	Simulations for Fast Ignition Studies