Conference Grant Report
March 12, 2021

Submitted to the

Office of Fusion Energy Science
Attn: Dr. Kramer Akli

By the

University of California, San Diego
9500 Gilman Drive
La Jolla, California 92093

On behalf of the

University of California San Diego

July 28 – August 11, 2019, La Jolla, CA

Performance Period: 1December 2018 to 30 December 2019

Principal Investigator

Dr. Farhat Beg
Center for Energy Research
University of California, San Diego
9500 Gilman Drive
La Jolla, California 92093-0417
858-822-1266 (telephone)
858-534-4543 (fax)
fbeg@ucsd.edu

I. Background

The University of California San Diego (UCSD), hosted the High Energy-Density Science Summer School from July 28 – August 11, 2019 on the UC San Diego campus. The goal of the Summer School series was to introduce new talent to the breadth of the U.S. High Energy Density Science (HEDS) community through lectures, engaging workshops, and discussion sessions with leaders in academia and the national laboratories. The objectives are to inspire young scientists to pursue graduate and professional careers in the fields of high energy density science, teach them fundamental HED science and critical skills, and grant them the opportunity to network with leading academic and national laboratory researchers. Our focus was to attract promising early-career students from across the country.

This was the fifth time the Summer School was held at UC San Diego, and the second time its duration was extended to two weeks with added hands-on experiences. Throughout the first week, the mornings consisted primarily of classroom-based teaching and the afternoons offered tutorials in one of three workshop tracks in computational modeling or experimental design. The second week included fewer lectures to allow students more workshop time, where they were encouraged to practice code modeling under the guidance of School leadership. The lecture format covered HEDS fundamentals, multidisciplinary links, and state-of-the-art science in these areas. Students were also able to attend portions of the community organized workshop on HEDS, hosted at UC San Diego during the last two days of the Summer School for additional knowledge-building and networking opportunities.

II. Meeting Report

Program Format

The HEDS field encompasses HED astrophysics, HED laboratory plasmas, and ultra-fast/ultra-intense laser-matter interactions. HEDS also spans fundamental topics from strong-field physics to creating new states of matter including radiation-dominated, strongly coupled, quantum and relativistic plasmas. Important applications of HEDS research include basic science, inertial fusion, material science, and advanced HED technologies research and development.

This year's curriculum focused on the following topics (see attached program schedule for details):

- Material science and planetary physics
- Inertial confinement fusion physics
- Atomic physics in plasmas and radiation spectroscopy
- Laser-driven hydrodynamics and shocks
- Intense laser plasma physics and particle acceleration
- Kinetic vs. fluid effects
- Laboratory astrophysics
- Magnetized plasma dynamics and instabilities

Lectures on the above topics were given by experts affiliated with the Sandia National Laboratories (SNL), Lawrence Livermore National Laboratory (LLNL), and the Laboratory for Laser Energetics (LLE), flagship universities namely, University of California San Diego (UCSD), University of California Davis, University of Nevada Reno (UNR), University of Rochester (UR),

Prism Computational Sciences, Inc. (Prism), and General Atomics (GA). Besides these, the School presented special sessions including:

- Kinetic computational modeling tools workshop with various Vlasov and PIC codes
- Fluid computational modeling workshop with radiation hydrodynamics code, FLASH
- Spectroscopic analysis workshop with PrismSPECT atomic physics code
- Diagnostics for HED experiments
- Current and future high-power laser technology talks
- Target fabrication capabilities for HEDS experiments
- Communications presentation for effective oral talks
- Panel discussion on career options in HEDS
- Oral and poster sessions for students and postdocs
- Tours at HEDS experimental and target fabrication facilities at UCSD and GA, respectively

The three workshops were led by Alex Arefiev (UC San Diego), Petros Tzeferacos (University of Rochester) and Roberto Mancini (UNR) with support from Frank Tsung (University of California Los Angeles), Igor Golovkin (Prism), Chris McGuffey (UCSD), and Stephanie Hansen (SNL) . Students who chose the kinetic modeling workshop were taught about differential equation solvers, particle-in-cell code construction, and were assigned a plasma physics phenomenon to study with one of various Vlasov or PIC codes. Students in the fluid modeling workshop were introduced to a one-dimensional (1-D) radiation hydrodynamic code and then guided in the use of the 2-D code FLASH by its steward. They were assigned plasma physics phenomena to explore using the code. Students in the spectroscopy workshop were first taught atomic physics, notation, and spectroscopic considerations in plasma. Then they were introduced to optical and x-ray spectroscopy devices and experimental implementations of spectroscopic techniques. They were granted short-term access to the commercial atomic physics code, PrismSPECT, and atomic data for low-Z materials and assigned experimental design tasks. At the end of the School, the students of the three workshops united to share their experiences. Each group of 3-5 students working on related topics assembled a short presentation showing what they learned, which they presented to the whole student body on the last day.

The panel discussion on career options in HEDS included four panelists with work history at SNL, LLNL, LLE, academia, and industry. The panelists fielded a variety of questions from the students and postdocs.

Supported students were required to present either an oral talk or poster on the second Monday. This gave them an opportunity to be actively engaged in the discussion of collaborative experiments and present their work to colleagues and potential employers. It was the first such opportunity in the HEDS field for a few of the students.

Lectures from the School have been made available in PDF and video format to participants online via a password-protected section of the School website.

Program Participation

The summer school was attended by 130, including students and post-doctoral scholars, from 44 institutions and 17 countries. Students and post-docs were housed on the campus for a two-week

immersive program designed to introduce early-career researchers to High Energy Density Science through lectures and professional development sessions given by field experts. Course and workshop instruction was given by 35 scientists and professors representing a broad range of expertise across HED fields. A complete list of lectures, workshops and instructors can be found in the schedule attached in the Appendix.

In total there were 90 postdoctoral scholars, graduate students, and undergraduate students. Additionally, there were 11 industry professionals observing the event. There were 23 lectures and 12 hands-on sessions delivered during this event. 62 participants presented posters.

57 applications received funding support for student travel and accommodations funding support; preference given to early-track students at U.S. institutions and decisions were based on resumes and two letters of recommendation. A list of supported students is attached.

III. Appendix

Photos

Photo 1. Students attend a lecture by UC Los Angeles Professor Warren Mori.

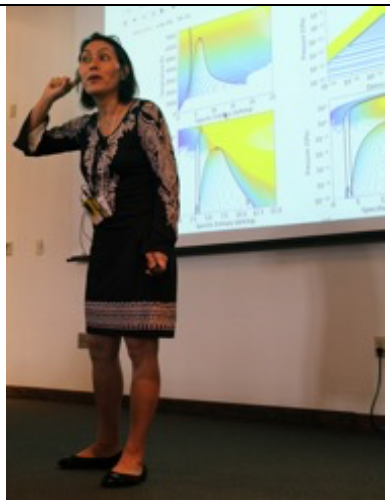

Photo 2. UC Davis Prof. Sarah Stewart leads an exercise on material properties relevant to planetary science in the Hojel Auditorium.

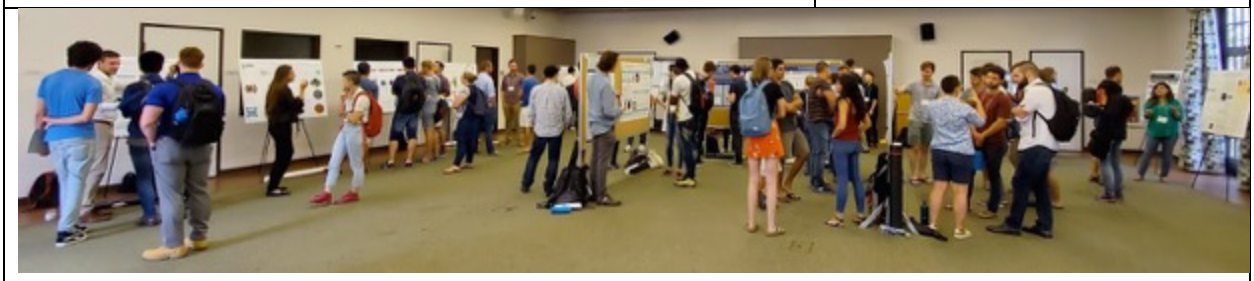

Photo 11. Summer School students at a poster session.

Photo 12. Students gain hands-on experience at the 2019 Hydro workshop.

Schedule

(begins on following page)

UC San Diego

2019 HEDS Summer School Schedule

CER CENTER FOR ENERGY RESEARCH

	The Village Conference Desk	Institute of Americas Hojel Auditorium		Institute of Americas Hojel Auditorium		Institute of Americas Hojel Auditorium		
Time	**Sunday, July 28**	**Time**	**Monday, July 29**	**Time**	**Tuesday, July 30**	**Time**	**Wednesday, July 31**	**Thursday, August 1**	**Friday, August 2**
	Reading and writing early assignments	07:30-08:15	Breakfast in Café Ventanas	07:30-08:15	Breakfast	07:30-08:15	Breakfast	Breakfast	Breakfast
		08:30-8:50	Opening Remarks: Sr. Assoc. VC for Research (10 min) Summer School Chair (10 min)	08:30-10:00 15 min pause	Introduction to ICF I: a hydro perspective [Betti, UR]	08:30-10:00 15 min pause	Introduction to short pulse laser interactions [Kruer]	Fundamentals and recent results in planetary science [Stewart, UC Davis]	Lab astro [Gregori]
		8:50-10:20 10 min pause	Fundamental plasma physics [Holland, UCSD]	10:00-11:30 15 min pause	Introduction to ICF II: a hydro perspective [Betti, UR]	10:00-11:30 15 min pause	Laser Plasma Instabilities I [Mori, UCLA]	Theoretical aspects of planetary science [Militzer, UCB]	Basics of particle acceleration with lasers [Najmudin, Imperial]
		10:20-12:00 20 min break	Atomic and radiation physics [Mancini, UNR]	11:30-11:50	Break	11:30-11:50	Break	Break	Break
		12:00-13:30 10 min pause	Introduction to HED physics [Collins, UR]	11:50-13:20 15 min pause	HED experiment diagnostics [Chen, LLNL]	11:50-13:20 15 min pause	Laser Plasma Instabilities II [Mori, UCLA]	Planetary Science Exercises	Applications of particle-generated sources to medicine [Najmudin, Imperial]
		13:30-14:30	Lunch in Café Ventanas	13:30-14:30	Lunch	13:30-14:30	Lunch	Lunch	Lunch
		14:30-16:10	Poster Session I	14:30-16:00 15 min pause	Fundamentals of material research with high energy density matter [Meyers, UCSD]	14:30-17:30	Rady 4N128: hydrodynamic modeling [Tzeferacos, Golovkin]	Rady 4N128: hydrodynamic modeling [Tzeferacos, Golovkin]	Rady 4N128: hydrodynamic modeling [Tzeferacos, Golovkin]
				16:00-17:40	Poster Session II		Rady 3E107: Spectroscopy and diagnostics [Hansen, Mancini]	Rady 3E107: Spectroscopy and diagnostics [Hansen, Mancini]	Rady 3E107: Spectroscopy and diagnostics [Hansen, Mancini]
16:00 +	Checkin for on-campus housing (open 24/7)	16:10-17:30	Oral talks I-V				Rady 2S117: kinetic modeling [Arefiev, Tsung]	Rady 2S117: kinetic modeling [Arefiev, Tsung]	Rady 2S117: kinetic modeling [Arefiev, Tsung]
18:30-19:30	Dinner in Café Ventanas	17:30-18:30	free	17:40-18:30	free	17:30-18:30	free	free	free
19:30-20:30	Dessert & Drinks / registration Institute of Americas plaza	18:30-19:30	Dinner in Café Ventanas	18:30-19:30	Dinner	18:30-19:30	Dinner	Dinner	Dinner

2019 HEDS Summer School Schedule

Time	Saturday, August 3	Sunday, August 4
07:30-08:15	Breakfast	Breakfast
09:00-13:00	Work in usual workshop rooms with workshop leads by appointment. (Spectroscopy workshop will meet in Rady **4E106**.) **NOTE ROOM CHANGE!**	Free
13:30-14:30	Lunch	Lunch
	Workshop project on your time.	Free
18:30-19:30	Dinner	Dinner

Time	Institute of Americas Hojel Auditorium Monday, August 5	Institute of Americas Hojel Auditorium Tuesday, August 6
07:30-08:15	Breakfast	Breakfast
08:30-10:00 15 min pause	Fundamentals and applications of a Dense Plasma Focus device [Mahadevan, AASC]	ICF on NIF [Ma, LLNL]
10:00-11:30 15 min pause	Fundamentals of the Z-pinch and its applications in magneto inertial fusion [Cuneo, SNL]	Advanced laser systems of today and the future [Ditmire, UT]
11:30-11:50	Break	Break
11:50-13:20 15 min pause	The technology of pulsed power [Cuneo, SNL]	Radiation reaction effects at ELI intensities [Blackburn, Chalmers]
13:30-14:30	Lunch	Lunch
14:30-17:30	Rady 4N128: hydrodynamic modeling [Tzeferacos, Golovkin]	Rady **1E107**: hydrodynamic modeling [Tzeferacos, Golovkin] **NOTE ROOM CHANGE!**
	Rady 3E107: Spectroscopy and diagnostics [Hansen, Mancini]	Rady 3E107: Spectroscopy and diagnostics [Hansen, Mancini]
	Rady 2S117: kinetic modeling [Arefiev, Tsung]	Rady 2S117: kinetic modeling [Arefiev, Tsung]
17:30-18:30	free	free
18:30-19:30	Dinner	Dinner

Time	Institute of Americas Hojel Auditorium Wednesday, August 7
07:30-08:15	Breakfast
08:30-10:15	Workshop group project expo and student presentation awards
10:15-11:30	Career Panel
11:30-11:50	Break
11:50-12:40	Target fabrication capabilities for HED science at LLNL [Stadermann, LLNL]
12:40-13:30	Target fabrication capabilities for HED science at General Atomics [Farrell, GA]
13:30-14:30	Lunch
14:30-18:30	General Atomics tour (if indicated on your badge, board bus on Scholars Drive by 14:30 sharp!) or UCSD walking tour (meet on grass in front of Café Ventanas at 14:30)
18:30-19:30	Dinner
19:30-21:00	Social at Bella Vista Social Club & Caffe

Poster Session

(begins on following page)

HEDS Summer School - Poster Session I (Monday)

First Name	Last Name	Presentation spot	Research area	Institution	Abstract title
Nitish	Acharya	1	High Energy Density Hydrodynamics	University of Rochester	Hydrodynamic Design Simulations of XPIV-Compatible Targets using FLASH
Abetharan	Antony	2	Kinetic modelling of hohlraum	Imperial College London	Investigating Vlasov-Fokker-Plank Coupled Radiation-Hydrodynamics code for Hohlruam Simulations
Orianna	Ball	3	Shock Physics	The University of Edinburgh	Shock-wave study of the metallization of alkali halides up to 400 GPa
Shihui	Cao	4	Laser-Plasma Interactions	University of Rochester	3D PIC simulations with linearly and circularly polarized laser
Chiatai	Chen	5	Pulsed Power	Cornell University	Auto-magnetizing Mirror Liner Design for Wire Plasma Confinement Experiment
Adrien	Descamps	6	High Energy Density Science	SLAC National Lab	Temperature measurement of warm dense matter using inelastic X-ray scattering
Payson	Dieffenbach	7	Plasma Physics	The University of Tennessee - Knoxville	Hydrodynamic motion of electron beam heated warm dense foils
Robert	Dorst	8	Astrophysical Collisionless Shocks	UCLA	Optical Ion Velocity Diagnostics in the Interaction of a Laser Produced Plasma and an Ambient Magnetized Plasma
Ahmed	Elshafiey	9	HEDP - X-ray Spectroscopy	Cornell	Hybrid X-Pinch Optimization
Griffin	Glenn	10	Warm dense matter	UT Austin	Isochoric heating of silicon using laser-accelerated proton beams at the Matter in Extreme Conditions instrument at LCLS
Thanh	Ha	11	HEDS	University of Texas at Austin	Laser-Induced Breakdown Spectroscopy Analysis of Silicon Excited With a Ho:YLF Laser Source
Timothy	Johnson	12	Lab Astro/HEDP	Massachusetts Institute of Technology	Collisionless Shocks and Fermi-like Acceleration on OMEGA
Kwyntero	Kelso	13	Hydrodynamic Instabilities	Univeristy of Michigan	Validation of Synthetic Proton Radiography for HED Experiments
Alexey	Knyazev	14	Plasma physics, laser plasma.	UCSD	Electron and X-ray production from laser-irrandiated nanoscale structures on a target
Kyle	McLean	15	Plasma Physics	Imperial College London	Corrections to Weighted Opacity Calculations in 3-T Radiation Transport
Samuel	Pellone	16	Interfacial instabilities, CFD, HEDP	University of Michigan	A Vortex Sheet Approach in the Evolution of High Energy-Density Interfacial Instabilities
C. Grant	Richmond	17	HEDS	UT Austin	Cascade random-quasi-phase-matched harmonic generation in polycrystalline ZnSe
Camille	Samulski	18	MagLIF	Virginia Tech	Enhancing Understanding of High Energy Density Plasmas from Wire Array and Solid Liner Implosions Using Fluid Modeling with Kinetic Closures
Tanner	Simpson	19	Plasma Theory	University of Rochester	Nonlinear Self-Focusing of Flying Focus Pulses
Trevor	Smith	20	High Energy Density Physics	University of Michigan	Vacuum Ultraviolet and Visible Spectroscopy for Power Flow Studies on the 1 MA, 100 ns MAIZE LTD
Brendan	Sporer	21	High Energy Density Physics, Linear Transformer Drivers	University of Michigan	Construction of the BLUE Linear Transformer Driver (LTD) System at University of Michigan
Joseph	Strehlow	22	Laser-ion acceleration	University of California, San Diego	Laser-driven acceleration of titanium ions and the calibration of the ion beam diagnostic
Savva	Theocharous	23	Shock & Plasma physics	Imperial College London	Magnetic and Wire Explosion Flyer Launch
Vicente	Valenzuela-Villaseca	24	HED Laboratory Astrophysics	Imperial College London	Time evolution of rotating plasma flows on the MAGPIE pulsed-power generator
Jeyathasan	Viswanathan	25	Ion acceleration	CEA	Ion acceleration from thin cryogenic solid targets for high power and high repetition rate laser.
Andrew	Yandow	26	Strong Field AMO	University of Texas at Austin	Tunneling Ionization at Intensity Above 10^20 W/cm^2
Hannah	Poole	27	ICF, X-ray diagnostics, Pulsed power	First Light Fusion	Radiography of gas-gun impact experiments using an X-Pinch

HEDS Summer School - Oral Session (Monday)

Candace	Harris	16:10 - 16:22	X-ray Spectroscopy	LLNL	Sensor Multivariate Analysis for measuring X-ray radiation drive using the DANTE Diagnostic towards Inertial Confinement Fusion experiments
Nathaniel	Shaffer	16:25 - 16:37	Dense plasma transport theory	Los Alamos National Laboratory	Conductivity in Dense Plasmas: the Role of Electron-Electron Correlations and Collisions
Akash	Shah	16:40 - 16:52	Z-Pinch	University of Michigan- Ann Arbor	Upgrades to the 1-MA, 100-ns MAIZE Pulsed Power Facility
Sofía Ayelén	PIRIZ	16:55 - 17:07	High Energy Density Physics, Rayleigh-Taylor instability (RTI)	University of Castilla-La Mancha	Magneto-Raleigh-Taylor instability in an elastic slab.
Georges	Jaar	17:10 - 17:22	X-Pinch	Florida A&M University	X-ray Spectroscopy and Total Yield Measurements on a Microsecond X-Pinch

Poster Session II (Tuesday)					
First Name	Last Name	Presentation spot	Research area	Institution	Abstract title
Jay	Angel	1	Plasma Physics	Cornell	Zeeman Spectroscopic Determination of Magnetic Field in Magnetized Plasma Expanding into Vacuum
Juliana	Baena	2	Spectroscopy - Magnetic Confinement Fusion	Universidad EAFIT	High-magnetic performance on H-Shaped Dipole Electromagnet improved by a novel design for magnetic characterization techniques and magnetic confinement.
Duncan	Barlow	3	Radiation Hydrodynamics	Warwick University	Thermal Conduction in 2D Simulations
Nick	Beier	4	Laser-Plasma Interactions	UC Irvine	Mid-infrared High-order Laser Plasma Interations in Solids
Min Sang	Cho	5	X-ray Spectroscopy Simulation	Gwangju Institute of Science and Technology	Nonlinear Absorption of X-ray Free Electron Laser Pulses in Dense Plasmas
Ronan	Devriendt	6	Plasma Physics	CEA	Influence of laser E-field on the Coulomb logarithm of a classical plasma using MD simulations
Stephen	Dilorio	7	Computational Plasma Physics	University of Michigan	Ultrafast Probing of Non-Equilibrium Plasmas Using Laser-Wakefield-Accelerated Electron Bunches
Emmeline	Douglas-Mann	8	Dynamic compression on the European XFEL	University of York	Dynamic compression on the European XFEL: Exploring Compression Pathways with Molecular Dynamics
Camelia	Stan	9	material deformation	Lawrence Livermore National Lab	Forensic Examination of Hiroshima Shock-Recovered Samples
Thibault	GOUDAL	10	Hydrodynamic Instabilities	CELIA	Omega EP experiment with low-density foams driven at low intensity for future NIF Landau-Darrieus experiments
Sahel	Hakimi	11	Laser Plasma Interactions	UCI	Compact kHz Laser Wakefield Acceleration
Owen	Johnson	12	condensed matter	Bradley	N/A
Manuel	Jullien	13	Atomic physic	CEA	Neon photo-ionized plasma at LULI2000
Ayden	Kish	14	Plasma Physics/Intertial Confinement Fusion	University of Rochester	Preliminary work toward an investigation of burn wave propagation in magnetized cylindrical targets
Kirill	Lezhnin	15	Laser-plasma interactions, kinetic simulations of HEDP experiments	Princeton University	Kinetic simulations of electron energization by magnetized collisionless shocks in expanding laboratory plasmas
Boya	Li	16	Shock Compression of Covalently Bonded Planetary Materials	UCSD	Shock Compression of Covalently Bonded Planetary Materials
Jacob	McLaughlin	17	Plasma Diagnostics	West Virginia University	Relative cross section of Krypton and Xenon by Two-photon Absorption Laser Induced Fluorescence
Jacob	Pearcy	18	Hohlraum physics	Massachusetts Institute of Technology	Characterization of Electromagnetic Fields and Plasma Instabilities in Laser-Driven Hohlraums
Qian	Qian	19	Laser plasma interaction	University of Michigan	The Effect of Quantum Radiation Emission in High-Energy Wakefield Stages
Gaia	Righi	20	Materials Science	University of California, San Diego	Probing the Strength of Iron at Ultra-High Pressures and Strain Rates
Brandon	Russell	21	Laser-plasmas/lab astro.	University of Michigan	Interaction of semirelativistic magnetized plasmas with obstacles
Christopher	Schoenwaelder	22	High Energy Density Science	SLAC National Laboratory	High Flux Ion beams from cryogenic Low-Z jets
Herbie	Smith	23	Laser science, warm dense matter	University of Texas at Austin	Design and Characterization of a 100 TW Laser System at the University of Texas at Austin
SJ	Spencer	24	Laser-Plasma Interactions	University of Warwick	Inflationary Stimulated Raman Scattering (iSRS) in Shock-Ignition Plasmas
Adam	Fraser	25	Microphysics	Imperial College London	Development of an improved equation of state for dense plasmas using the SHM-I model
Hongmei	Tang	26	laser-plasma interaction	University of Michigan	Characterizing the spatial resolution of scintillators for imaging applications of laser-driven proton beams
David	Tordeux	27	Plasma physics, atomic physics	CEA	Advanced description of atomic ionization and de-excitation cascades in the Particle-In-Cell code Calder
Jacquelynne	Vaughan	28	Pulsed power/LPI/ICF/Lab astro	UCSD/LANL	“Optimizing neutron imaging system design for the National Ignition Facility using synthetic imaging data”
John	Wilson	29	Plasma Theory	SUNY Geneseo	Broadband Smoothing of Laser Pulses for Imprint reduction in Direct-Drive Inertial Confinement Fusion
Nikita	Chaturvedi	30	ICF	First Light Fusion	Numerical capabilities for modelling ICF experiments at First Light Fusion

Full List of Supported Students

(begins on following page)

First Name	Last Name	Email address	Research area	Institution	Workshops	Student status	Abstract title (supported students are required to present during the student poster presentations	Gender	Reference #1 full name	Reference #2 full name
Daniel	Barnak	barnakd@gmail.com	Magnetized HED plasmas	Los Alamos National Labor	X-ray diag. workshop	Postdoc	Impact of self-generated B-fields on HED experiments	Male	Riccardo Betti	Kirk Flippo
Thibault	GOUDAL	thibault.goudal@u-bordeaux.fr	Hydrodynamic Instabilities	CELIA	Hydro modeling workshop	5th Year + Graduate	Omega EP experiment with low-density foams driven at low intensity for future NIF Landau-Darrieus ex	Male	Alexis CASNER	Laurent MASSE
Qian	Qian	qqbruce@umich.edu	Laser plasma interaction	University of Michigan	Hydro modeling workshop	1st-2nd Year Graduate	Witness beam emittance change due to QED effect in laser wake field	Male	Alexander Thomas	Daniel Seipt
John	Rodman	jrodman@vt.edu	HED Plasmas	Virginia Tech	Kinetic modeling workshop	Undergraduate	Kinetic and hydrodynamic instabilities in high-energy-density astrophysical plasmas	Male	Bhuvana Srinivasan	David Sprouster
Nitish	Acharya	nachary2@ur.rochester.edu	High Energy Density Turbul	University of Rochester	X-ray diag. workshop	1st-2nd Year Graduate	Towards Diagnosing Complex HED Flows	Male	Jessica Shang	Hussein Aluie
Jay	Angel	ja692@cornell.edu	Plasma Physics	Cornell	X-ray diag. workshop	1st-2nd Year Graduate	Zeeman Spectroscopic Determination of Magnetic Field in Magnetized Plasma Expanding into Vacuur	Male	Dr. Simon Bland	Dr. David A. Hammer
Abetharan	Antony	aa10516@ic.ac.uk	Kinetic modelling of hohlrau	Imperial College London	Kinetic modeling workshop	1st-2nd Year Graduate	VFP modelling of electrons for hohlraum energetics	Male	Robert Kingham	Jeremy Chittenden
Orianna	Ball	O.B.Ball@sms.ed.ac.uk	Shock Physics	The University of Edinburgh	Hydro modeling workshop	1st-2nd Year Graduate	Shock-wave study of the metallization of alkali halides up to 500 GPa	Female	R. Stewart McWilliams	Malcolm McMahon
Duncan	Barlow	d.barlow@warwick.ac.uk	Radiation Hydrodynamics	Warwick University	Hydro modeling workshop	1st-2nd Year Graduate	Thermal Conduction in the ALE code ODIN	Male	Tony Arber	Robbie Scott
Nick	Beier	nbeier@uci.edu	Laser-Plasma Interactions	UC Irvine	X-ray diag. workshop	3rd-4th Year Graduate	Relativistic short pulse laser-solid interactions at 1.3 and 2.1 micron wavelengths	Male	Franklin Dollar	Roger McWilliams
Shihui	Cao	scao5@ur.rochester.edu	scao5@ur.rochester.edu	University of Rochester	Kinetic modeling workshop	1st-2nd Year Graduate	3D PIC simulations with linearly and circularly polarized laser	Male	Chuang Ren	Adam Sefkow
Chiatai	Chen	cc2684@cornell.edu	Pulsed Power	Cornell University	Hydro modeling workshop	1st-2nd Year Graduate	Automagnetizing Liner Experiments	Male	Bruce R. Kusse	David A. Hammer
Min Sang	Cho	minsangdream@gist.ac.kr	X-ray Spectroscopy Simulat	Gwangju Institute of Scienc	X-ray diag. workshop	3rd-4th Year Graduate	Nonlinear Absorption of X-ray Free Electron Laser Pulses in Dense Plasmas	Male	Byoung-ick Cho	Hyun-Kyung Chung
Adrien	Descamps	adescamp@slac.stanford.edu	High Energy Density Scienc	SLAC National Lab	X-ray diag. workshop	3rd-4th Year Graduate	Temperature measurement of warm dense matter using inelastic X-ray scattering	Male	Siegfried Glenzer	Jerry Hastings
Ronan	Devriendt	ronan.devriendt@cea.fr	Plasma Physics	CEA	Hydro modeling workshop	1st-2nd Year Graduate	Influence of various coulombian logarithm models on plasma formation	Male	Sophie Baton	Laurent Masse
Payson	Dieffenbach	pdieffen@vols.utk.edu	Plasma Physics	The University of Tennesse	Hydro modeling workshop	1st-2nd Year Graduate	Hydrodynamic motion of electron beam heated warm dense matter	Male	David Donovan	Josh Coleman
Stephen	Dilorio	diiorios@umich.edu	Computational Plasma Phy	University of Michigan	Kinetic modeling workshop	3rd-4th Year Graduate	Ultrafast Probing of Non-Equilibrium Plasmas Using Laser-Wakefield-Accelerated Electron Bunches	Male	Alexander Thomas	Karl Krushelnick
Robert	Dorst	rdorst@g.ucla.edu	Astrophysical Collisionless S	UCLA	X-ray diag. workshop	3rd-4th Year Graduate	Temporally Resolved Ion Fluorescence Measurements of the Interaction of a Field-Parallel Laser Prod	Male	Christoph Niemann	Derek Schaeffer
Emmeline	Douglas-Mann	edm512@york.ac.uk	Dynamic compression on th	University of York	Hydro modeling workshop	1st-2nd Year Graduate	Dynamic compression on the European XFEL	Female	Dr. Andrew Higginbotham	Dr. Carolyn Kuranz
Ahmed	Elshafiey	ae389@cornell.edu	HEDP - X-ray Spectroscopy	Cornell	X-ray diag. workshop	1st-2nd Year Graduate	Time- and Space-Resolved studies of X-ray Emission from Hybrid X-pinch Plasmas	Male	David Hammer	Bruce R. Kusse
Griffin	Glenn	griffin.d.glenn@gmail.com	Warm dense matter	UT Austin	X-ray diag. workshop	Undergraduate	Isochoric heating of silicon using laser-accelerated proton beams at the Matter in Extreme Conditions i	Male	Todd Ditmire	Siegfried Glenzer
Thanh	Ha	contact@thanh-ha.com	HEDS	University of Texas at Austi	Hydro modeling workshop	3rd-4th Year Graduate	Observation of Anomalously High Charge States in XUV-Irradiated Noble Gas Clusters	Male	Todd Ditmire	John Keto
Sahel	Hakimi	sahelh@uci.edu	Laser Plasma Interactions	UCI	X-ray diag. workshop	3rd-4th Year Graduate	Wakefield in Solid State Plasma	Female	Franklin J Dollar	Toshiki Tajima
Georges	Jaar	georges1.jaar@famu.edu	x-pinch experiments	Florida A&M University	X-ray diag. workshop	5th Year + Graduate	X-ray Spectroscopy and Total Yield Measurements on a Microsecond X-Pinch	Male	Richard Appartaim	James Strohaber
Timothy	Johnson	tmarkj@mit.edu	Lab Astro/HEDP	Massachusetts Institute of T	Hydro modeling workshop	1st-2nd Year Graduate	Weibel Mediated Collisionless Shocks Generated by Supersonic Plasma Flows on OMEGA	Male	Chikang Li	Maria Gatu Johnson
Manuel	Jullien	Manuel.JULLIEN@cea.fr	Atomic physic	CEA	X-ray diag. workshop	1st-2nd Year Graduate	Neon photo-ionized plasma at LULI2000	Male	Christophe Blancard	Roberto C. Mancini
Kwyntero	Kelso	kelsokelso3@gmail.com	Hydrodynamic Instabilities	Univeristy of Michigan	X-ray diag. workshop	1st-2nd Year Graduate	Validation of Synthetic Proton Radiography for HED Experiments	Male	Kirk Flippo	Carolyn Kuranz
Ayden	Kish	akish2@ur.rochester.edu	Plasma Physics/Intertial Co	University of Rochester	Kinetic modeling workshop	1st-2nd Year Graduate	Preliminary work toward an investigation of burn wave propagation in magnetized cylindrical targets	Male	Adam Sefkow	Gilbert "Rip" Collins
Kirill	Lezhnin	klezhnin@princeton.edu	Laser-plasma interactions, I	Princeton University	Kinetic modeling workshop	3rd-4th Year Graduate	Kinetic simulations of electron energization by magnetized collisionless shocks in expanding laboratory	Male	Will Fox	Sergei Bulanov
Megan	McCracken	mmccracken1@my.apsu.edu	Plasma Physics	Virginia Tech	Hydro modeling workshop	Undergraduate	Mix and instabilities in high-energy-density plasmas	Female	Dr. Bhuvana Srinivasan	Dr. Justin Oelgoetz
Jacob	McLaughlin	jwmclaughlin@mix.wvu.edu	Plasma Diagnostics	West Virginia University	X-ray diag. workshop	1st-2nd Year Graduate	Comparison of Krypton and Xenon Cross-Sections for Calibration of Two-Photon Absorption Laser Ind	Male	Earl Scime	Derek Thompson
Kyle	McLean	k.mclean17@imperial.ac.uk	Plasma Physics	Imperial College London	Hydro modeling workshop	1st-2nd Year Graduate	Corrections to Weighted Opacity Calculations in 3-T Radiation Transport	Male	Steve Rose	Jeremy Chittenden
Jacob	Pearcy	pearcy@mit.edu	Hohlraum physics	Massachusetts Institute of T	Kinetic modeling workshop	1st-2nd Year Graduate	Characterization of Electromagnetic Fields and Plasma Instabilities in Laser-Driven Hohlraums	Male	Chikang Li	Maria Gatu Johnson
Samuel	Pellone	spellone@umich.edu	Interfacial instabilities, CFD,	University of Michigan	Hydro modeling workshop	3rd-4th Year Graduate	A Vortex Sheet Approach in the Evolution of High Energy-Density Interfacial Instabilities	Male	Eric Johnsen	Carolyn Kuranz
Nicholas	Peskosky	njpeskos@umich.edu	LPI Ion Acceleration / LWF/	University of Michigan	X-ray diag. workshop	1st-2nd Year Graduate		Male	Karl Krushelnick	
Sofía Ayelén	PIRIZ	sofiaayelen.piriz@uclm.es	High Energy Density Physic	University of Castilla-La Mar	Hydro modeling workshop	3rd-4th Year Graduate	Magneto-Raleigh-Taylor instability in an elastic slab.	Female	Antonio Roberto Piriz	Naeem Ahmad Tahir
C. Grant	Richmond	cgrichmond@utexas.edu	HEDS	UT Austin	X-ray diag. workshop	1st-2nd Year Graduate	Laser Induced Breakdown Spectroscopy Plasma Charateristics of Silicon using a Mid-IR Ho:YLF Sour	Male	Todd Ditmire	Hernan Quevedo
Brandon	Russell	bkruss@umich.edu	Laser-plasmas/lab astro.	University of Michigan	Hydro modeling workshop	1st-2nd Year Graduate	Interaction of semirelativistic magnetized plasmas with obstacles	Male	Louise Willingale	Anatoly Maksimchuk
Camille	Samulski	csamulski@vt.edu	MagLIF	Virginia Tech	Hydro modeling workshop	1st-2nd Year Graduate	Enhancing Understanding of High Energy Density Plasmas from Wire Array and Solid Liner Implosions	Female	Dr. Bhuvana Srinivasan	Dr. Colin Adams
Christopher	Schoenwaelder	schchris@slac.stanford.edu	High Energy Density Scienc	SLAC National Laboratory	Kinetic modeling workshop	1st-2nd Year Graduate	High Flux Ion beams from cryogenic Low-Z jets	Male	Siegfried Glenzer	Stefan Funk
Nathaniel	Shaffer	nshaffer@lanl.gov	Dense plasma transport the	Los Alamos National Labor	Kinetic modeling workshop	Postdoc	Conductivity in Dense Plasmas: the Role of Electron-Electron Correlations and Collisions	Male	Scott Baalrud	Charles Starrett
Akash	Shah	akashah@umich.edu	Z-Pinch	University of Michigan- Ann	X-ray diag. workshop	1st-2nd Year Graduate	Extending Experimental and Diagnostics Capabilities on the 1-MA, 100-ns MAIZE Pulsed Power Facili	Male	Ryan Mcbride	Nicholas Jordan
Tanner	Simpson	tsimpso7@ur.rochester.edu	Plasma Theory	University of Rochester	Hydro modeling workshop	1st-2nd Year Graduate	The Nonlinear Optics of Structured Flying Focus Pulses	Male	John Palastro	David Roundy
Trevor	Smith	smtrevor@umich.edu	High Energy Density Physic	University of Michigan	X-ray diag. workshop	1st-2nd Year Graduate	Ultra-Violet & Visible Spectroscopy Methods for Power Flow Studies on MAIZE	Male	Dr. Ryan D. McBride	Dr. Nicholas Jordan
Herbie	Smith	herbie.smith@utexas.edu	Laser science, warm dense	University of Texas at Austi	X-ray diag. workshop	3rd-4th Year Graduate	Design and Characterization of a 100 TW Laser System at the University of Texas at Austin	Male	Todd Ditmire	Hernan Quevedo
Selina-Jane	Spencer	s-j.spencer@warwick.ac.uk	Laser-Plasma Interactions	University of Warwick	Kinetic modeling workshop	1st-2nd Year Graduate	Inflationary Stimulated Raman Scattering (iSRS) in inhomogeneous plasmas	Female	Prof. Tony Arber	Dr Thomas Goffrey
Brendan	Sporer	bsporer@umich.edu	High Energy Density Physic	University of Michigan	Hydro modeling workshop	1st-2nd Year Graduate	Construction of the BLUE Linear Transformer Driver (LTD) System at University of Michigan	Male	Ryan McBride	Nick Jordan
Camelia	Stan	stan2@llnl.gov	material deformation	Lawrence Livermore Nation	Hydro modeling workshop	Postdoc	Forensic Examination of Hiroshima Shock-Recovered Samples	Female	Hye-Sook Park	Thomas S. Duffy
Hongmei	Tang	tanghm@umich.edu	laser-plasma interaction	University of Michigan	X-ray diag. workshop	1st-2nd Year Graduate	Calibration and spatial resolution of the scintillator for laser-driven proton beam measurement	Female	Louise Willingale	Anatoly Maksimchuk
Savva	Theocharous	st3612@ic.ac.uk	Shock & Plasma physics	Imperial College London	X-ray diag. workshop	1st-2nd Year Graduate	Magnetic and Wire Explosion Flyer Launch	Male	Simon Bland	Sergey Lebedev
David	Tordeux	david.tordeux@cea.fr	Plasma physics, atomic phy	Alternative Energies and At	Kinetic modeling workshop	3rd-4th Year Graduate	Advanced atomic physics modeling in particle-in-cell simulations: Description of atomic de-excitation ca	Male	Laurent Gremillet	Christophe Blancard
Vicente	Valenzuela-Villaseca	vv2518@ic.ac.uk	Laboratory Astrophysics (ex	Imperial College London	Hydro modeling workshop	1st-2nd Year Graduate	Magnetically-driven rotating plasma flows on the MAGPIE facility	Male	Prof Sergey Lebedev	Prof Jeremy Chittenden
Jacquelynne	Vaughan	jdvaughan@eng.ucsd.edu	Pulsed power/LPI/ICF/Lab a	UCSD/LANL	X-ray diag. workshop	1st-2nd Year Graduate	"Optimizing neutron imaging system design for the National Ignition Facility using synthetic imaging da	Female	Verena Geppert-Kleinrath	Scott Hsu
Jeyathasan	Viswanathan	jeyathasan.viswanathan@cea.fr	Ion acceleration	CEA	Hydro modeling workshop	3rd-4th Year Graduate	Thin cryogenic target for ion acceleration	Male	Dr Arie Irman	Dr Julien Fuchs
John	Wilson	jdw13@geneseo.edu	Plasma Physics	SUNY Geneseo	Hydro modeling workshop	Undergraduate	Determining Light Decay Curves in a Plastic Scintillator using Cosmic Ray Muons	Male	Stephen Padalino	Jeevak Parpia
Andrew	Yandow	ayandow12@gmail.com	Strong Field AMO	University of Texas at Austi	Hydro modeling workshop	5th Year + Graduate	Ionization in the Extreme Light Regime	Male	Todd Ditmire	Hernan Quevedo
Raspberry	Simpson	razzy@mit.edu	HEDP	MIT	Kinetic modeling workshop	3rd-4th Year Graduate				