

# Frontiers of Plasma Science Town Meeting

June 30, 2015

7:00 - 8:00	Registration	
8:00 - 8:20	Welcome	Fred Skiff
<b>Session 1: Basic Plasma Experiments</b>		
8:20 - 8:40	Ultracold Neutral Plasmas at the Plasma Physics Frontier	Jacob Roberts
8:40 - 9:00	Use of DIII-D to Address Frontier Science such as Unraveling the Nature and Impact of Quasi-2D Turbulence in Magnetized Plasmas	George McKee
9:00 - 9:20	Creating and diagnosing high Re and Rem plasmas in the laboratory	Carolyn Kuranz
9:20 - 9:40	Creation and Study of Electron-Positron ("Pair") Plasmas	Clifford Surko
<b>Session 2: Theory and Simulation</b>		
9:40 - 10:00	Nonequilibrium approaches to averaged properties	R. Paul Drake
10:00 - 10:20	Plasma Turbulence in Nature and Laboratory	Gurudas Ganguli
10:20 - 10:40	Predictive community computational tools for virtual plasma science experiments	Jean-Luc Vay
Coffee		
<b>Session 3: Astrophysical and Space Plasmas</b>		
11:00 - 11:20	Major Scientific Challenges and Opportunities in Plasma Astrophysics	Hantao Ji
11:20 - 11:40	Laboratory Experiments Relevant to Space, Solar, and Astrophysical Plasmas	Paul Bellan
11:40 - 12:00	TBD	TBD
12:00 - 12:20	Study of astrophysical collisionless shocks and particle acceleration with lasers	Hye-Sook Park
Lunch		

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Session 3: Astrophysical and Space Plasmas (continued)		
1:20 - 1:40	Long Duration Directional Drives for Star Formation and Photoionization	Jave Kane
1:40 - 2:00	Laboratory Astrophysics using Pulsed Power Machines	Eric Blackman
2:00 - 2:20	The Energetics of Self-Organized Plasmas	Mark Nornberg
2:20 - 2:40	Magnetic Self-Organization in Multi-Scale Astrophysical Plasmas	Matthew Kunz
Session 4: HEDP and WDM		
2:40 - 3:00	Relativistic High Energy Density Physics and High Intensity Laser Physics	Matthew Levy
3:00 - 3:20	Plasma nuclear science for exploring nuclear physics relevant to stellar nucleosynthesis	Marie Gatu-Johnson
Coffee		
Session 4: HEDP and WDM (continued)		
3:40 - 4:00	Extreme chemistry and the properties of warm dense matter	Thomas Schenkel
4:00 - 4:20	Laser-driven x-ray sources for High Energy Density science	Felicie Albert
4:20 - 4:40	Warm Dense Matter Science Using Intense Ion Beams	John Barnard
4:40 - 5:00	Resolving the structure of warm dense materials	Luke Fletcher
5:00 - 5:20	Opportunities using High Energy Density Laser Facilities for Basic Plasma Physics and Plasma Astrophysics	Will Fox
5:20 - 5:40	To measure and model the properties of warm dense matter	Pierre-Alexandre Gourdain
5:30 - 7:30	Dinner	
Session 5: HEDP/WDM Perspectives		
7:30 - 7:50	Creating plasmas and other extreme conditions with FELs other big lasers	Roger Falcone
7:50 - 8:10	Physics Opportunities in HEDP	David Meyerhofer
Session 6: DOE		
8:10 - 8:40	The view from DOE	Sean Finnegan

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Session 7: Low Temperature Plasmas		
8:00 - 8:20	Self-organization in ExB discharges	Andre Anders
8:20 - 8:40	Microplasmas as an Effective Media for Electromagnetic Waves	Michael Helle
8:40 - 9:00	Nonequilibrium processes driven by ultra-short plasma discharge	Andrey Starikovskiy
9:00 - 9:20	Fundamental Science Challenges in Nonequilibrium Transient Plasmas Sustained in Liquids and at the Liquid-Vapor Interface	Igor Adamovich
9:20 - 9:40	Cold atmospheric plasmas and their interface with biology	Michael Kong
9:40 - 10:00	Tailoring plasma vibrational excitation to enhance the energy efficiency of chemical conversions	Gerard Van Rooij
Coffee		
Session 7: Low Temperature Plasmas (continued)		
10:20 - 10:40	The Physics of Nanodusty Plasmas	Uwe Korthagen
10:40 - 11:00	Adaptive Kinetic-Fluid Models for Multi-Phase Plasmas	Vladimir Kolobov
Session 8: Exploratory Magnetic Confinement		
11:00 - 11:20	Achieving an Ohmically Heated Plasma for Fusion Energy	John Sarff
11:20 - 11:40	Self-organization of steady-state FRCs: a frontier in plasma science	Samuel Cohen
11:40 - 12:00	Using large-scale magnetic fusion experiments to explore fundamental reconnection physics during helicity injection	Fatima Ebrahimi
12:00 - 12:20	The Grand Challenge of Fusion Power Cheaper than Coal	Tom Jarboe
Lunch		

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Session 9: Laser-Plasma Interactions and Particle Beams		
1:20 - 1:40	Ultra-intense laser-matter interactions with the BELLA-i PW laser facility	Wim Leemans
1:40 - 2:00	The case for magnetized laser-plasma experiments	Ricardo Betti
2:00 - 2:20	Intense Coherent and Incoherent Table-Top X-Ray Generation from Plasmas	Jorge Rocca
2:20 - 2:40	Laser-plasma based particle accelerators	Alec Thomas
2:40 - 3:00	Ultrafast photon and particle probes for and via plasma science	Cameron Geddes
Coffee		
3:20 - 3:40	Nonneutral Plasmas and the Physics of Intense Charged Particle Beams	Eric Gilson
3:40 - 4:00	Laser Plasmas at the Irradiance Frontier	Daniel Gordon
4:00 - 4:20	Studying the physics of instabilities and mix at the fill-gas/wall-blowoff Interface	Chikang Li
4:20 - 4:40	TBD	TBD
4:40 - 5:00	<b>Conclusion</b>	