

Innovative Confinement Concepts Workshop Program
February 16-19, 2010
Princeton, New Jersey

Tuesday, February 16, 2010

8:45 Welcome and Administrative Matters

Mirrors: Gas Dynamic traps and Rotating; Dipole

Chair: Jay Kesner

9:00 High Beta Experiments in the GDT Axi-symmetric Magnetic Mirror

Thomas C. Simonen

9:20 Axisymmetric Mirror as a Driver for a Fusion-Fission Hybrid: Physics Issues

Dmitri D. Ryutov

9:40 Parameter Optimization Studies for a Tandem Mirror Neutron Source

W. Horton

10:00 *Break*

10:20 Experimental evidence of MHD plasma centrifugal confinement in a shaped open magnetic field configuration

Catalin Teodorescu

10:40 The Diamagnetism of Rotating Plasmas in Shaped Magnetic Fields

William C. Young

11:00 Overview of the Levitated Dipole Experiment

Darren T. Garnier

11:20 Overview of the recent results of the RT-1 magnetospheric experiment with a levitated superconducting coil

Haruhiko Saitoh

11:40 Panel Discussion

12:10 – *Lunch*
1:30

Magnetized Target Fusion

Chair: Glen Wurden

1:30 Progress report on the acoustically driven MTF experiment at General Fusion Inc.

Michel G. Laberge

1:50 Physics demonstration of Magnetized Target Fusion and future directions

Tom Intrator

2:10 Aluminum plasma formation and evolution as expected from magneto-inertial fusion surfaces pulsed by multi-megagauss field

Bruno S. Bauer

2:30 Panel Discussion

3:00 –
6:00 Poster Session I

Wednesday, February 17, 2010

New Ideas, Brainstorming and FRC

Chair: Lothar Schmitz

9:00	Thermoelectric Rotating Torus (TROT): A Concept for Fusion	Adil B. Hassam
9:20	Macron Formed Liner as a Practical Method for Enabling Magneto-Inertial Fusion	David Kirtley
9:40	Fusion Internal Combustion Engine (Fusion-ICE)	Simon Woodruff
10:00	Challenge hybrid FRC concept	Loren Steinhauer
10:20	<i>Break</i>	
10:40	High Flux FRC Facility for Stability, Confinement, and Sustainment Studies	John Slough
11:00	Nimrod Simulations of FRC Formation and Sustainment with Rotating Magnetic Field Current Drive	Richard D. Milroy
11:20	Particle-in-cell modeling of field-reversed configuration formation by odd-parity rotating magnetic fields	Dale R. Welch
11:40	Panel Discussion	
12:10 – 1:30	<i>Lunch</i>	

Extended MHD Modeling, Spheromak Formation, and other

Chair: Mike Brown

1:30	HiFi multi-fluid modeling framework – capabilities and ICC applications	Vyacheslav S. Lukin
1:50	Simulations of ICC Experiments by the Plasma Science and Innovation Center	Brian A. Nelson
2:10	Three-Dimensional, Nonlinear MHD Simulations of Co- and Counter-Helicity Spheromak Merging Using the HYM Code	Clayton E. Myers
2:30	<i>Break</i>	
2:50	Aspect ratio scan of CT merging in SSX	Tim Gray
3:10	Mechanism of helicity injection in the Caltech spheromak experiment	Deepak Kumar
3:30	Formation and Stabilization in the ZaP Flow Z-Pinch	Uri Shumlak
3:50	Fast flows in arched plasma flux tubes	Eve V. Stenson
4:10	Panel Discussion	
6:00	Reception (cash bar)	Location: Wyndham Hotel, the Princeton Room
6:30	Banquet	Location: Wyndham Hotel, the Princeton Room
8:00	Update from DOE	Dr. Edmund Synakowski

Thursday, February 18, 2010

Spheromak and RFP

Chair: Brian Nelson

9:00	New Understanding and Achievements from Independent Injector Drive Experiments on HIT-SI	David A. Ennis
9:20	Observations Supporting Electron Hyper-Viscosity Current Drive in the HIT-SI Spheromak	Aaron C. Hossack
9:40	Looking forward: implications of the preferential current drive direction on the future of HIT-SI	Brian S. Victor
10:00	<i>Break</i>	
10:30	Characteristics of non-collisional ion heating in the MST RFP	Richard M. Magee
10:50	Oscillating Field Current Drive Experiments on MST	Karsten J. McCollam
11:10	Varying Stochasticity in the Core of the MST RFP	Joshua A. Reusch
11:30	Panel Discussion	
12:00 – 1:30	<i>Lunch</i>	

Chair: Mike Zarnstorff

Stellarator and Helical system

1:30	The HSX Stellarator experimental program	Simon Anderson
1:50	Finite length Taylor double helix states	Christopher D. Cothran
2:10	Overview of the PPPL Stellarator program	Davud Gates
2:30	Panel Discussion	
3:00 – 6:00	Poster Session II	

Friday, February 19, 2010

Spherical Torus and Moving Wall

Chair: Rob Goldston

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| 9:00 | Studies in the high-field utilization regime at near-unity aspect ratio in the Pegasus Toroidal Experiment | Raymond J. Fonck |
| 9:20 | Demonstration of Plasma Start-up in NSTX Using Transient CHI | Roger Raman |
| 9:40 | Progress in Developing Advanced Spherical Tokamak Scenarios in NSTX | Stefan P. Gerhardt |
| 10:00 | <i>Break</i> | |
| 10:20 | Liquid metal PFC development and the Lithium Tokamak eXperiment (LTX) | Richard Majeski |
| 10:40 | Characterizing the unique current and density profiles of the Resistive Wall Machine | David A. Hannum |
| 11:00 | Panel Discussion | |
| 11:30 | Meeting Adjourned | |