



16th International Symposium on

# Laser Aided Plasma Diagnostics

Madison, Wisconsin USA September 22-26 2013



**Sunday, 22 September 2013**

Varsity Hall III, Union South

18:00-20:00

Reception and Registration

**Monday, 23 September 2013**

*Session I (8:30-12:30)*

Varsity Hall III, Union South

Chairs: J-P. Booth, E. E. Scime

Time	Speaker	Title	Index
7:30-8:30	Continental Breakfast		
8:30-8:45	D. J. Den Hartog	Welcome	
8:45-9:35	N. C. Luhmann, Jr.	Millimeter Wave and THz Plasma Diagnostic Development	AK (1)
9:35-10:00	L. Lin	Laser-Based Faraday-Effect Measurement of Magnetic Fluctuations and Fluctuation-Induced Transport	T (2)
10:00-10:30	Coffee Break		
10:30-11:10	Siegfried H. Glenzer	X-ray Thomson scattering in dense plasmas with a seeded x-ray laser	G (3)
11:10-11:35	E. Wagenaars	Two-photon Absorption Laser Induced Fluorescence measurements of atomic nitrogen in atmospheric plasma jets	T (4)
11:35-12:00	R. M. Magee	Diagnosing tokamak-like neutral density profiles with TALIF on a helicon	T (5)
12:00-12:15	J. Katz	Imaging Thomson-Scattering System on OMEGA	O (6)
12:15-12:30	K. Tomita	Development of a collective laser Thomson scattering system for laser produced EUV light-source plasmas	O (7)
12:30-14:00	Lunch		

## Monday, 23 September 2013

*Session II (14:00-18:00)*

Varsity Hall III, Union South

Chair: D. J. Den Hartog

Time	Speaker	Title	Index
14:00-14:15	K. Muraoka	Plazwire technology and the use of laser-aided diagnostics for its future evolution	O (8)
14:15-14:30	St. M. Meier	Plasma Density Measurements in Noble Gas Discharges via THz Time Domain Spectroscopy	O (9)
14:30-14:45	S. Mattingly	Measurement and Interpretation of the Velocity Space Correlation of a Laboratory Plasma Fluctuation with Laser Induced Fluorescence	O (10)
14:45-15:00	W. Young	High-Repetition-Rate Laser for Thomson Scattering on the MST Reversed-Field Pinch	O (11)
15:00-16:00		Two minute poster introductions	P
16:00-18:00		Poster Session (coffee break during session)	P

*Poster Session (16:00-18:00)*

Varsity Hall III, Union South

Index	Presenter	Title
P1	R. Hood	Multi-Wavelength or Spatially Resolving LIF Detection System
P2	L. A. Morton	Detailed Modeling of the Statistical Uncertainty of Thomson Scattering Measurements
P3	G. S. Yun	Incident Angle Dependence of Large-Aperture Planar Microwave Filters
P4	K. Zaima	Effect of mirror size in the measurement of OH density by cavity-ringdown absorption spectroscopy in plasma-enhanced premixed burner flame
P5	J. Berumen	Study of Linear and Nonlinear Wave Excitation Using Laser-Induced Fluorescence
P6	C. M. Cooper	Comparison of LIF-measured metastable ion distribution functions to probe measurements in a Taylor-Couette flow
P7	E. E. Scime	Two photon absorption laser induced fluorescence measurements of neutral density profiles in a hydrogen helicon plasma
P8	J-P. Booth	Atomic bromine density measurements in HBr inductively coupled plasma by two-photon absorption laser-induced fluorescence
P9	F. Skiff	Using photon statistics to study plasma fluctuations

P10	Keiichiro Urabe	Diode-laser heterodyne interferometer for measurement of electron and gas number densities in microplasmas
P11	M. Kühn-Kauffeldt	Electron Temperature and Density Measurement of Tungsten Inert Gas Arcs with Ar-He shielding gas mixture
P12	I. E. Golovkin	Spectroscopic and X-Ray Scattering Models in SPECT3D
P13	S. K. Kulkarni	Simulation of Plasma Ionization and Spectral Properties with PrismSPECT
P14	C. D. Deng	Density Fluctuation Measurement using Millimeter Wave System in the HSX Stellarator
P15	J. Duff	Measurement of high-frequency density fluctuations in improved confinement RFP plasmas using FIR interferometry and far forward scattering
P16	Y. Morikawa	Density fluctuation measurements of the GAMMA 10 plasma by using the Fraunhofer diffraction method
P17	M. Yoshikawa	Electron temperature and density measurements by using the Thomson scattering system in the tandem mirror GAMMA 10
P18	J. Ko	Polarimetric spectra analysis for tokamak pitch angle measurements
P19	Q. Li	Optimization of J-TEXT three-wave polarimeter-interferometer system
P20	P. Bohm	Thomson scattering on COMPASS tokamak – plasma edge profile
P21	L. Giudicotti	A study for dual-laser Thomson scattering calibrations in RFX-MOD
P22	J. Hawke	Outline of optical design and viewing geometry for divertor Thomson scattering on MAST Upgrade
P23	D. J. Schlossberg	Progress on Thomson Scattering in the Pegasus Toroidal Experiment
P24	I. Yamada	Optimization of polychromators of the LHD Thomson scattering system for backward and forward scattering measurements
P25	B. P. LeBlanc	Alignment of the Thomson scattering diagnostic on NSTX
P26	R. Yasuhara	Design and demonstration of the double pass Thomson scattering measurement in LHD
P27	Faxin Chen	Shadow Imaging Study of Z-Pinch Dynamic Hohlraum

## Tuesday, 24 September 2013

Session III (8:30-12:30)

Varsity Hall III, Union South

Chairs: F. Skiff, T. Akiyama

Time	Speaker	Title	Index
7:30-8:30 Continental Breakfast			
8:30-9:10	T. C. Killian	Studying ion equilibration and collective modes in ultracold neutral plasmas with spatially resolved LIF spectroscopy	G (12)
9:10-9:35	A. F. H. van Gessel	Laser-aided diagnostics on a cool atmospheric pressure plasma jet	T (13)
9:35-10:00	S. Nishiyama	Development of saturation spectroscopy for plasma diagnostics	T (14)
10:00-10:30 Coffee Break			
10:30-11:10	Greg Severn	Measurements of the ion drift velocities in the presheaths of plasmas with multiple ion species	G (15)
11:10-11:25	W. Lee	Poloidal rotation velocity measurement with an MIR system on KSTAR	O (16)
11:25-11:40	H. Q. Liu	Design of Far-infrared Polarimeter/ Interferometer System for EAST tokamak	O (17)
11:40-11:55	E. Parke	A polarization-based Thomson scattering technique for burning plasmas	O (18)
11:55-12:10	E. Yatsuka	Progress in Development of the ITER Edge Thomson Scattering System	O (19)
12:10-12:15	D. J. Den Hartog	Instructions for Excursion and Banquet	
12:15-13:30 Lunch			
13:35		Assemble in Varsity Hall III for excursion	
13:45-17:00 Excursion to Wollersheim Winery (Bus departs Union South at 13:45)			
17:00-17:15		Dropoff at hotels	
17:15-18:00 Time at hotels			
18:00-18:15		Pickup at hotels (be ready for bus at 18:00)	
18:30-21:30 Reception and banquet			
21:30 Bus departs for hotels			

## Wednesday, 25 September 2013

*Session IV (8:30-12:30)*

Varsity Hall III, Union South

Chairs: C. S. Corr, U. Czarnetzki

Time	Speaker	Title	Index
7:30-8:30 Continental Breakfast			
8:30-9:10	W. Lempert	CARS and LIF studies of non-equilibrium nsec pulsed molecular plasmas	G (20)
9:10-9:35	S. Tsikata	Coherent scattering diagnostics of plasma thrusters	T (21)
9:35-10:00	D. Eldon	Maintaining, Upgrading, and Expanding the Role of Thomson Scattering on DIII-D	T (22)
10:00-10:30 Coffee Break			
10:30-11:10	J. H. van Helden	Cavity-enhanced absorption spectroscopy: Transition from UV/VIS into the MIR using quantum cascade lasers	G (23)
11:10-11:25	Jacob B. Schmidt	Two-Dimensional Imaging of Atomic Hydrogen in Pulsed, Non-Equilibrium Nanosecond Plasmas Using Femtosecond TALIF	O (24)
11:25-11:40	P. Boehm	Laser-spectroscopic electric field measurements in a ns-pulsed microplasma in nitrogen	O (25)
11:40-12:20	Keiichiro Urabe	Plasma diagnostics using multi-heterodyne interference of optical frequency comb	G (26)
12:30-14:00 Lunch (ISC meeting)			

*Session V (14:00-18:00)*

Varsity Hall III, Union South

Chair: L. Giudicotti

Time	Speaker	Title	Index
14:00-14:40	M. Maslov	Bringing LIDAR Thomson scattering into the 21st century for JET and ITER	G (27)
14:40-15:05	G. Zhuang	First results of the J-TEXT high-resolution 3-wave polarimeter-interferometer system	T (28)
15:05-15:35	A. J. H. Donné	From present fusion devices to DEMO: a changing role between diagnostic and modeling	Sub(29)
15:35-15:50	K. Sasaki	Two-dimensional laser-induced fluorescence of OH radicals in atmospheric-pressure dc helium plasmas in contact with NaCl solution	O (30)
15:50-16:00	Announcement of 17 <sup>th</sup> LAPD		
16:00-16:25 Coffee Break			
16:30-18:00 MFE Facility Tours			

## Thursday, 26 September 2013

Session VI (8:30-12:30)

Varsity Hall III, Union South

Chairs: A. J. H. Donné, K. Muraoka

Time	Speaker	Title	Index
7:30-8:30	Continental Breakfast		
8:30-9:10	T. Akiyama	Application of a dispersion interferometer using a ratio of modulation amplitudes to LHD and future prospects	G (31)
9:10-9:45	H. J. van der Meiden	Laser-based diagnostics for retention measurements and understanding plasma-surface interactions	T (33)
9:45-10:00	H. Tojo	An optical design and accuracy estimation for a JT-60SA edge Thomson scattering diagnostic	O (34)
10:00-10:30	Coffee Break		
10:30-10:45	J. Chen	A feedback control method for laser system of three-wave polarimeter-interferometer	O (35)
10:45-11:00	K. Orsel	Temporal and spatial mapping of oxidized species in pulsed laser deposition plasmas	O (36)
11:00-11:15	B. H. Seo	Study of helicon plasmas using laser Thomson scattering and laser-induced fluorescence	O (37)
11:15-11:40	G. S. Yun	Quasi-3D ECE Imaging of MHD instabilities in the KSTAR Tokamak	T (38)
11:40-11:50	D. J. Den Hartog	Closing	