

## 6. Diagnostics

Technical Area Chair: Achim Von Keudell ([Achim.vonkeudell@rub.de](mailto:Achim.vonkeudell@rub.de))

### Session MO 2.5: Plasma Diagnostic I

Monday, May 22, 2017 from 16:00-17:30, Wildwood 14

Session Chair: Holger Kersten, University Kiel, Germany

#### **16:00 MO 2.5-1 DEVELOPMENT OF LASER-COLLISION INDUCED FLUORESCENCE FOR ATMOSPHERIC PRESSURE PLASMA GENERATED IN HELIUM ATMOSPHERES**

E. Barnat, A. Fierro

*Sandia National Laboratories, Albuquerque, NM, United States*

#### **16:15 MO 2.5-2 EVOLUTION PROCESSES OF NANOSECOND PULSED DIELECTRIC BARRIER DISCHARGE BY SPATIOTEMPORAL RESOLVED SPECTRA IN NEEDLE-PLATE ELECTRODE CONFIGURATION**

D. Yang<sup>1,2</sup>, L. Zhang<sup>1,2</sup>, S. Tao<sup>3</sup>, S. Zhang<sup>3</sup>, F. Jing<sup>1,2</sup>

<sup>1</sup>*Key Lab of Materials Modification, Ministry of Education, Dalian University of Technology, Dalian, China*

<sup>2</sup>*School of Physics, Dalian University of Technology, Dalian, China*

<sup>3</sup>*Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China*

#### **16:30 MO 2.5-3 CHARACTERISTICS OF DC MICRODISCHARGE UNDER LOW PRESSURE**

Q. Xiong, S. Ji, L. Zhu, W. Lu, S. Chen

*State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, Xi'an, China*

#### **DONUT-SHAPE DISTRIBUTION OF OH RADICALS IN THE ATMOSPHERIC NON-EQUILIBRIUM PLASMA JET**

X. Pei<sup>1,2</sup>, Y. Yue<sup>2</sup>, X. Lu<sup>2</sup>, D. B. Graves<sup>1</sup>

<sup>1</sup>*Department of Chemical and Biomolecular Engineering, University of California at Berkeley, Berkeley, United States*

<sup>2</sup>*State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, China*

#### **16:45 MO 2.5-4 STUDY ON DISCHARGE CHARACTERISTICS OF ONE-DIMENSIONAL ATMOSPHERIC PLASMA JET ARRAY**

B. Zhang, M. Wang, F. Liu, Z. Fang

*College of Electrical Engineering and Control Science, Nanjing Tech University, Nanjing, Jiangsu, China*

#### **17:00 MO 2.5-5 RAYLEIGH MICROWAVE SCATTERING FOR DIAGNOSTICS OF ATMOSPHERIC-PRESSURE MICROPLASMAS**

A. Shashurin

*Purdue University, West Lafayette, IN, United States*

#### **17:15 MO 2.5-6 A HIGH TEMPORAL AND SPATIAL RESOLUTION ELECTRON DENSITY DIAGNOSTIC BASED ON STARK BROADENING**

A. Zafar<sup>1</sup>, E. Martin<sup>2</sup>, S. Shannon<sup>1</sup>

<sup>1</sup>*Nuclear Engineering, North Carolina State University, Raleigh, 27695, United States*

<sup>2</sup>*Fusion Energy, Oak Ridge National Laboratory, Oak Ridge, 37830, United States*

## Session TU 1.5: Plasma Diagnostics II

Tuesday, May 23, 2017 from 10:00-11:45, Wildwood 14

Session Chair: Vladislav Vekselman, Princeton Plasma Physics Laboratory

### 10:00 TU 1.5-1 TIME EVOLUTION OF REACTIVE OXYGEN NITROGEN SPECIES IN PLASMA-ACTIVATED ESSENTIAL MEDIA AND WATER

T. R. Brubaker, K. Ishikawa, K. Takeda, H. Hashizume, H. Tanaka, H. Kondo, M. Sekine, M. Hori  
*Graduate School of Engineering, Nagoya University, Nagoya-shi, Aichi-ken, Japan*

### 10:15 TU 1.5-2 Chromium Vapor Density Measurement by Optical Absorption Spectroscopy at Current-zero of Vacuum Arcs in Vacuum Interrupters

H. Wang, Z. Wang, J. Liu, Z. Liu, Y. Geng, J. Wang  
*Electrical Engineering, Xi'an Jiaotong University, Xi'an, China*

### 10:30 TU 1.5-3 HIGH RESOLUTION FLUORESCENCE SPECTROSCOPY OF LASER-INDUCED PLASMAS

S. S. Harilal<sup>1</sup>, K. Hartig<sup>1</sup>, I. Jovanovic<sup>2</sup>, M. C. Phillips<sup>1</sup>  
<sup>1</sup>*Pacific Northwest National Laboratory, Richland, United States*  
<sup>2</sup>*University of Michigan, Ann Arbor, United States*

### 10:45 TU 1.5-4 LASER-COLLISIONAL INDUCED FLUORESCENCE MEASUREMENTS IN A MULTIPOLE CONFINED ARGON DC GLOW DISCHARGE

N. A. Arthur<sup>1</sup>, J. E. Foster<sup>1</sup>, E. V. Barnat<sup>2</sup>  
<sup>1</sup>*Nuclear Engineering, University of Michigan, Ann Arbor, MI, United States*  
<sup>2</sup>*Physical, Chemical, and Nano Sciences, Sandia National Laboratory, Albuquerque, NM, United States*

### 11:00 TU 1.5-5 DEVELOPMENT OF A TWO-COLOR THOMSON AND RAYLEIGH SCATTERING DIAGNOSTIC FOR ELECTRON DENSITY MEASUREMENTS

C. M. Limbach<sup>1</sup>, A. P. Yalin<sup>2</sup>  
<sup>1</sup>*Texas A&M University, College Station, TX, United States*  
<sup>2</sup>*Colorado State University, Fort Collins, CO, United States*

### 11:15 TU 1.5-6 X-RAY LASER PLASMA INVESTIGATIONS

G. A. Pavlov, V. M. Treushnikov, V. V. Treushnikov  
*Institute of problems of chemical physics RAS, Chernogolovka, Moscow region, Russian Federation*

### 11:30 TU 1.5-7 VISIBLE SPECTROSCOPY AND MAGNETIC FIELD PROFILE MEASUREMENTS OF PULSED POWER DIODES

S. G. Patel<sup>1</sup>, M. D. Johnston<sup>1</sup>, T. J. Webb<sup>1</sup>, R. E. Falcon<sup>1</sup>, D. E. Bliss<sup>1</sup>, G. R. Laity<sup>1</sup>, M. R. Gomez<sup>1</sup>, N. L. Bennett<sup>1</sup>, D. R. Welch<sup>1</sup>, M. L. Kiefer<sup>1</sup>, M. E. Cuneo<sup>1</sup>, Y. Maron<sup>2</sup>, R. M. Gilgenbach<sup>3</sup>  
<sup>1</sup>*Sandia National Labs, Albuquerque, NM, USA*  
<sup>2</sup>*Weizmann Institute of Science, Rehovot, Israel*  
<sup>3</sup>*University of Michigan, Ann Arbor, MI, USA*

## **Session WE 1.5: Plasma Diagnostics III**

Wednesday, May 24, 2017 from 10:00-11:00, Wildwood 14

Session Chair: Juergen Kolb, INP Greifswald

### **10:00 WE 1.5-1 WHAT IS EFFECTIVE AREA OF THE FLAT PROBE DURING MEASUREMENTS?**

A. Mustafae<sup>1</sup>, O. Murillio<sup>1</sup>, V. Soukhomlinov<sup>2</sup>, I. D. Kaganovich<sup>3</sup>

<sup>1</sup>*St. Petersburg Mining University, St. Petersburg, Russia*

<sup>2</sup>*St. Petersburg State University, St. Petersburg, Russia*

<sup>3</sup>*Princeton Plasma Physics Lab, Princeton, NJ, USA*

### **10:15 WE 1.5-2 RETARDING FIELD ENERGY ANALYZER OPTIMIZATION AND SPACE CHARGE EFFECTS**

M. L. Talley<sup>1</sup>, S. Shannon<sup>1</sup>, L. Chen<sup>2</sup>, J. P. Verboncoeur<sup>3</sup>

<sup>1</sup>*Nuclear Engineering, North Carolina State University, Raleigh, NC, United States*

<sup>2</sup>*System Etch, Tokyo Electron Limited, Inc, Austin, TX, United States*

<sup>3</sup>*Electrical and Computer Engineering, Michigan State University, East Lansing, MI, United States*

### **10:30 WE 1.5-3 THE INTERACTION OF COLD ATMOSPHERIC PLASMA JET AND A CAPACITIVE TARGET WITH DC FIELD: THE REFLECTION AND ABSORPTION OF GUIDED IONIZATION WAVE**

L. Lin, M. Keidar

*Mechanical and Aerospace Engineering, The George Washington University, Washington, DC, United States*

### **10:45 WE 1.5-4 DESIGN AND PERFORMANCE OF B-DOT MONITORS FOR DIAGNOSING CATHODE CURRENT IN THE MAGNETICALLY INSULATED TRANSMISSION LINE**

F. Guo, B. Gong, B. Wei, W. Zou, L. Chen, M. Wang, W. Xie

*Institute of Fluid Physics, China Academy of Engineering Physics, Mianyang, Sichuan Province, China*