Technical Session	Technical Session Organizer
5.5 Environmental and Industrial Applications	Steve Shannon (scshanno@ncsu.edu)

Session MO 1.6: Chemical production, modification, and destruction

Monday, May 22 10:00-12:00, Wildwood 15

Session Chair: Greg Fridman, Drexel University

10:00 MO 1.6-1 PURE AND EFFICIENT H2 PRODUCTION FROM H20 USING A LOW POWER AL/AL2O3 MICROPLASMA CHIP REACTOR

Z. S. Wiersma[1], Z. Dai[2], S. -J. Park[2], J. G. Eden[2]

[1]*Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
[2]*Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

10:15 MO 1.6-2 EXTRACTION OF METABOLITES FROM MICROALGAE WITH SPARK DISCHARGES

K. Zocher[1], R. Banaschik[1], J. Volzke[1], K. Wende[1], M. Lalk[2], J. F. Kolb[1]

[1]*Plasma Life Science, Leibniz Institute for Plasma Science and Technology, Greifswald, Germany*
[2]*Institute of Biochemistry, University of Greifswald, Greifswald, Germany*

10:30 MO 1.6-3 PLASMA LIQUID CHEMISTRY OF PULSE DISCHARGES GENERATED IN WATER DEPENDING ON PULSE DURATION AND GROUND ELECTRODE MATERIALS

R. Banaschik[1], C. Miron[1], H. Jablonowski[1], A. Pipa[1], K. Fricke[1], J. Kredl[1], T. Schulz[1], K. -D. Weltmann[1], J. F. Kolb[1], P. Lukes[2], P. Bednarski[3]

[1]*Leibniz Institute for Plasma Science and Technology, Greifswald, Germany*
[2]*Institute of Plasma Physics, Prague, Czech Republic*
[3]*University of Greifswald, Greifswald, Germany*

10:45 MO 1.6-4 THE KINETIC MECHANISMS OF DIFFUSE NANOSECOND PULSED DISCHARGE IN THE DEGRADATION OF HCHO

L. Zhang[1,2], D. Yang[1,2], S. Wang[1,2], J. Feng[1,2], W. Wang[1,2]

[1]*Key Lab of Materials Modification,Ministry of Education, Dalian University of Technology, Dalian, China*
[2]*School of Phyiscs, Dalian University of Technology, Dalian, China*

11:00 MO 1.6-5 COMBINING CATALYSIS WITH PULSED PLASMA FOR VOLATILE ORGANIC COMPOUNDS ABATEMENT

Z. Xiao, C. Hao, J. Qiu, D. Xu, K. Liu

Dept.of Light Sources & Illuminating Engineering, Fudan University, ShangHai, China

11:15 MO 1.6-6 PLASMA GAS CLEANING PROCESS FOR THE CONVERSION OF BIOMASS TAR MODEL COMPOUNDS INTO SYNGAS

S. Liu, D. Mei, Y. Ma, X. Tu

Electrical Engineering and Electronics, University Liverpool, Liverpool, United Kingdom

11:30 MO 1.6-7 HYDROGEN PEROXIDE FORMATION AT PLASMA-WATER INTERFACE UNDER POSITIVE DC STREAMER AND PULSED CORONA DISCHARGE

Y. Zhao, T. Wang, S. MacGregor, M. Wilson, I. Timoshkin

Electronic And Electrical Engineering, University of Strathclyde, GLASGOW, United Kingdom

11:45 MO 1.6-8 THE ROLE OF NITROGEN AS A THIRD-BODY COLLIDER IN INDUSTRIAL OZONE GENERATION

D. E. Guerrero[1], A. Freilich[1], J. L. Lopez[1], L. Ramoino[2], S. Seyrling[2]

[1]*Physics, Seton Hall University, South Orange, NJ, USA*
[2]*Ozonia International Ozone, Degremont Technologies, Duebendorf, Switzerland*

Session TU 2.5: Industrial, Lighting, and Biological Applications

Tuesday, May 23 15:00-17:00, Wildwood 14

Session Chair: Danil Dobrynin, Drexel University

15:00 TU 2.5-1 CONTACT EDGE ROUGHNESS IN THE ETCHING OF HIGH ASPECT RATIO CONTACTS IN SIO_2

S. Huang[1], C. Huard[1], M. J. Kushner[1], S. Shim[2], S. Lee[2], I. -C. Song[2], S. Lu[2]

[1]*University of Michigan, Ann Arbor, MI, United States*
[2]*Samsung Electronics Co, Hwaseong-si, Republic of Korea*

15:15 TU 2.5-2 PLASMA SPECIES VARIATION AS A FUNCTION OF VOLTAGE FOR HIGH VOLTAGE COLD ATMOSPHERIC PRESSURE PLASMAS IN SEALED BAGS

R. S. Brayfield II, A. J. Fairbanks, A. L. Garner

Nuclear Engineering, Purdue University, West Lafayette, United States

15:30 TU 2.5-3 PROGRESS OF PLASMA OXIDATION OF PM FROM A DIESEL ENGINE

S. Yao

School of Environmental Science and Engineering, Zhejiang Gongshang University, Hangzhou, China

15:45 TU 2.5-4 EFFECT OF COLD PLASMA PROCESSING ON SWEET BASIL AND THE BIOCHEMISTRY OF ITS ESSENTIAL OILS

G. J. Buonopane[1], C. Antonacci[1], J. L. Lopez[2]

[1]*Department of Chemistry and Biochemistry, Seton Hall University, South Orange, New Jersey*
[2]*Department of Physics, Seton Hall University, South Orange, New Jersey*

16:00 TU 2.5-5 SYNERGISTIC EFFECTS OF PLANT HORMONES AND NON-THERMAL PLASMA ON EARLY GERMINATION OF ARABIDOPSIS THALIANA SEEDS

D. Cui, R. Ma, Z. Jiao

Henan Key Laboratory of Ion-beam Bioengineering, Zhengzhou University, Zhengzhou, China

16:15 TU 2.5-6 ULTRA-COMPACT PHOTOIONIZATION ANALYZER. SMART APPROACH FOR ECOLOGICAL MONITORING AT HAZARDOUS PRODUCTION FACILITIES

A. Mustafaev[1], I. Rastvorova[1], S. Podenko[1], E. Maksimova[2]

[1]*Department of General and Applied Physics, Saint-Petersburg Mining University, Saint Petersburg, Russian Federation*
[2]*Petroleum Learning Centre Heriot-Watt Approved Learning Partner at TPU, National Research Tomsk Polytechnic University, Tomsk, Russian Federation*

16:30 TU 2.5-7 DYNAMIC 3D MICROPLASMA PHOTONIC CRYSTAL BY 3D PRINTING

P. P. Sun[1,2], R. Zhang[3], S. Zhong[2], W. Chen[4], P. V. Braun[3], J. G. Eden[2]

[1]*Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
[2]*Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
[3]*Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
[4]*Department of Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

16:45 TU 2.5-8 AN EXPERIMENTAL APPROACH TO PERIOD DOUBLING BIFURCATION IN PLASMAS

I. U. Uzun-Kaymak[1], D. Mansuroglu[1,2]

[1]*Physics, Middle East Technical University, Ankara, Turkey*
[2]*Physics, Canakkale Onsekiz Mart University, Canakkale, Turkey*

Session WE 2.5: Source technologies and material interfaces

Wednesday, May 24 15:00-17:00, Wildwood 14

Session Chair: Steven Shannon, NC State

15:00 WE 2.5-1 THE ELECTROSTATIC DEBYE LAYER OF THE PLASMA-LIQUID INTERFACE

P. Rumbach, J. P. Clarke, D. B. Go

University of Notre Dame, Notre Dame, IN, United States

15:15 WE 2.5-2 NANOMOLAR TO MICROMOLAR OH AND 1O2 DELIVERY WITH 3D PRINTED MICROPLASMA JETS ARRAY

P. P. Sun[1,2], E. Araud[1], S. Zhong[2], Z. Tong[2], J. G. Eden[2], T. H. Nguyen[1]

[1]*Department of Civil and Environmental Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*
[2]*Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

15:30 WE 2.5-3 INVESTIGATION OF SCALING EFFECTS DUE TO VARYING DIELECTRIC MATERIAL IN ASYMMETRIC DIELECTRIC BARRIER DISCHARGE ACTUATORS

A. D. Ngo[1], K. K. Pai[2], J. D. Jacob[1]

[1]*MAE, Oklahoma State University, Stillwater, United States*
[2]*Plasma Bionics LLC, Stillwater, United States*

15:45 WE 2.5-4 A STUDY OF PULSE OPTIMIZATION FOR THE TREATMENT OF DIESEL EMISSIONS USING TRANSIENT PLASMA

S. Kerketta, S. Subranmanian, W. P. Schroeder, M. Gundersen

Electrical Engineering, University of Southern California, Los Angeles, California, United States

16:00 WE 2.5-5 INVESTIGATION OF CHARACTERISTICS OF A COAXIAL DIELECTRIC BARRIER DISCHARGE REACTOR WITH DIFFERENT POWER SOURCES

F. Liu, C. Miao, Q. Wang, B. Zhang, Z. Fang

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

16:15 WE 2.5-6 TIME-RESOLVED IMAGING OF ELECTRICAL DISCHARGE DEVELOPMENT IN BUBBLES IMMERSED IN WATER

Y. Yang

Electrical and Electronics Engineering, Huazhong University of Science and Technology, Wuhan, China

16:30 WE 2.5-7 A COMPARISON OF OZONE GENERATION USING MESHED AND PLANAR ELECTRODES IN DIELECTRIC BARRIER DISCHARGES

Y. Zhou, T. Wang, S. MacGregor, M. Wilson, I. Timoshkin, M. Given

Electronic And Electrical Engineering, University of Strathclyde, GLASGOW, United Kingdom

16:45 WE 2.5-8 Characteristics of Homogeneous MDBD Excited by Unipolar Sub-microsecond pulse Power at Atmospheric Pressure

J. Li, X. Li, P. Dong, C. Lan, J. Long, L. Zhang

Accelerator physics and applications, Institute of fluid phycis, CAEP, Mianyang, Sichuan, China