

| Technical Session                          | Technical Session Organizer                  |
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| 5.6 Plasma Medicine and Biological Effects | Sameer Kalghatgi (sameerkalghatgi@gmail.com) |

**Session TU 1.4: Plasma Medicine and Biological Effects I**

Tuesday, May 23 10:00-12:00, Wildwood 13

Session Chairs:

**10:00 TU 1.4-1 (invited) APPLICATION OF A MICRO-COLD ATMOSPHERIC PLASMA DEVICE (CAP) IN VITRO AND VIVO FOR BRAIN CANCER THERAPY**

Z. Chen<sup>1</sup>, E. Gjika<sup>1</sup>, L. Lin<sup>1</sup>, X. Cheng<sup>1</sup>, H. Simonyan<sup>2</sup>, C. Young<sup>2</sup>, M. Keidar<sup>1</sup>

<sup>1</sup>Mechanical and Aerospace Engineering, The George Washington University, DC, United States

<sup>2</sup>Pharmacology and Physiology, The George Washington University, DC, United States

**10:30 TU 1.4-2 CANCER INHIBITING PROPERTIES FROM SELF-ORGANIZED PLASMA-LIQUID INTERFACE: IN VITRO DEMONSTRATION**

Z. Chen<sup>1</sup>, S. Shiqiang Zhang<sup>1</sup>, I. Levchenko<sup>2</sup>, I. Beilis<sup>3</sup>, M. Keidar<sup>1</sup>

<sup>1</sup>The George Washington University, Washington, DC, United States

<sup>2</sup>Queensland University of Technology, Brisbane QLD, Australia

<sup>3</sup>Tel Aviv University, Ramat Aviv, Israel

**10:45 TU 1.4-3 AN INVESTIGATION OF THE IMMEDIATE EFFECT OF COLD ATMOSPHERIC PLASMA ON CANCER CELLS**

E. Gjika, M. Kirschner, X. Cheng, Z. Chen, M. Keidar

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

**11:00 TU 1.4-4 OPTIMIZATION OF COLD ATMOSPHERIC PLASMA AND ELECTROPORATION FOR CANCER CELLS**

P. K. Diwakar<sup>1</sup>, A. M. Avellan<sup>2</sup>, L. A. Krause<sup>3</sup>, R. Jain<sup>4</sup>, C. A. Savran<sup>4</sup>, T. Sizyuk<sup>1</sup>, A. Hassanein<sup>1</sup>

<sup>1</sup>Center for Materials Under Extreme Environment (CMUXE), School of Nuclear Engineering, Purdue University, West Lafayette, United States

<sup>2</sup>Department of Materials Science and Engineering, University of Maryland, College Park, College Park, United States

<sup>3</sup>Weldon School of Biomedical Engineering, Purdue University, West Lafayette, United States

<sup>4</sup>Department of Mechanical Engineering, Purdue University, West Lafayette, United States

**11:15 TU 1.4-5 NSPEFS PROMOTING THE PROLIFERATION OF PIEC CELLS: AN IN VITRO STUDY**

F. Dong<sup>1</sup>, Z. Liu<sup>1</sup>, J. Zhang<sup>1,2</sup>, J. Fang<sup>1,2</sup>, J. Guo<sup>2</sup>, Y. Zhang<sup>3</sup>

<sup>1</sup>Academy for Advanced Interdisciplinary Studies, Peking University, Beijing, China

<sup>2</sup>College of Engineering, Peking University, Beijing, China

<sup>3</sup>Department of Cardiology, Beijing Anzhen Hospital, Capital Medical University, Beijing, China

**11:30 TU 1.4-6 STRONG H2O2 GENERATION BY CANCER CELLS DURING THE COLD PLASMA TREATMENT**

D. Yan<sup>1</sup>, J. H. Sherman<sup>2</sup>, M. Keidar<sup>1</sup>

<sup>1</sup>*Department of Mechanical and Aerospace Engineering, The George Washington University, Washington, DC, United States*

<sup>2</sup>*Neurological Surgery, The George Washington University, Washington, DC, United States*

**11:45 TU 1.4-7 NUTRITIONAL ELEMENT DETECTION IN HUMAN NAILS USING MICROPLASMA INDUCED BREAKDOWN SPECTROSCOPY**

M. Burnette<sup>1</sup>, X. Tang<sup>1</sup>, D. Staack<sup>1</sup>, C. Frederickson<sup>2</sup>

<sup>1</sup>*Texas A&M University, College Station, TX, United States*

<sup>2</sup>*NeuroBioTex, Inc., Galveston, TX, United States*

## **Session WE 2.3: Plasma Medicine and Biological Effects II**

Wednesday, May 24 16:00-17:45, Wildwood 12

Session Chairs:

### **16:00 WE 2.3-1 (invited) NON-THERMAL ATMOSPHERIC PRESSURE PLASMA EFFECTS ON LUNG CANCER CELLS WITHIN 3D COLLAGEN MATRIX**

S. B. Karki, H. Ayan

*University of Toledo, Toledo, OH, United States*

### **16:30 WE 2.3-2 A COAXIAL DBD PLASMA SOURCE OPERATING IN AIR AS A NOVEL TOOL FOR BIOFILM INACTIVATION**

J. Soler-Arango<sup>1</sup>, D. Grondona<sup>2</sup>, G. Brelles-Marino<sup>1</sup>

<sup>1</sup>*CINDEFI, Universidad Nacional de La Plata, La Plata, Argentina*

<sup>2</sup>*Institute for Plasma Physics, Universidad Nacional de Buenos Aires, Buenos Aires, Argentina*

### **16:45 WE 2.3-3 COLD AIR ATMOSPHERIC PRESSURE PLASMA FOR DECONTAMINATION OF ESCHERICHIA COLI CONTAMINATED FRUITS, MOHAMED ICOPS-BEAMS 2017**

A. -A. H. Mohamed<sup>1</sup>, A. H. Basher<sup>1</sup>, A. A. Alhazime<sup>1</sup>, J. Q. M. Almarashi<sup>1</sup>, M. A. Ellabban<sup>1</sup>, A. Al-Mashraqi<sup>1</sup>, S. A. Ouf<sup>2</sup>

<sup>1</sup>*Physics Department/Faculty of Science, Taibah University, Medina, Saudi Arabia*

<sup>2</sup>*Botany Department/ Faculty of Science, Cairo University, Giza, Egypt*

### **17:00 WE 2.3-4 THE EFFECT OF NONTHERMAL PLASMA ON INTRACELLULAR REDOX AND PH HOMEOSTASIS IN SACCHAROMYCES CEREVISIAE**

R. Ma, D. Cui, H. Xu, Y. Zhu, Z. Jiao

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

### **17:15 WE 2.3-7 ANALYSIS OF LOW-TEMPERATURE PLASMA JET AND TREATMENT EFFECTS ON STAPHYLOCOCCUS AUREUS WITH AND WITHOUT BIOFILM FORMATION**

S. D. Knecht, G. Kirmanjeswara, S. G. Bilen, A. Sosa, G. Ryan, C. Whalen

*Penn State University, University Park, PA, United States*

### **17:30 WE 2.3-6 EFFECT OF ELECTRIC FIELDS ON BIOFILM FORMATION**

H. Panesar<sup>1</sup>, J. L. Lopez<sup>2</sup>

<sup>1</sup>*Department of Biology, Seton Hall University, South Orange, NJ, United States*

<sup>2</sup>*Department of Physics, Seton Hal University, South Orange, NJ, United States*

## **Session TH 1.5: Plasma Medicine and Biological Effects III**

Thursday, May 25 10:00-12:00, Wildwood 14

Session Chairs:

### **10:00 TH 1.5-1 (invited) INHIBITION OF STAPHYLOXANTHIN BIOSYNTHESIS IN STAPHYLOCOCCUS AUREUS BY NON-THERMAL PLASMA**

Y. Zhu, D. Cui, H. Xu, R. Ma, Z. Jiao

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

### **10:30 TH 1.5-2 BIOACTIVE AND ANTIBACTERIAL PLASMA SPRAYED COATINGS ON POLYMER SUBSTRATES SUITABLE FOR ORTHOPEDIC AND TISSUE ENGINEERING APPLICATIONS**

L. Barillas<sup>1</sup>, H. Testrich<sup>2</sup>, J. M. Cubero-Sesin<sup>1</sup>, I. Vargas<sup>1</sup>, M. Froehlich<sup>2</sup>, K. -D. Weltmann<sup>2</sup>, M. Polak<sup>2</sup>

<sup>1</sup>*Plasma Laboratory for Fusion Energy and Applications, Instituto Tecnológico de Costa Rica, Cartago, Costa Rica*

<sup>2</sup>*Plasma Surface Technology Department, Leibniz Institute for Plasma Science and Technology, Greifswald, Germany*

### **10:45 TH 1.5-3 PLASMA-BASED SURFACE MODIFICATION OF POLYSTYRENE FOR SERUM-FREE CELL CULTURE**

E. C. Stancu, A. Quade, K. -D. Weltmann, M. Polak

*Leibniz Institute for Plasma Science and Technology (INP Greifswald e.V.), Greifswald, Germany*

### **11:00 TH 1.5-4 MEASUREMENT OF ELECTRIC PULSE MODIFICATION OF CELL SUSPENSION CONDUCTIVITY DURING TREATMENT**

A. J. Fairbanks, A. M. Darr, A. Vadlamani, A. L. Garner

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

### **11:15 TH 1.5-5 EFFECT OF NANOSECOND PULSED ATMOSPHERIC PRESSURE DIELECTRIC BARRIER DISCHARGES ON IMMUNE CELL MEDIATED WOUND HEALING**

Y. Malkova

*C&J Nyheim Plasma Institute, Drexel University, Philadelphia, PA, United States*

### **11:30 TH 1.5-6 NON-THERMAL PLASMA IN CONJUNCTION WITH CHLORHEXIDINE (CHX) DIGLUCONATE STERILIZE THE BIOFILM CONTAMINATED TITANIUM SURFACE**

T. T. Gupta<sup>1</sup>, H. Ayan<sup>1,2</sup>

<sup>1</sup>*Bioengineering, University of Toledo, Toledo, OH, USA*

<sup>2</sup>*Mechanical, Industrial and Manufacturing Engineering, University of Toledo, Toledo, OH, USA*

### **11:45 TH 1.5-7 INTRALUMINAL DISINFECTION OF CATHETER CONTAMINATED WITH STAPHYLOCOCCUS AUREUS BIOFILM USING ATMOSPHERIC PLASMA**

A. C. O. C. Doria, R. R. N. R. Cruz, F. R. Figueira, A. C. Oliveira, J. B. S. Lima, R. S. Pessoa, S. Khouri

*Laboratory of Biotechnology and Electric Plasma, University of Vale do Paraiba, Sao Jose dos Campos, Sao Paulo, Brazil*