UNIVERSITY OF MINNESOTA

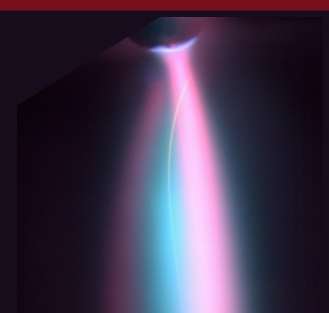
ISPC26

26th International Symposium on Plasma Chemistry

University of Minnesota
Minneapolis, MN, USA

June 15–20, 2025

www.ispc-conference.org



Welcome

Dear Colleagues and Friends,

We are pleased to welcome you to the 26th International Symposium on Plasma Chemistry (ISPC26), on the campus of the University of Minnesota in Minneapolis, USA.

The symposium aims to bring together leading experts, academics, engineers, practitioners, and students working in the field of plasma chemistry and to establish an informal forum for discussing plasma chemistry, the exchange of new ideas, and to foster new connections and collaborations. We hope that the symposium will offer you a unique opportunity to gain comprehensive first-hand information on the latest developments in the field of plasma chemistry.

ISPC was held for the first time in 1973 and is sponsored by the International Plasma Chemistry Society (IPCS), the largest international not-for-profit professional society specializing in plasma chemistry. The IPCS was established in 1999 as the successor of the association named 'the International Union of Pure and Applied Chemistry (IUPAC) Subcommittee on Plasma Chemistry.' As some of you might remember, ISPC 12 took place here in Minneapolis thirty years ago (1995) chaired by Professor Joachim Heberlein.

This year, the IPCS Summer School is collocated with the US Low-Temperature Plasma Summer School and the ASPIRE Summer School, and took place over the weekend prior to ISPC26. The school had as goal to provide an opportunity for graduate students and early-career researchers and engineers to be immersed in the fundamentals and applications of low-temperature plasmas and to learn from leading researchers in their field. There was a special session on Plasma Materials Processing for Microelectronics Fabrication. We also offer a special invited session on Monday morning on the topic of plasma chemistry for microelectronics fabrication.

The campus of the University of Minnesota Twin Cities is located in the metropolitan area of the cities of Minneapolis and Saint Paul and is connected by light rail to the downtown areas and also to the airport. We hope you also have the opportunity to explore the Twin Cities area and enjoy the natural beauty of the Mississippi River and parks, along with the region's rich industrial history, vibrant culture, and growing craft beer scene.

Peter J. Bruggeman
University of Minnesota, USA
Chair ISPC 26

Bruce Locke
Florida State University, USA
President IPCS

Contents

1 General Information

1.1 Committees

1.1.1 Board of Directors (BoD)

Bruce Locke (USA), President

Hai-Xing Wang (China), Vice-President

Natalia Babaeva (Russia)

Jan Benedikt (Germany)

Dirk Hegemann (Switzerland)

Konstantin Kostov (Brazil)

Christophe Laux (France)

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Selma Mededovice Thagard (USA)

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Tomohiro Nozaki (Japan)

Deborah O'Connell (UK)

Eric Robert (France)

Masaya Shigeta (Japan)

Yuan-Hong Song (China)

Luc Stafford (Canada)

Takayuki Watanabe (Japan)

1.1.2 International Scientific Committee (ISC)*

Peter Bruggeman - University of Minnesota (USA), Chair

Margarita Baeva - INP Greifswald (Germany)

Jan Benedikt - Kiel University (Germany)

Annemie Bogaerts - Universiteit Antwerpen (Belgium)

Sylvain Coulombe - McGill University (Canada)

Reetesh Kumar Gangwar - Indian Institute of Technology Tirupati (India)

Matteo Gherardi - Università di Bologna (Italy)

Satoshi Hamaguchi - Osaka University (Japan)

Samuel Iwarere - University of Pretoria (South Africa)

Hyun-Ha Kim - National Institute of Advanced Industrial Science and Technology (Japan)

Cristiane Yumi Koga-Ito - São Paulo State University (Brazil)

Uwe Kortshagen - University of Minnesota (USA)

Gerrit Kroesen - Technical University Eindhoven (The Netherlands)

Dingxing Liu - Xi'an Jiaotong University (China)

Bogdana Mitu - National Institute for Laser, Plasma and Radiation Physics (Romania)

Anthony Murphy - CSIRO (Australia)

Tomohiro Nozaki - Tokyo Institute of Technology (Japan)

Ryo Ono - The University of Tokyo (Japan)

Mohan Sankaran - University of Illinois (USA)

Lenka Zajíčková - Masaryk University (Czech Republic)

*The ISC also includes all BoD members.

1.1.3 Local Organizing Committee (LOC)

Peter Bruggeman - University of Minnesota, Chair

Uwe Kortshagen - University of Minnesota, Co-chair

Marien Simeni Simeni - University of Minnesota, Co-chair

Ji Yung Ahn - University of Minnesota

Yolanda Aranda Gonzalvo - University of Minnesota

Jennifer Dahal - University of Minnesota

Steven Girshick - University of Minnesota

Marina Prenzel - Ruhr University Bochum

Jae Hyun Nam - University of Minnesota

Achim von Keudell - Ruhr University Bochum

Bill Straub - University of Minnesota

1.2 Code of Conduct

It is the policy of the ICPS board of directors and the ISPC organizers that all participants, including attendees, vendors, University of Minnesota staff, volunteers, and everyone else at ISPC meetings, will conduct themselves in a respectful manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation.

Participants will treat each other with respect and consideration to create a collegial, inclusive, and professional environment at ISPC meetings. Creating a supportive environment to enable scientific discourse at ISPC meetings is the responsibility of all participants.

Participants will avoid any inappropriate actions or statements based on individual characteristics such as age, race, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status, educational background, or any other characteristic protected by law. Disruptive or harassing behavior of any kind will not be tolerated. Harassment includes but is not limited to inappropriate or intimidating behavior and language, unwelcome jokes or comments, unwanted touching or attention, offensive images, photography without permission, and stalking.

Violations of this code of conduct policy should be reported to meeting organizers or the ICPS president or vice-president. Sanctions may range from a verbal warning, to ejection from the meeting without refund, or to notifying appropriate authorities. Retaliation for complaints of inappropriate conduct will not be tolerated. If a participant observes inappropriate comments or actions and personal intervention seems appropriate and safe, they should be considerate of all parties before intervening.

Adapted from the Code of Conduct for APS Meetings.

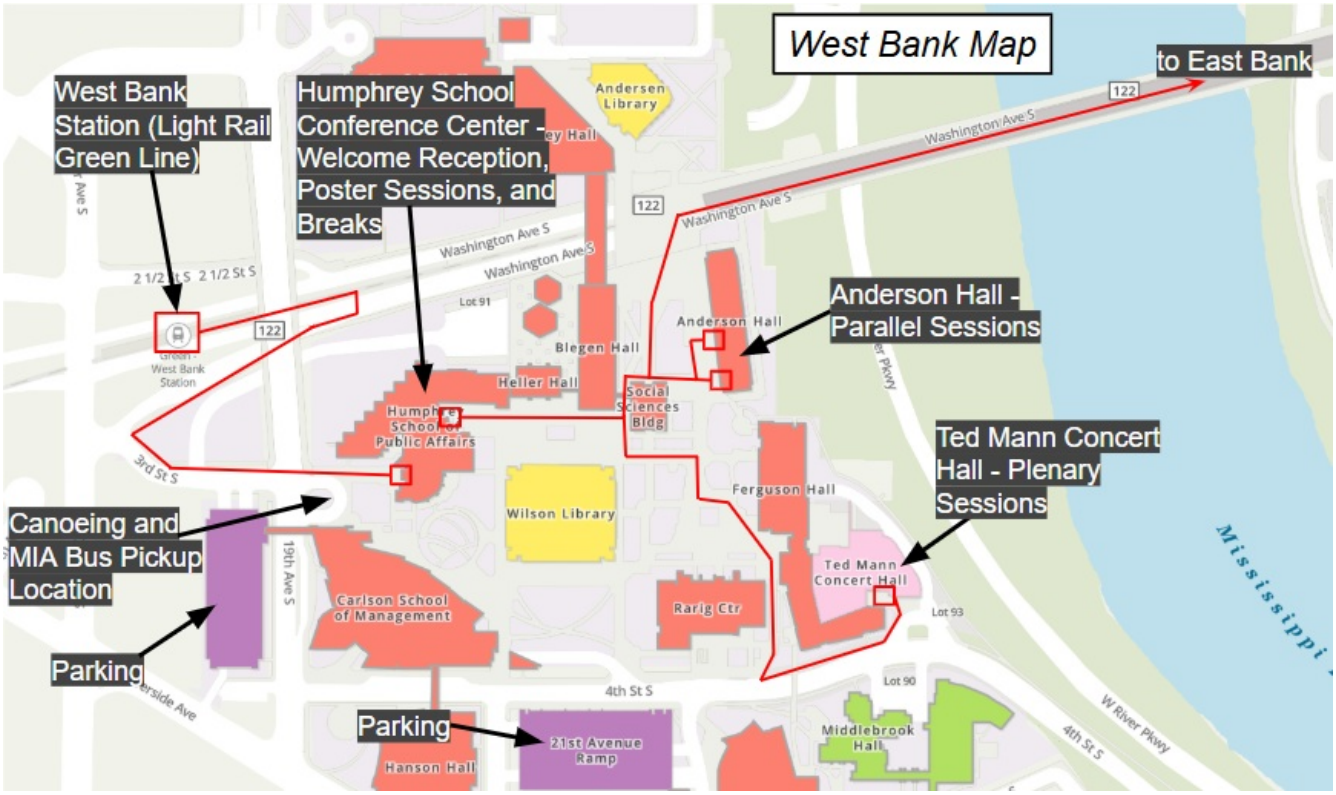
2 Practical Information

2.1 Conference Venue

The conference takes place on the University of Minnesota campus (West Bank).

- Sunday reception, coffee breaks (except Thursday morning) and poster sessions:
  Humphrey School Conference Center
  301 19th Avenue South, Minneapolis, MN 55455
- Plenary sessions (Monday and Thursday), Thursday morning coffee break:
  Ted Mann Concert Hall
  2128 Fourth Street South, Minneapolis, MN 55455
- Parallel sessions and closing ceremony
  Anderson Hall (rooms 230, 250, 270) - You might need your provided keycard to access the building.
  257 S 19th Ave, Minneapolis, MN 55455

These buildings are located near the West Bank Station (Light Rail - Green Line). Parking ramps are available if you come by car. Going between buildings takes at most a 5 minute walk. A map of these locations is provided below:



More detailed information about transportation options within the Twin Cities metro area is provided on the conference website.

2.2 Registration and Information Desk

Location and opening hours:

- Sunday June 15, 4:00 - 7:00 pm: Humphrey School Conference Center
- **Monday June 16, 7:45 - 8:15 am: Ted Mann Concert Hall**
- Monday June 16, 9:00 - 6:00 pm: Humphrey School Conference Center
- Tuesday June 17, 8:00 - 6:00 pm: Humphrey School Conference Center
- Wednesday June 18, 8:00 - 2:00 pm: Humphrey School Conference Center
- Thursday June 19, 8:00 - 6:00 pm: Humphrey School Conference Center
- Friday June 20, 8:00 - 1:00 pm: Humphrey School Conference Center

When you check in at the registration desk, you will receive your conference badge along with with other conference materials. Please wear the name badge throughout the symposium and social events.

2.3 Internet / Wi-Fi

Guests on campus may use the UofM-Guest network at no charge. Eduroam wifi is available to those with existing logins.

2.4 Food and Refreshments

We will provide snacks and hot and cold beverages during coffee breaks and the poster session. **Lunch is not provided.** Please refer to the information about the lunch options provided with your registration packet.

2.5 Assistance

If you require any assistance, feel free to contact any member of the organizing committee. Conference support staff will be available at the registration desk (see above for hours of operation) for assistance throughout the conference.

2.6 Instructions for Presenters

The presentation formats are the following.

- Plenary presentation: 45 minutes + 15 minutes questions
- Invited presentation: 25 minutes + 5 minutes questions
- Oral presentation: 12 minutes + 3 minutes questions
- Poster presentation: assigned session from 4 to 6 pm

Oral presentation guidelines:

- A computer equipped with Microsoft PowerPoint and Acrobat Reader will be available in the lecture halls. We request that you upload your presentation during the break prior to the session. Please bring a USB memory stick to transfer your presentation.
- Confirm before the start of the session that your slideshow works as intended.
- To ensure we can keep on schedule with the sessions, we cannot facilitate presentations from your own laptop in the parallel sessions.

- Presenters should arrive in the lecture hall not later than 10 minutes before the start of their session and inform the session chair of their presence.

Poster presentation guidelines:

- The largest poster size we can accommodate is portrait 36”x 48” or portrait A0 (84 x 119 cm).
- Please bring your poster, we are unable to print your poster onsite.
- Please hang your poster in the designated area not later than 1:30 pm of the day of the poster session.
- Your poster number (see this hand out or the online program) will be indicated on the poster board that is made available for you. Note that each poster board will have two posters on each side and ensure your poster does not occupy more than the allocated half.
- Poster presenters are expected to be present at their poster location during the entire session.
- Please remove your poster not later than 10 am the day after your poster session.

2.7 Social Events

2.7.1 Welcome Reception (Sunday June 15, 6-8 pm)

Complimentary welcome get-together for participants and their registered companions in the Humphrey School Conference Center on the West Bank of the University of Minnesota Campus.

2.7.2 Conference Dinner (Thursday June 19, 7-10 pm)

The conference dinner (prior reservation required) is held at the McNamara Alumni Center on the East Bank of the University of Minnesota Campus. The address is 200 Oak Street S.E., MN 55455. The McNamara Alumni Center is near East Bank Station (Green Line) and is a 25 minute walk from the Humphry Conference Center (take the SE Washington Avenue bridge across the Mississippi River, the upper level has a pedestrian zone). **The bar opens at 7:00 pm and guests are invited to be seated at 7:15 pm.**

2.7.3 Wednesday Afternoon/Evening Excursions (June 18th)

Prior reservation is required for the excursions. We advise to dress appropriately for a potentially warm and sunny Minnesota afternoon.

Jonathan Padelford Riverboat Cruise on the Mississippi River (2:30 - 5:00 pm)

- Departing from Harriet Island, Saint Paul.
- Boarding starts at 2:30 pm. Please try to arrive near this time.
- Take the Metro Green Line to station Central (will take nearly 1 hour from conference site door-to-door) to reach Padelford Riverboats.
- Drinks and light refreshments provided on cruise.

Canoeing at Taylor Falls (1:15 - 7:00 pm)

- Departing from Humphrey Conference Center at 1:30 pm by bus, please arrive by 1:15 pm. The bus will pick up participants in front of the Conference Center. Make sure to bring a water bottle, sunscreen, sunglasses and a hat, a swimsuit, and a towel.
- Bus will take you to Taylor Falls, MN Interstate State Park where you and the others will check-in an at the Taylors Falls Canoe and Kayak Rental and receive the two-person canoes.
- Bus will pick you up - after canoeing downstream - at 5:50 pm at the Osceola Landing Boat Ramp, and will depart at 6:05 pm. Please don’t miss it!
- You will be dropped off back at the Humphrey Conference Center at around 7 pm.

Minneapolis Institute of Art - MIA (1:45 - 4:45 pm)

- Departing from Humphrey Conference Center at 2:00 pm by bus, please arrive by 1:45 pm. The bus will pick up participants in front of the Conference Center.
- You will explore the Minneapolis Institute of Art. Simply walk into the building and enjoy the art and history.
- Bus will pick you up again at 4:15 pm at the MIA, and will depart at 4:30 pm.
- You will arrive back at the Humphrey Conference Center at 4:45 pm.

Mall of America, Minneapolis

- Meet up with friends or go on your own. The Mall of America has many shops and entertainment options for you to enjoy.
- Take the Metro Green Line to U.S. Bank Stadium Station and change to Metro Blue Line to Mall of America Transit Station at US Bank Stadium Station (The trip will take about 40 minutes).
- Opening hours: 10:00 am to 9:00 pm.

Saint Paul Saints Game (7:07-9:45 pm)

- The game is at CHS Field, Downtown St. Paul.
- Take the Metro Green Line to station Union Depot (will take about 45 minutes from conference site door-to-door).
- Provide your baseball game ticket to the gate attendant who will then let you into the stadium.
- The game is expected to end around 9:45 p.m., but it could run later. You're free to leave at any time, but please note that re-entry is not allowed once you exit the stadium.

3 Awards

2025 Plasma Chemistry Award

The Plasma Chemistry Award is the highest recognition awarded by the International Plasma Chemistry Society (IPCS) for lifetime achievements in the field of Plasma Chemistry. The Board of Directors of the IPCS is delighted to announce that the recipient of the 2025 Plasma Chemistry Award is Prof. David Graves.

David B. Graves has been part of our community for several decades. He joined the University of California at Berkeley Department of Chemical Engineering in 1986 after receiving the PhD from the University of Minnesota. He retired from UCB in May 2020 and served as Associate Lab Director at the Princeton Plasma Physics Lab from 2020-2022. He is currently Professor in the Department of Chemical and Biological Engineering at Princeton University. His research interests are in plasma materials processing and other applications of non-equilibrium, low temperature plasma phenomena.

2025 IPCS fellows

The title of Fellow of IPCS recognizes unusual distinction in the profession and is conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in the field of Plasma Chemistry. The IPCS aims at awarding the title of Fellow of IPCS to no more than three percent of its active members. The Board of Directors of the IPCS is delighted to announce that Profs. Annemie Bogaerts and Peter Bruggeman have been elected as 2025 ICPS fellows.

Annemie Bogaerts obtained her PhD in sciences/chemistry in 1996, from the University of Antwerp. After some postdoc years, she became professor in physical chemistry at the University of Antwerp in 2003 and is full professor since 2012. She is head of the interdisciplinary research group PLASMANT. Her research focuses on a better understanding of plasmas for sustainable chemistry and cancer treatment by computer modelling and experiments. Besides the fundamental research, in recent years they are also focusing on more applied research. She is co-founder of four spinoffs from her research group. She is in the editorial board of many journals, and in the ISC of several conferences. She organized the ISPC in Antwerp in 2015, and she was member of the Board of Directors of the International Plasma Chemistry Society (2014-2023), Vice-President (2020-2022) and President (2022-2023).

Peter Bruggeman is a Distinguished McKnight University Professor and the Ernst Eckert Professor of Mechanical Engineering at the University of Minnesota. He currently also serves as the Director of Graduate Studies of Mechanical Engineering and the Director of the High Temperature and Plasma Laboratory. His research focuses on low temperature plasma science and engineering with applications in health and sustainability. He co-edited the 2017 and 2022 Plasma Roadmap contributing to shape research directions for the field of low temperature plasma. He is a founding co-organizer of the US Low Temperature Plasma Summer School. He was a member of the Board of Directors of the International Plasma Chemistry Society (2014-2023) and is the chair of ISPC 26 in Minneapolis.

Young Investigator Award

The Young Investigator Award (YIA) recognizes the outstanding career of a young researcher in the field relevant to the International Symposium on Plasma Chemistry (ISPC). The candidate must hold a PhD degree and be within ten years of receiving his/her Ph.D. degree. Up to two YIAs will be announced during the conference dinner of ISPC 26.

Student Excellence Award in Plasma Chemistry

To recognize the important contributions of students to the field of plasma chemistry, the ISC and LOC will make an award and one runner-up award to student oral presenters at ISPC 26. The award recipients will be announced during the closing ceremony of ISPC 26. The award and runner-up award consist of cash (500 USD) and a certificate. The Young Investigator Award Finalists are:

Lars Bröcker, *Technische Universität Braunschweig, Germany*

Kimberly Christopher, *Florida State University, Tallahassee, FL, USA*

Audren Dorval, *Université de Montréal, Montréal, Canada*

Hyeokjun Kang, *Jeju National University, Republic of Korea*

Jae Hyun Nam, *University of Minnesota, Minneapolis, MN, USA*

Veronica Orlandi, *Laplace, Université Paul Sabatier, Toulouse, France*

Sai Raskar, *Ohio State University, Columbus, OH, USA*

Shanshan Qing, *Institute of Science Tokyo, Tokyo, Japan*

Qinghao Shen, *DIFFER, the Netherlands*

Julia Simon, *Yale University, New Haven, CT, USA*

Steijn Vervloedt, *Ruhr University Bochum, Bochum, Germany*

Best Poster Presentation Award

The ISC and LOC will recognize two student poster presenters at the closing ceremony of ISPC 26. The award consists of a cash (250 USD) prize and a certificate.

The organizing committee is grateful to **Advanced Energy Industries, Inc** for sponsoring the student awards.

4 Summer School and Invited Presentations

4.1 Summer School

The IPCS Summer School is offered in conjunction with the US Low-Temperature Plasma Summer School and the ASPIRE Summer School to provide opportunities for graduate students and early-career researchers to be immersed in the fundamentals and applications of low-temperature plasmas and to learn from leading researchers in their field.

Scientific Organizers:

- Peter J. Bruggeman, *University of Minnesota, USA*
- Mark J. Kushner, *University of Michigan, USA*
- Gerrit Kroesen, *TU Eindhoven, The Netherlands*
- Satoshi Hamaguchi, *Osaka University, Japan*

Saturday June 14

- Lecture 1: Introduction to plasma chemistry, Mark J. Kushner, *University of Michigan, USA*
- Lecture 2: Plasma sources, Uwe Czarnetzki, *Bochum University, Germany*
- Lecture 3: Plasma diagnostics, Igor Adamovich, *Ohio State University, USA*
- Lecture 4: Plasma modeling, Juan Pablo Trelles, *University of Massachusetts Lowell, USA*
- Lecture 5: Plasmas for nanoparticle synthesis, Job Beckers, *TU Eindhoven, The Netherlands*

Sunday June 15

Track 1 - General Plasma Chemistry

- Lecture 6-a: Plasma-liquid interactions, Selma Mededovic Thagard, *Clarkson University, USA*
- Lecture 7-a: Thermal plasmas, Tony Murphy, *CSIRO, Australia*
- Lecture 8-a: Plasma-surface treatment, Daphne Pappas, *Plasmatreat USA, Inc*
- Lecture 9-a: Plasma medicine, Stephan Reuter, *Polytechnique Montréal, Canada*
- Lecture 10-a: Plasmas for sustainability, Annemie Bogaerts, *University of Antwerp, Belgium*

Track 2 - Plasma Materials Processing for Microelectronics Fabrication

- Lecture 6-b: Plasma-surface interactions, Satoshi Hamaguchi, *Osaka University, Japan*
- Lecture 7-b: Atomic Layer Etching (ALE) Heeyeop Chae, *Sungkyunkwan University (SKKU), Korea*
- Lecture 8-b: HARC etch: Pushing physics to the limits, MingMei Wang, *Lam Research Corporation, USA*
- Lecture 9-b: Plasma modeling for semi-conductor processing, Shahid Rauf, *Applied Materials, Inc, USA*
- Lecture 10-b: AI and data science in plasma materials processing, Masaaki Matsukuma, *Tokyo Electr. Techn. Solut. Ltd., Japan*

4.2 Plenary and Invited Presentations

4.2.1 Plenary Presentations

Monday 8:30-9:30
Plasma for Atomic Layer Processing, Anisotropy, Selectivity and Specificity
Jane Chang
University of California, Los Angeles, USA

Thursday 8:30-9:30 (**Plasma Chemistry Award Lecture**)
Adventures in Plasma Chemistry
David Graves
Princeton University, USA

Thursday 10:00-11:00
Advancing Fundamental Science of Nanomaterial Synthesis: Integrated Modeling that includes Plasma Physics, Chemistry, Quantum Chemistry, and Thermodynamics to Unravel Mysteries of Plasma-Based Nanomaterial Synthesis.
Igor Kaganovich
Princeton Plasma Physics Laboratories, USA

Thursday 11:00-12:00
Pulsed Power Agriculture; Design of Pulsed Power Generator and its Applications in Agriculture and Food Processing
Koichi Takaki
Iwate University, Japan

Thursday 13:30-14:30
On the understanding of an ”in principle rather old gas discharge”: Plasma diagnostics on barrier discharges
Ronny Brandenburg
Leibniz-Institute for Plasma Science and Technology, Greifswald, and University of Rostock, Germany

Thursday 14:30-15:30
Pyrolysis of methane by thermal plasma: a 25 years journey and start of an industrial transition
Laurent Fulcheri
PSL Research University, MINES Paris, France PERSEE - Centre Procédés, Energies Renouvelables et Systèmes Énergétiques

4.2.2 Invited Presentations

Topic 1: Fundamentals of plasma-surface interactions
Fundamentals of plasma-surface interactions in sustainable plasma applications
Judith Golda, *Ruhr-Universität Bochum, Germany*

Topic 2: Fundamentals and applications of thermal plasma
Thermal plasma generation for innovative applications
Manabu Tanaka, *Kyushu University, Japan*

Topic 3. Fundamentals of non-equilibrium plasma
Plasma for Nitrogen Fixation: Experiments and Machine Learning
Xin Pei Lu, *Huazhong University of Science and Technology, China*

Topic 4. Plasma diagnostics
Pulsed electrical discharge for gas reforming: power-to-olefins
Anton Nikiforov, *Ghent University, Belgium*

Topic 5. Plasma modeling
Modeling Plasmas for Sustainable Gas Conversion
Pedro Viega, *Instituto de Plasmas e Fusão Nuclear (IPFN), Instituto Superior Técnico - Universidade de Lisboa (IST-UL), Portugal*

Topic 6. Plasma in and in contact with liquids
Reactive Species Transfer and Generation in Plasma Liquid Systems
Stephan Reuter, *Polytechnique Montréal, Canada*

Topic 7. Plasma materials synthesis
Nanomanufacturing with Low-Temperature Plasmas
Rebecca Anthony, *Michigan State University, USA*

Topic 8. Plasma deposition of functional coatings
Antimicrobial Properties of Surgical Sutures Decorated with PtAu/Pd Nanoparticles Prepared by Sputtering on Liquids
Elidiane Cipriano Rangel, *São Paulo State University (UNESP), Institute of Science and Technology, Sorocaba, SP, Brazil*

Topic 9. Plasma-based gas conversion and chemical synthesis
Kinetic and thermodynamic insights into plasma-based gas conversion
Ramses Snoeckx, *Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland*

Topic 10. Plasma-assisted combustion and aerodynamics
The role of plasma-assisted combustion in the era of decarbonization
Carmen Guerra Garcia, *Massachusetts Institute of Technology, USA*

Topic 11. Plasma medicine and agriculture
How much is “enough”? - strategies to monitor plasma-bio interactions for plasma endpoint detection
Katharina Stapelmann, *North Carolina State University, USA*

Topic 12. Plasmas for environmental applications
Recent advances on plasma-based water treatment for the degradation of perfluoroalkyl substances
Ester Marotta, *University of Padova, Padova, Italy*

Topic 13. Plasmas for semiconductor processing
The chemistry of plasma-enhanced ALD
Ageeth Bol, *University of Michigan, Ann Arbor, USA*

Plasma chemistry of deposition
Nobuyuki Kuboi, *Research Division 2, Sony Semiconductor Solutions Corp., Kanagawa, Japan*

The chemistry of cryogenic etching
Remi Dussart, *GREMI, CNRS/Université d’Orléans, France*

Fluorocarbon Plasma Chemistry and Sustainable Replacements for Etching
Pingshuan Luan, *TEL Technology Center America, Albany, NY, USA*

5 Program

5.1 Conference Schedule and Oral Presentations

Sunday 15th June			
Track: A		Track: B	Track: C
17:00	Registration		
18:00	Welcome Reception		

Monday 16th June					
Track: A		Track: B		Track: C	
Plenary Session: Plenary 1 (Ted Mann) Chairpersons: P. Bruggeman, C. Wadsworth					
08:15	**Opening** Welcome remarks: Shashank Priya, Vice-President of Research, University of Minnesota Bruce Locke, President, International Plasma Chemistry Society Peter Bruggeman, Chair ISPC 26				
08:30	Plasma for Atomic Layer Processing: Anisotropy, Selectivity, Specificity and Sustainability *Jane Chang* UCLA				
09:30	Break				
Session: Diagnostics 1 (Anderson 230) Chairpersons: M. Simeni, D. Xu		**Session: Liquids 1 (Anderson 270)** Chairperson: P. Lukes, A. Akinshilo		**Session: Semiconductor proc. 1 (Anderson 250)** Chairperson: S. Hamaguchi, B. Singh	
10:00	Temporal and Spatial Thomson Scattering Measurements of Electron Properties of Laser-Produced Plasmas in Dry and Humid Ar *Ji Yung Ahn* University of Minnesota Twin Cities	10:00	Study of intense cavitation-assisted electric discharge *Alexander Gutsol* (1) LDS Technology Consultants, Inc., (2) Princeton University, (3) Princeton Plasma Physics Laboratory	10:00	How etch-plasma researchers view plasma and how it can be applied to deposition (invited) *Nobuyuki Kuboi* Sony Semiconductor Solutions
10:15	2D Spatial Mapping of the Electron Temperature, Electron Density, and Electric Field Intensity in a Microwave Argon Plasma Jet *Luc Stafford* (1) Université de Montréal	10:15	Plasma-liquid droplets interactions in a surface-wave plasma column at low pressure (Student Excellence Award Finalist) *Veronica Orlandi* Université Paul Sabatier, CNES, CNRS, Université de Montréal		
10:30	Nanosecond discharge ignited at the water-heptane interface: streamer-to-spark transition and time evolution of ne and Tp (Student Excellence Award Finalist) *Audren Dorval* (1) Université de Montréal	10:30	Self-Organized Plasma Patterns in DC Glow Discharges with Liquid Anodes: A Numerical Study *Shuva Das* University of South Carolina	10:30	Boosted chemistry at cryogenic temperature for silicon and silicon compound plasma etching (invited) *Remi Dussart* (1) GREMI - Universite d'Olreans/CNRS
10:45	Measurements of Excited Metastable Species of Nitrogen in a Heated Nonequilibrium Plasma Flow Reactor (Student Excellence Award Finalist) *Sai Raskar* The Ohio State University	10:45	Nanosecond pulsed discharges on levitated water droplet *Alexandre Devos* GREMI - CNRS - Université d'Orléans		
11:00	Hybrid fs/ps CARS vibrational population measurements of N_2 in nonequilibrium DC plasma *Ziqiao Chang* (1) Princeton University, (2) Applied Materials, Inc, (3) Princeton Plasma Physics Laboratory	11:00	Green synthesis of hydrogen peroxyde in a coaxial microwave plasma reactor using water and argon *Mery Hernandez* Karlsruhe Institute of Technology	11:00	Fluorocarbon Plasma and Sustainable Replacements for Industrial Etching (invited) *Pingshan Luan* TEL, USA
11:15	LIF Study of NH and OH Radicals in a Nanosecond Pulsed Discharge in a N_2:H_2O Mixture at Atmospheric Pressure *Mikhail Gromov* (1) INP, Greifswald, Germany. (2) Ghent University, Research Unit	11:15	Plasma Falling Liquid Film Reactor to Study PFAS Decomposition *Zilun Xiang* University of Minnesota		
11:30	Methane decomposition in low-pressure, large-area glow discharge *Shurik Yatom* Princeton Plasma Physics Laboratory	11:30	Plasma Degradation of Surfactant Molecules at the Gas-Liquid Interface *Jisu Jeon* University of Michigan	11:30	Plasma-enhanced atomic layer deposition of two-dimensional transition metal dichalcogenides for nanoelectronics (invited) *Ageeth Bol* Department of Chemistry, University of Michigan, Ann Arbor, USA
11:45	Spatial distribution measurement of H atom density, CH/C_2/H_2 vibrational/rotational temperatures, and electron temperature for microwave plasma-activated diamond growth *Shota Abe* (1) PPPL, (2) University of California, Berkeley	11:45	Pulsed Plasma Treatment of Per- and Polyfluoroalkyl Substances (PFAS): Exploring the Roles of Oxidative Species *Samuel Babalola* Clarkson University		
12:00	Lunch				

Monday 16th June

Track: A		Track: B		Track: C	
Session: Diagnostics 2 (Anderson 270) Chairperson: A. von Keudell, Z. Xiang		**Session: Bio 1 (Anderson 230)** Chairperson: C. Koga-Ito, J.Y. Ahn		**Session: Semiconductor Proc. 2 - Coatings 2 (Anderson 250)** Chairperson: M. Kushner, A. Akinshilo	
13:30	Measurement of atomic oxygen densities using TALIF and SEA in a micro cavity array reactor for catalysis *Marc Böke* (1) Ruhr-University Bochum, (2) (1) Ruhr-University Bochum, (3) Sandia National Laboratories	13:30	Antimicrobial properties of surgical sutures decorated with PtAu/Pd nanoparticles prepared by sputtering on liquids (invited) *Elidiane Rangel* (1) UNESP, (2) USCS, (3) UFSCAR, (4) MACLE-CVL, UAR CNRS, (5) ICMN, Université d'Orléans, CNRS, (6) GREMI, Université d'Orléans, CNRS	13:30	Controlled Layer Removal in Plasma Pseudo-Atomic Layer Etching *Maryam Khaji* Michigan University
13:45	Singlet delta oxygen production by RF and ns-plasmas: An electrical study *Jean-Philippe Comtois* (1) Polytechnique Montréal, (2) Université Paris-Saclay			13:45	Ionization Dynamics in Capacitively Coupled Discharge Biased with Tailored Voltage Waveform: Role of Secondary Electrons *Syed Zulqarnain* (1)North Carolina State University - Nuclear Engineering (2) EHT Semi, Seattle, WA
14:00	Tunable diode laser absorption spectroscopy of all four $Ar^*(3p^54s)$ states in a pulsed-operated single-filament dielectric barrier discharge at atmospheric pressure *Levin Krös* (1) INP Greifswald, (2) Ruhr-University Bochum, (3) Rostock University	14:00	Mechanism investigation of low-temperature plasma selective killing effect on human breast cancer cell *Liyin Du* (1) Nagoya University, (2) Nagoya University Hospital	14:00	Fragmentation of valence electronic states of C_3HF_5 studied by photoelectron photoion coincidence (PEPICO) techniques *Trung Nguyen Tran* (1) Center for Low-temperature Plasma Science, Nagoya University, Japan, (2) UVSOR Synchrotron Facility, Japan
14:15	2D Raman temperature imaging in a microwave air plasma *Peter Buckley* Maastricht University	14:15	Cold atmospheric plasma treatment of chronic wounds—investigation of the effects of reactive oxygen and nitrogen species on fibrosis-related cellular signaling pathways *Juliette Letellier-Bao* (1) Polytechnique Montreal (2) McGill University	14:15	Scaling of neutral, ion and photon fluxes in pulsed inductively coupled plasmas formed in Ar/O_2 mixtures *Andrew R. Gibson* University of York
14:30	Impact of Environmental Conditions on the Chemistry in Laser ablation plumes *Sivanandan Harilal* Pacific Northwest National Lab., NC State Univ., Univ Arizona, Univ Minnesota, Virginia Commonwealth Univ., LBNL	14:30	Evaluation of Plasma Effect on the Inner Wall of a Tracheal Stent *Konstantin Kostov* (1) São Paulo State University - UNESP, (2) University of São Paulo - USP, (3) INP-Greifswald, (4) Adib Jatene Foundation - FAJ	14:30	Plasma Engineering of Surface Properties by 3D nanostructures *Janez Zavasnik* Jozef Stefan Institute
14:45	High-Sensitivity Time-Resolved Electric Field Measurements at Sub-Torr Pressures Using Homodyne E-FISH *Grayson LaCombe* University of Minnesota	14:45	Plasma molecular introduction into plant cells: Differences with animal cells *Masafumi Jinno* (1) Ehime University, (2) Pearl Kogyo Co. Ltd.	14:45	Plasma-Modified Micropatterned Fluoropolymers for Biomanufacturing Applications *Ahmed Mahmoud* (1) McGill University (2) Saint-Gobain Ceramics & Plastics Inc.
15:00	Empowering Optical Diagnostics with Image-Based Spectral Analysis via Multi-Objective Supervised Learning *Sanghoo Park* KAIST	15:00	Evaluating the potential synergy between atmospheric non-thermal plasma to modulate and antibiotics in resistant microbes *Reed Jacobson* (1) Department of Biochemistry, Molecular Biology and Biophysics, (2) BioTechnology Institute, University of Minnesota	15:00	Surface treatment of metals using an atmospheric pressure plasma jet for cleaning, oxidation, reduction and thin film deposition *Ryan Robinson* Plasmatreat
15:15	Model and PIC simulation of the ion collection by Langmuir probes *Julian Held* (1) University of Minnesota, (2) Princeton Plasma Physics Laboratory, (3) TU Eindhoven	15:15	Exposure Time-Dependent Dynamic Effects of Non-Thermal Plasma *Vandana Miller* (1)Drexel University, (2) North Carolina State University	15:15	Atmospheric Pressure Plasma Deposition of Corrosion Protective Coatings on Magnesium Alloys *Daphne Pappas* (1) Plasmatreat USA, (2) Oak Ridge National Laboratory
15:30	Break				
16:00	Poster: Poster Session 1 (Humphrey Conference Center)				

Tuesday 17th June

Track: A		Track: B		Track: C	
Session: Thermal 1 **(Anderson 230)** Chairperson: M. Baeva, V. Kuster		**Session: Surfaces 1** **(Anderson 250)** Chairperson: L. Zajíčková, B. Klause		**Session: Conversion 1** **(Anderson 270)** Chairperson: H. Kim, G. Trayner	
08:30	Thermal plasma generation for innovative applications (invited) *Manabu Tanaka* Kyushu University	08:30	Ion energy distributions from the impact of an atmospheric dielectric barrier discharge plasma jet on surfaces *Achim von Keudell* EPII, Ruhr University Bochum, Germany	08:30	Towards a chemical understanding of decomposition and molecular-weight growth in a non-thermal plasma operating in siloxane *N Hansen* (1) Sandia National Laboratories, (2) University of Southern California
		08:45	Is the electron kinetics of all plasma surface interactions nonlocal? *Uwe Kortshagen* University of Minnesota	08:45	Study of Gas Phase Chemistry in Chemical Vapor Deposition Reactors for Diamond Growth *Mikhail Mokrov* (1) Princeton Plasma Physics Laboratory, (2) Princeton University, (3) Cubic Carbon Ceramics, (4) School of Science, RMIT University
9:00	Theoretical evaluation of turbulent heat transfer for arc plasma in SF_6 flow *Masaya Shigeta* Tohoku University	09:00	Fundamentals of plasma-surface interactions in sustainable plasma applications (invited) *Judith Golda* Bochum University	09:00	Temperature-Dependent Selectivity between Plasma and Homogeneous Reaction Chemistry of Methane DBD Plasmas *Ibukunoluwa Akintola* (1) University of Notre Dame, (2) Princeton Plasma Physics Laboratory, (3) University of Notre Dame
9:15	Particle simulation of metal transfer using inertia force in gas metal arc welding *Hisaya Komen* (1) Osaka University, (2) Kobe Steel, Ltd.			09:15	Non-thermal Plasma Conversion of Methane to Methanol with Water and Heterogenous Catalysts *Roxanne Walker* (1) National Renewable Energy Laboratory (NREL)
09:30	Break				
Session: Thermal 2 **(Anderson 230)** Chairperson: M. Shigeta, V. Kuster		**Session: Surfaces 2** **(Anderson 250)** Chairperson: B. Mitu, Z. Xiang		**Session: Conversion 2** **(Anderson 270)** Chairperson: A. Bogaerts, G. Trayner	
10:00	Effect of copper metal vapour on the properties of microarcs in air-copper mixtures at atmospheric pressure *Margarita Baeva* (1) INP Greifswald, (2) Rostock University	10:00	Tailoring N_2 DBD for Controlled Monolayer Graphene Film Processing *Charles Moderie* (1) Université de Montréal (2) Université de Toulouse	10:00	Kinetic and thermodynamic insights into plasma-based gas conversion (invited) *Ramses Snoeckx* Empa
10:15	Temperature and Density Measurements of Lithium Vapor of Nanoparticle Precursors in Multiphase AC Arc *Takayuki Watanabe* (1) Kyushu University, (2) Panasonic	10:15	Scaling of unsaturated bonds and radicals in bioactive films with plasma parameters *Lenka Zajíčková* (1) CEITEC, (2) Masaryk University		
10:30	Arc physics in hydrogen plasma reduction of iron ore *Anthony Murphy* (1) CSIRO	10:30	Mechanism of the sulfonation by plasma-sulfuric acid interactions *Siqi Deng* (1) Institute of Science Tokyo (2) Iwate University (3) Oita University (4) Nagoya University (5) Pusan National University	10:30	A Combined Experimental and Numerical Modelling study in a Hydrogen/Methane Microwave Plasma for rapid Scale-up of Methane Plasma Pyrolysis *D. van den Bekerom* (1) TNO, (2) Maastricht University, (3) DEMCON , (4) Sitech Services
10:45	Experimental investigation into the reduction of MnO using a thermal hydrogen plasma *Trygve Aarnæs* SINTEF Industry	10:45	The role of different supports for low temperature plasma assisted CO_2 methanation *Yunxia Yang* CSIRO	10:45	Microwave methane plasma pyrolysis and catalysis for the generation of turquoise hydrogen and solid carbon *Siebe Dijcks* Minnesota University
11:00	Conversion of CH_4 and CO_2 to value-added products *Hye Young Ko* Jeju National University	11:00	Site-selective Desorption of CO from Pt under Low-Temperature Plasma Exposure *Lorenzo Mangolini* University of California Riverside	11:00	Performance improvement as a battery material of carbon black synthesized through thermal plasma-based methane pyrolysis (Student Excellence Award Finalist) *Hyeokjun Kang* (1) Jeju National University, (2) Electric Energy Research Center, (3) Institue for Nuclear Science and Technology, (4) ENCLION Inc
11:15	Highly-Controlled Thermofluid Fields by Multi-Flange Installation in Tandem Modulated Induction Thermal Plasmas for High-Rate Nanoparticle Synthesis *Yasunori Tanaka* (1)Kanazawa University, (2) Nisshin Seifun Group, Inc.	11:15	Surface chemistry at a plasma-surface interface for N_2 fixation (Student Excellence Award Finalist) *Steijn Vervloedt* Ruhr University Bochum	11:15	Effect of background gas on carbon nucleation in non-thermal plasma *Sankhadeep Basu* Michigan State University

Tuesday 17th June

Track: A		Track: B		Track: C	
11:30	Mesoplasma rejuvenation of waste aluminium alloy powders for additive manufacturing *Makoto Kambara* (1) Osaka Univ., (2) Shimane Inst. Technol., (3) Takeuchi Electric. Co., (4) Alloyed Ltd., (5) Brunel Univ. London	11:30	Identification of in-situ nitridation during plasma catalytic ammonia synthesis in N_2/H_2 mixtures *Christopher Kondratowicz* (1-2) Princeton University, (3) PPPL	11:30	Investigation of the formation of Carbonaceous Nanoparticles in a Ar-CH_4 RF Plasma through On-Line Particle Separation *I. Burak Sen* Middle East Technical University
11:45	Impact of Thermal Plasma on Biomass Particles for Entrained Flow Gasification *Johannes Waßmuth* (1) Munich University, (2) Luleå University	11:45	Low-Temperature Hydrogen Plasma Reduction of Hematite Thin Films *Binit Singh* Department of Mechanical Engineering, University of Minnesota-Twin Cities, Minneapolis	11:45	Mechanistic studies of CO_2 plasma-assisted polyethylene degradation *Leonid Sheps* Sandia National Laboratories
12:00	Lunch				
Session: Modeling 1 (Anderson 230) Chairperson: T. Watanabe, S. Tandon		**Session: Surfaces 3 - Non equilibrium 3 (Anderson 250)** Chairperson: F. Massines, G. LaCombe		**Session: Conversion 3 (Anderson 270)** Chairperson: J. Benedikt, G. Trayner	
13:30	Modelling plasmas for sustainable gas conversion (invited) *Pedro Viegas* (1) Universidade de Lisboa, (2) Maastricht University, (3) Stanford University	13:30	Evaluation of etching rates for reactive ion etching (RIE) and atomic-layer etching (ALE): beam experiments, atomic-scale simulation, and machine learning *Satoshi Hamaguchi* Osaka University	13:30	CH_4(v) and H_2(v) Kinetics in Nanosecond-Pulsed Discharge Generated in a Preheated Methane Mixture *Tanubhav Srivastava* (1) Princeton University (2) Princeton Plasma Physics Laboratory
		13:45	Film deposition on pin-backed glass dielectrics of pin-to-plate dielectric barrier discharges in Ar-hexamethyldisilane (Student Excellence Award Finalist) *Lars Bröcker* (1) TU Braunschweig, (2) INP Greifswald	13:45	Modeling of CO_2 conversion in non-thermal plasma for high conversion and energy efficiency *Shinsuke Mori* Institute of Science Tokyo
14:00	Boosting the NO_x production in microwave air plasma: A synergy of chemistry and vibrational kinetics (Student Excellence Award Finalist) *Qinghao Shen* (1) DIFFER, (2) Maastricht University, (3) The University of Liverpool, (4) Eindhoven University of Technology.	14:00	Generation and decay of SiCl radicals in a pulsed inductively coupled plasma with a pulsed bias voltage *V S Santosh K Kondeti* Princeton Plasma Physics Laboratory	14:00	Arc plasma for CO_2 conversion: Comparing various quenching methods *Annemie Bogaerts* Antwerp University
14:15	Self-consistent modeling of microwave plasma in air for nitrogen fixation *Matthias Albrechts* University of Antwerp	14:15	Tuning surface morphology and stoichiometry by microplasma generated reactive oxygen species and short pulsed laser irradiation *Sascha Chur* Ruhr-University Bochum, Germany	14:15	Electrochemical Plasma-Activated CO_2 Reduction at a Plasma-Water Interface (Student Excellence Award Finalist) *Julia Simon* Yale University
14:30	Mathematical analysis to clarify how reaction networks grow in plasmas *Tomoyuki Murakami* Seikei University	14:30	Electric Field and Charge Density Measurements in the Atmospheric Pressure RF Plasma Jet *Uwe Czarnetzki* (1) Ruhr-University Bochum, (2) Wigner Research Center	14:30	Plasma-derived atomic hydrogen promotes CO_2 methanation at low temperature through the Eley-Rideal mechanism *Dae-Yeong Kim* Science Tokyo
14:45	PPFM: An Object-Oriented C++ Library for Thermodynamic and Transport Properties Calculation *Alberto Vagnoni* UniversityOfBologna	14:45	Micro-second pulse and RF coupling in an APPJ *Alessandro Patelli* (1) Padova University, (2) Toulouse University	14:45	From CO_2 dissociation to dry reforming of methane in microwave discharges: Importance of the chemical kinetics in the afterglow. *Lex Kuijpers* (1) DIFFER, (2) EIRES, Eindhoven University of Technology
15:00	The effect of turbulence on NH_3 conversion: A computational Gliding Arc Plasmatron study *Stein Maerivoet* (1) University of Antwerp, (2) Université Libre de Bruxelles	15:00	How ozone seems to influence the gas breakdown voltage in diffuse dielectric barrier discharges operated in air? *Raphaël Robert* (1) Toulouse University, (2) Montréal University	15:00	Engineering Ni-Co bimetallic interfaces for ambient plasma-catalytic CO_2 hydrogenation to methanol *Yaolin Wang* Liverpool University
15:15	Finite Impedance of Voltage Sources Driving Atmospheric Pressure Plasma Jets *Mark Kushner* University of Michigan	15:15	Non-equilibrium Plasma Chemistry *Dirk Hegemann* Empa	15:15	Plasma Chemical Characterization of a Combined ns Pulsed – RF Excitation Source for CO_2 Conversion at Atmospheric Pressure *Dante Filice* McGill University
15:30	Break				
16:00	Poster: Poster Session 2 (Humphrey Conference Center)				

Wednesday 18th June					
Track: A		Track: B		Track: C	
Session: Synthesis 1 **(Anderson 250)** Chairperson: L. Mangolini, S. Dongarwar		**Session: Environmental 1** **(Anderson 230)** Chairperson: S. Iwarere, S. Tandon		**Session: Conversion 4** **(Anderson 270)** Chairperson: T. Nozaki, E. Wolfe	
08:30	Nanomanufacturing with Low-Temperature Plasmas (invited) *Rebecca Anthony* Michigan State	08:30	Electron Upconversion for Electron Catalysis in Nonthermal Plasma Gas-Liquid Reactors: A New Solution for PFAS Degradation (Student Excellence Award Finalist) *Kimberley Christopher* Florida State Univeristy	08:30	NH_3 cracking with warm plasma: advantages and limitations *Igor Fedirchyk* University of Antwerp
		08:45	Evaluation of mass transfer during bubble-assisted plasma decomposition of PFOS (Student Excellence Award Finalist) *Shanshan Qing* (1) Institute of Science Tokyo, (2) Kumamoto University, (3) Harbin Institute of Technology	08:45	Optimizing Packed-Bed Configurations for H_2 Production in Plasma Reactors *Mateo Ruiz-Martín* (1) Instituto de Ciencia de Materiales de Sevilla (2) Universidad de Sevilla
9:00	Synthesis of gold/polymer thin films in atmospheric-pressure dielectric barrier discharges *Francoise Massines* CNRS PROMES	09:00	Recent advances on plasma-based water treatment for the degradation of perfluoroalkyl substances (invited) *Ester Marotta* University of Padova	09:00	Zirconium Oxide Carrier Catalysts for Plasma-Catalytic Ammonia Decomposition *Michał Młotek* Warsaw University of Technology
9:15	Plasma-assisted oxidation of binder-mixed micron iron particles and their field emission applications *Supriya More* (1) Ghent University, (2) Pune University, (3) Mons University			09:15	Preliminary Characterization of NO_x Abatement by Atmospheric Pressure Dielectric-Barrier Discharge Plasma *Yicheng Zhang* (1) University of Massachusetts Lowell, (2) Stony Brook University
09:30	Break 5				
Session: Synthesis 2 **(Anderson 250)** Chairperson: L. Stafford, S. Dongarwar		**Session: Environmental 2** **(Anderson 230)** Chairperson: T. Murphy, S. Tandon		**Session: Conversion 5** **(Anderson 270)** Chairperson: S. Coulombe, S. Dijcks	
10:00	Metal-doped DLC coating by PE-CVD *Héliam Klein* (1)CNRS (2) Toulouse University (3) Montréal University (4) University Bourgogne	10:00	Water remediation of toxic bisphenol chemicals by cold atmospheric pressure plasmas *Uroš Cvelbar* (1) Jozef Stefan Institute, (2) National Institute of Biology, (3) York Plasma Institute	10:00	Atmospheric pressure plasmas and their application for Nitrogen fixation (invited) *XinPei Lu* HuaZhong University of Science and Technology
10:15	Continuous Synthesis of High-entropy Alloy Nanoparticles by RF Inductive Coupled Plasma Jet (ICPJ) *Ziqi Tang* (1)NRC Canada, Ottawa, Canada (2)Department of Mechanical Engineering, University of Ottawa, Ottawa, Canada	10:15	Organic wastewater purification from bacteria and viruses by cold atmospheric plasmas *Aleksandra Lavrikova* EPFL		
10:30	Optimization of Control Parameter of Different Modulation Cycles in Tandem Modulated Induction Thermal Plasmas for Nanoparticle Synthesis by Machine Learning Technique *Rio Okano* (1) Kanazawa University, (2) Nisshin Seifun Group Inc	10:30	Degradation of neonicotinoid imidacloprid in aqueous solution by a dielectric barrier discharge configured plasma-ozonation synergy *Paul Kaweesa* University of Pretoria	10:30	Maximizing nitrogen fixation using bipolar pulsed spark discharge *Hyun-Ha Kim* AIST
10:45	Silicon Nanoparticle Evaporation and Crystallization in Plasma Synthesis *Yifan Gui* (1) University of Michigan, (2) University of Michigan	10:45	Hydrofluorocarbons (HFCs) Destruction through Liquid Injection Incineration Catalyzed by Non-thermal Gliding Arc Plasma *Nicolas Stine* Drexel University	10:45	NOx formation via microwave air plasma and down-stream catalyst *Jonas Gans* (1) DIFFER, (2) BASF SE, (3) HTE GmbH, (4) Eindhoven University of Technology
11:00	Plasma-Enabled Green Approaches for Hybrid Nanocarbon Designs *Neelakandan Marath Santhosh* (1) Jožef Stefan Institute, (2) Jožef Stefan International Postgraduate School	11:00	Atmospheric pressure plasma improves greenhouse gas adsorption of Metal-Organic Frameworks *Joo Young Park* (1) KIMS	11:00	Evidence of nanoparticle catalyst reorganization and enhanced NH_3 yield with a ns-pulsed tube-to-plane DBD in N_2:H_2 *Philip Cimento* (1) McGill University
11:15	Arc discharge in methane with a molten metal anode for synthesis of SWCNTs *Stanislav Musikhin* Princeton Plasma Physics Laboratory	11:15	Stability of Metal-Organic Frameworks in non-thermal Atmospheric Plasma *Jan Benedikt* (1) IEAP, Kiel University, (2) IIC, Kiel University, (3) KiNSIS, Kiel University	11:15	Plasma Catalysis of Ammonia in "Hybrid" ns Pulse / RF Discharge *Matthew Berry* (1) The Ohio State University
11:30	Plasma growth and functionalization of carbon nanotubes *Larissa Solano de Almeida* (1) Federal University of São Carlos (UFSCar) (2) Sorocaba Technology College (FATEC) (3) Federal University of Piauí (UFPI)	11:30	Hydrogen Extraction from Plastic Waste via Atmospheric-Pressure Dielectric Barrier Discharge Plasma *Andrew Boules* (1) University of Massachusetts Lowell, (2) US Army Combat Capabilities Development Command Soldier Center	11:30	Model and experiment comparison of RONS production with an atmospheric pressure plasma as a function of gas temperature *Conner Robinson* (1) North Carolina State University

Wednesday 18th June					
Track: A		Track: B		Track: C	
11:45	Synthesis of LiN_5 by Nonequilibrium Nitrogen Plasma is Thermodynamically Feasible *Elijah Thimsen* WashU	11:45	Experimental and thermodynamic limits of dissociative metal oxide reduction using microwave hydrogen plasma *Sachin Kumar* Minnesota University	11:45	Experimental platform for the study of gliding discharges: determination of plasma densities and temperatures from Ar 4p-4s transitions *Ester Kriz* (1) Université de Montréal, (2) McGill University
12:00	Excursion				

Thursday 19th June					
Track: A		Track: B		Track: C	
Plenary Session: Plenary PCA **(Ted Mann)** Chairperson: B. Locke, B. Klause					
08:30	Adventures in Plasma Chemistry (Plasma Chemistry Award) *David Graves* Princeton University				
09:30	Break				
Plenary Session: Plenary 2 **(Ted Mann)** Chairperson: H.J. Lee, V. Kuster					
10:00	Advancing Fundamental Science of Nanomaterial Synthesis: Integrated Modeling that includes Plasma Physics, Chemistry, Quantum Chemistry, and Thermodynamics to Unravel Mysteries of Plasma-Based Nanomaterial Synthesis. *Igor Kaganovich* Princeton Plasma Physics Laboratory				
Plenary Session: Plenary 3 **(Ted Mann)** Chairperson: H.J. Lee, V. Kuster					
11:00	Pulsed Power Agriculture; Design of Pulsed Power Generator and Its Applications in Agriculture and Food Processing *Koichi Takaki* Iwate University				
12:00	Lunch				
Plenary Session: Plenary 4 **(Ted Mann)** Chairperson: D. Hegemann, T.A. Faruquee					
13:30	Understanding an 'in principle rather old gas discharge': Plasma diagnostics on barrier discharges *Ronny Brandenburg* INP Greifswald, Rostock University				
Plenary Session: Plenary 5 **(Ted Mann)** Chairperson: D. Hegemann, T.A. Faruquee					
14:30	Pyrolysis of methane by thermal plasma: a 25-year journey and start of an industrial transition *Laurent Fulcheri* (1) MINES Paris, (2) MONOLITH				
15:30	Break				
16:00	Poster: Poster Session 3 (Humphrey Conference Center)				
19:00	Conference Dinner				

Friday 20th June

Track: A		Track: B		Track: C	
Session: Synthesis 3 - Combustion 1 (Anderson 250) Chairperson: S. Girshick, B. Klause		**Session: Bio 2 (Anderson 230)** Chairperson: K. Kostov, D. Xu		**Session: Conversion 6 - Environmental 3 (Anderson 270)** Chairperson: A. Fridman, E. Wolfe	
08:30	Nanoscale Operando Plasma Transmission Electron Microscopy for Iron Oxide Reduction (Student Excellence Award Finalist) *Jae Hyun Nam* UMN	08:30	How much is "enough"? – strategies to monitor plasma-bio interactions for plasma endpoint detection (invited) *Katharina Stapelmann* (1) NC State University, (2) Drexel University, (3) Rutgers University	08:30	Numerical Modeling of n-Hexane Hydropyrolysis with an Optimized Kinetic Mechanism in a Rotating Gliding Arc Reactor *Subin Choi* (1) Korea Institute of Machinery and Materials, (2) Hongik University
08:45	Process optimization of iron oxide (in-flight) reduction in a high-performance microwave argon-hydrogen plasma torch *Jonas Thiel* Ruhr University Bochum			08:45	Ammonia decomposition for hydrogen production by plasma catalysis using cobalt-based catalyst *Hubert Ronduda* (1) Warsaw University of Technology
09:00	The Role of Plasma-Assisted Combustion in the Era of Decarbonization (invited) *Carmen Guerra Garcia* Massachusetts Institute of Technology	9:00	Is platelet activation by non-thermal plasma driven by lipid oxidation? *Kristian Wende* (1) INP Greifswald, (2) Greifswald University Medical Center, (3) Rostock University Medical Center	09:00	Experimental Investigation of Thermal Steam Plasma-assisted Entrained Flow Gasification of Torrefied Wood in a Pilot-Scale Gasifier *Jonas Brandstetter* (1) Technical University of Munich
		9:15	Non-invasive Physical Plasma (NIPP) for Cancer Prevention: From Preclinical Insights to Clinical Application *Guilin Wang* (1) University Tübingen, (2) Division of Plasma Medicine, (3) University of Bochum, (4) NMI Reutlingen	09:15	Tailoring plasma-catalytic packed-bed DBD reactors for efficient gas cleaning *Richard Cimerman* (1) Comenius University, (2) Comenius University
09:30	Break				
Session: Combustion 2 (Anderson 230) Chairperson: M. Simeni, D. Del Cont-Bernard		**Session: Liquids 2 (Anderson 250)** Chairperson: S. Mededovic, D. Xu		**Session: Conversion 7 (Anderson 270)** Chairperson: U. Kortshagen, E. Wolfe	
10:00	Heated Supersonic Plasma Flow Reactor for Spectroscopic Studies of Plasma Chemistry and Plasma Assisted Combustion *Li-Te Ting* The Ohio State University	10:00	Tracing plasma-produced reactive species in a skin-mimetic environment for skin plasma patch treatment *Juyeon Choi* (1) Korea Institute of Materials Science, (2) Pusan Nat'l University, (3) Kwangwoon University, (4) Korea Advanced Institute of Science and Technology	10:00	Performance Assessment of a Flexible 2D Gliding Arc Plasmatron Technology for CO_2-free Methane Reforming into Hydrogen and Valuable By-Products *Pierre Mathieu* (1) University of Mons, (2) Ghent University, (3) Materia Nova research Center
10:15	CH4 conversion in nanosecond pulsed plasma: Is it pyrolysis? *Stijn Van Rompaey* (1) University of Antwerp, (2) Ghent University	10:15	Advancements in Plasma-Activated Liquids: System Development, Characterization, and Biomedical Applications *Cristiane Yumi Koga-Ito* (1) São Paulo State University, (2) Technological Institute of Aeronautics	10:15	Characterization of a gliding arc using H_2/Ar and H_2/N_2 gas mixtures *Seongil Choi* Korea Institute of Machinery and Materials
10:30	Low-Temperature Plasma-Assisted Combustion Kinetics of Methanol *Nicholas Tsolas* Auburn University	10:30	Relating plasma-activated water chemistry to antimicrobial effectiveness by pairing EPR spectroscopy and single-cell IFC *Brayden Myers* (1) Swiss Plasma Center	10:30	Role of sheath layer in nonthermal plasma catalysis *Xiaolei Fan* The University of Manchester
10:45	Manipulating plasma thermal-chemical instability for efficient combustion and gas conversion *Hongtao Zhong* (1) Michigan State University, (2) Princeton University, (3) Princeton Plasma Physics Laboratory	10:45	Tuning the plasma-activated water by controlling the transport of reactive species from cold plasma into water bulk and aerosols *Zdenko Machala* Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia	10:45	Preheating in 915 MHz CO_2 Microwave Plasma: Looking into Heat Recycling in Plasma Systems *Cas van Deursen* (1) Dutch Insitute for Fundametal Energy Research, (2) University of Antwerp, (3) Leiden University, (4) Eindhoven University of Technology
11:00	A Novel Approach to Enhance Biogas/Air Combustion properties in an Inverse Diffusion Flame using Rotating Gliding Arc Plasma *Ram Mohan Pathak* Indian Institute of Science, Bangalore, India-560012	11:00	Reactive Species Transfer and Generation in Plasma-Liquid Systems (invited) *Stephan Reuter* (1) Polytechnique Montréal	11:00	Scaling-up of Reverse Vortex Flow Gliding Arc Discharge. *Mobish Shaji* (1) Drexel University
11:15	Some elements on the influence of DC-gliding arc on H_2 combustion in scramjet *Ancelin Rocamora* (1-3) ONERA, (4) Laboratoire EM2C CNRS-CentraleSupélec			11:15	Plasma-Catalytic Ammonia Dissociation for Hydrogen Release *Aishwarya Belamkar* (1) University of California, Riverside

Friday 20th June					
Track: A		Track: B		Track: C	
11:30	Prediction of Emission Spectra Captured by an Embedded Miniature Spectrometer in a Hypersonic Reentry CubeSat *Marien Simeni Simeni* (1) ME department University of Minnesota, (2) AEM department University of Minnesota	11:30	Production of hydroxyl radical and hydrogen peroxide by different types of plasma in contact with water *Nozomi Takeuchi* Science Tokyo	11:30	Pulsed electrical discharges in chemical processes intensification. (invited) *Anton Nikiforov* (1) Gent University
11:45	2D Axisymmetric Modeling of Streamer, Nanosecond Glow, and Nanosecond Spark Plasma at Ammonia-Air Flame Conditions *Suo Yang* (1) University of Minnesota, (2) National Renewable Energy Laboratory	11:45	Specificity of copper-dimethylphenantroline assay for detection of H_2O_2 in cell-culture mixtures treated by plasma *Petr Lukes* Institute of Plasma Physics of the CAS		
12:00	General Assembly, Student Award and Closing Ceremony				

5.2 Poster presentations

Poster Session 1

Topic 4. Plasma diagnostics

(P1.4.1) *Modified State Enhanced Actinometry for Measuring Atomic Oxygen Density in a Micro-Scaled Atmospheric Pressure Plasma Jet*
Kittawat Poonsawat, Erik Wagenaars
University of York

(P1.4.2) *Optical Study of CH_4 Decomposition in an Atmospheric-Pressure ns-Discharge*
Pierre Mathieu, Michael K. T. Mo, Rony Snyders, Masaru Hori, Nikolay Britun
(1) University of Mons, (2) Nagoya University, (3) Materia Nova research Center

(P1.4.3) *Formation of stable species in a coaxial DBD with short residence times in argon-tetramethylsilane: comparing experiment and 1d-t fluid modeling*
Lars Bröcker, Nickolas Steppan, Claus-Peter Klages, Markus M. Becker, Marjan Stankov, Detlef Loffhagen
(1) TU Braunschweig, (2) INP Greifswald

(P1.4.4) *Insights into Air-Carbon Ablation Chemical Kinetics from Spontaneous Raman Scattering Experiments*
Davide Del Cont-Bernard, John-Paul Heinzen, Thomas E. Schwartzentruber, Marien Simeni Simeni
(1) Minnesota University

(P1.4.5) *In-situ measurements of nitric oxide (NO) decomposition in a helium radio frequency (RF) atmospheric pressure plasma jet*
Shubham Dongarwar, Aditya Bhan, Peter Bruggeman
University of Minnesota

(P1.4.6) *Imaging of Radial and Axial Profiles During the Formation of Atmospheric Pressure Nanosecond Pulsed Discharges in Ar, N_2 and Air*
Griffin Trayner, Jianan Wang, Davide Del Cont-Bernard, Peter Bruggeman, Marien Simeni
University of Minnesota

(P1.4.7) *A comparision of discharge-averaged electrical diagnostics to local spectroscopic measurements in the gliding discharge*
Ester Kriz, Sylvain Coulombe, Luc Stafford
(1) Université de Montréal, (2) McGill University

(P1.4.8) *Characterization of an Argon-Sulfur Microwave Plasma Column at Reduced Pressure by Optical Imaging and Emission Spectroscopy*
Charles Moderie, Antoine Durocher-Jean, Richard Martel, Luc Stafford
Université de Montréal

(P1.4.9) *Estimation of HF gas temperature in low temperature plasma using infrared absorption spectroscopy*
Yusuke Imai, Takayoshi Tsutsumi, Kenichi Inoue, Shih-Nan Hsiao, Makoto Sekine, Kenji Ishikawa
Nagoya University

(P1.4.10) *Electric Fields Measurements in Surface Ionization Waves through Picosecond E-FISH in a Reflection Geometry*
Colin Wadsworth, Grayson LaCombe, Jianan Wang , Davide Del Cont-Benard , Marien Simeni Simeni
(1) University of Minnesota

Topic 6. Plasma in and in contact with liquids

(P1.6.1) *Non-thermal plasma-liquid interaction in imine macrocycle synthesis.*
Patrycja Roszkowska, Rintaro Takahata, Hitoshi Muneoka, Kazuo Terashima, Tsuyohito Ito
The University of Tokyo

(P1.6.2) *Enhanced Nitrogen Fixation Using a Plasma Spinning Disk Reactor*
Mohammad Yousran Fargab, Selma Mededovic Thagard
Clarkson University

(P1.6.3) *Aerosol assisted plasma deposition: is the process controlled by the misty plasma physics?*
Laurent Pontvianne, Pierre-Arnaud Goutal, Luis Valdovinos Aguilar , Richard Clergereaux, Luc Stafford, Marjorie Cavarroc, Myrtil Kahn
Laboratoire Plasma et Conversion d'Energie

(P1.6.4) *Investigation of key reaction pathways in air-plasma-induced chemistry with experimentally validated chemical kinetic model*
Shota Sasaki, Keisuke Takashima, Toshiro Kaneko
Tohoku University

(P1.6.5) *Investigation of the Initial Stage of Nanosecond Discharges in Water: Morphology and Emission Characteristics*
Petr Bílek, Jiří Fujera, Garima Arora, Petr Hoffer, Václav Prukner, Milan Šimek
Institute of Plasma Physics of the Czech Academy of Sciences

(P1.6.6) *Morphology of nanosecond discharge developing at the air-water interface*
Jiří Fujera, Garima Arora, Petr Hoffer, Václav Prukner, Milan Šimek
Institute of Plasma Physics of the Czech Academy of Sciences

(P1.6.7) *Plasma–activated water as a disinfectant agent for fresh–cut lettuce: the role of hydrogen peroxide and nitrite*
Juan Camilo Chamorro, Gabriela Denoya, Sergio Vaudagna, Leandro Prevosto
(1) Universidad Tecnológica Nacional, (2) CONICET, (3) Instituto Nacional de Tecnología Agropecuaria

(P1.6.8) *Investigation of return stroke in spark discharge in water using Gaussian processes*
Audren Dorval, Constance Latreille, Luc Stafford, Ahmad Hamdan
(1) Université de Montréal

(P1.6.9) *Time Resolved Plasma Characterization by Optical Emissions in a Nanosecond Pulsed Plasma Gas-Liquid Discharge using Burst Mode*
Radha Krishna Murthy Bulusu, Robert Wandell, Shurik Yatom, Bruce Locke
(1) Florida State University, FAMU-FSU College of Engineering (2) Princeton Plasma Physics Laboratory

(P1.6.10) *Probing plasma-liquid temperature with Raman spectroscopy*
Killian MacFeely, Christopher Rich, Collin Clay, Peter Bruggeman, Renee Frontiera
(1) University of Minnesota Twin Cities

(P1.6.11) *Plasma-induced oxidation in micro-droplets: Quantifying H2O2 and OH fluxes and transport limitations*
Dongxuan Xu, Tanubhav Srivastava, Peter Bruggeman
University of Minnesota

(P1.6.12) *Enhanced Degradation of Perfluorooctanoic Acid (PFOA) Using Sequential Plasma and UV/H_2O_2 Processes*
Xuefei Qiu, Thomas Holsen, Selma Thagard
(1) Clarkson University

(P1.6.13) *Plasma Activated Water Generation in Pin-to-Plate Gas Phase DBD-based Plasma Source for Enhanced Biochemical Activity*
Shikha Pandey, Ram Prakash
Department of Physics, Indian Institute of Technology Jodhpur, Jodhpur, Rajasthan 342030, India

(P1.6.14) *Investigation of mass transfer in plasma-based ozonation of organic micropollutants using phenol as a model compound.*
Paul Kaweesa, Michael Daramola, Samuel Iwarere
University of Pretoria

(P1.6.15) *In-situ aqueous PAA synthesis through plasma technology*
Prashant Prashant, Wilfred Hoeben, Tom Huiskamp, Guus Pemen
Eindhoven University of Technology

(P1.6.16) *The roles of neutral species and photons in plasma treatment of PFAS*
Chiagozie Chukwukwute, Maria J. Herrera Quesada, Logan Byrom, Katharina Stapelmann, Arthur Dogariu, Selma Mededovic
(1) Clarkson University, (2) North Carolina State University, (3) Texas A&M University

(P1.6.17) *Simulation of Chemical Reaction Kinetics, and Diffusive and Electrostatic Mass Transport in Plasma-Treated Water*
Matthew Wright, Tomoyuki Murakami, Timo Gans, Deborah O'Connell
(1) Dublin City University, (2) Seikei University

(P1.6.18) *Sustainable ammonia production via non-thermal plasma in liquid*
Yuchuan Wang, Nan Zhou, Jianfei Guo, Leilei Dai, Juer Liu, Kirk Cobb, Roger Ruan
University of Minnesota

Topic 8. Plasmas for semiconductor processing

(P1.8.1) *3d etching of silicon and glass by plasma sheath tailoring*
E. Jüngling, G. Gutierrez, M. Böke, Achim von Keudell
EPII, Ruhr University Bochum, Germany

(P1.8.2) *Oxygen radical density enhancement in radio-frequency plasmas via microwave-excited plasma gas activation*
Hyung-Gu Kang, Gunsu Yun
(1) Pohang University of Science and Technology

(P1.8.3) *Investigation of Ion control in Ar Plasma with Discharge Voltage Amplitude Modulation: COMSOL simulation*
Yosei Kurosaki, Yuma Yamamoto, Yushi Satou, Sukma Fitriani, Kunihiro Kamataki, Daisuke Yamashita, Takamasa Okumura, Naho Itagaki, Kazunori Koga, Masaharu Shiratani
Kyushu University

(P1.8.4) *Defect-Assisted Radical Adsorption in Plasma-driven Atomic Layer Etching of Silicon Dioxide*
Airah Osonio, Takayoshi Tsutsumi, Kenji Ishikawa, Masaru Hori
Nagoya University

(P1.8.5) *Impact of Native Oxide Removal Using Fluorine-Based Plasmas Before Silicon Atomic Layer Etching*
Haegeon Kim, Namgun Kim, Myngji Kim, Keun Hee Bai, Heeyeop Chae
Department of semiconductor and Display Engineering, Sungkyunkwan University (SKKU), Republic of Korea

Topic 9. Plasma deposition of functional coatings

(P1.9.1) *Highly hydrophobic and durable plasma coatings to replace PFAS*
Dirk Hegemann, Patrick Rupper, Martin Amberg
Empa

(P1.9.2) *Multi-Walled Carbon Nanotube Filter for Activating Effector T-cells*
Gemma Di Placido, Audrey Glory, Lynn Hein, Philip Wong, Sylvain Coulombe
McGill University

(P1.9.3) *Merging Plasma Sputtering Deposition and Acoustic Wave Activation for the Deposition of Materials*
Mateo Ruiz-Martín, Helen Reichel, Aurelio García-Valenzuela, Victor Rico-Gavira, Guillermo Regodon, Rafael Álvarez, Ana Borrás, Ana Gómez-Ramírez, Alberto Palmero, Agustín R. González-Elipe, Manuel Oliva-Ramírez
(1) Instituto de Ciencia de Materiales de Sevilla (2) Universidad de Sevilla

(P1.9.4) *Effect of nitrogen doping of DLC film on application as biomaterial*
Karine Coan, Cesar Antônio Junior, Elaine Oliveira, Luciana Rosisno
Fatec Sorocaba

(P1.9.5) *Plasma deposited organic coatings on MWCNT for dispersion in polyurethane*
Simon Blais, Saad Rabbani, Pierre-Luc Girard-Lauriault
(1) McGill University

(P1.9.6) *Optical emission analysis during Laser Joining using decomposition and recombination on hydrogenated amorphous carbon films*
Karyu Hase, Chihiro Nara, Yuko Aono, Yuki Hirata, Naoto Ohtake, Hiroki Akasaka
Science Tokyo

(P1.9.7) *Kinetics of trapped radicals formation and recombination in amine plasma polymers*
Beáta Beliančínová, Lucie Janů, Vinicius Tadeu Santana, David Nečas, Lenka Zajíčková
(1) Plasma Tech., CEITEC BUT, (2) Mag.-Opt. and THz Spec., CEITEC BUT, (3) Dept. Con. Mat. Phys., MUNI

(P1.9.8) *Cold atmospheric plasma assisted selective annealing of gold nanoparticles*
David Pace, Ishrat Jahan Biswas, Rishikesh Srinivasaraghavan Govindarajan, Hafsa Siddiqui, Shekhar Bhansali, Mubarak Mujawar
Embry-Riddle Aeronautical University

(P1.9.9) *Development of DLC dopped with B using trimethyl borate as precursor*
L.A Silva, L.S. Almeida, M.R. Danelon, E.C. Rangel, M.D. Manfrinato, F.D. Fernandes, Luciana Rossino
1Federal University of Sao Carlos (UFSCar), Rod. Joao Leme dos Santos, km 110, 18052-780, Sorocaba, SP, Brazil

(P1.9.10) *Mesoporous Rutile-Rich TiO2 Coatings Engineered by Plasma Electrolytic Oxidation for Enhanced Mechanical Performance*
Asif Ali, Maryam Nilkar, Anton Nikiforov, Rino Morent, Kim Verbeken, Nathalie De Geyter
(1) Dept. of Applied Physics, Ghent University (2) Dept. Materials, Textile and Chemical Engineering, Ghent University

(P1.9.11) *Operating domain for the formation of ZnO-DLC nanocomposite thin films in an aerosol assisted low pressure plasma.*
Z. Michon, G. Carnide, H. Klein, A. Girardeau, A. Paillet, M.L. Kahn, L. Stafford, R. Clergereaux
(1) Laplace-Universite

Topic 12. Plasma medicine and agriculture

(P1.12.1) *Non-Thermal Plasma as a Therapy Alternative for Oral Herpes Simplex Virus Type 1 Infection*
Julia Sutter, Jonathan Thomas, Donald Hall, Stephen Jennings, Katharina Stapelmann, Brian Wigdahl, Fred Krebs, Vandana Miller
Drexel University College of Medicine

(P1.12.2) *Low Temperature Atmospheric Pressure Plasma as an Adjunct for the Treatment of Chemotherapy-induced Oral Mucositis*
Aline da Graça Sampaio, Noala Vicensoto Moreira Milhan, Felllype do Nascimento, Konstantin Georgiev Kostov, Cristiane Yumi Koga-Ito
(1), (2) São Paulo State University

(P1.12.3) *Non-invasive physical plasma (NIPP) activates STING pathway in triple negative breast cancer and is associated with increased host immune response*
Guilin Wang, Marcel Arholdt, Martin Weiss
(1) University of Tübingen, (2) NMI Natural and Medical Science Institute

(P1.12.4) *Investigating the Roles of Chlorine and Peroxynitrite Chemistry in APPJ-enabled Bacteria Inactivation*
Jianan Wang, Mitchell Penningroth, Ryan Hunter, Peter Bruggeman
Minnesota University

(P1.12.5) *Evolution of ONOOH and O2NOOH in water treated with humid air plasma: detection, model and bactericidal effects*
Yuhang Du, Reed Jacobson, Mikael Elias, Peter Bruggeman
(1) Jiangnang University, (2) Minnesota University

Poster Session 2 (Tuesday)

Topic 1. Fundamentals of plasma-surface interactions

(P2.1.1) *Influence of molecular and turbulent diffusion on CO_2 conversion in thermal plasma reactors*

Helder Van Poyer, Ivan Tsonev, Stein Maerivoet, Matthias Albrechts, Annemie Bogaerts
PLASMANT

(P2.1.2) *Nitrogenation of linear and branched alkanes by ambient-pressure dielectric-barrier post-discharges: Where goes the nitrogen?*
Meret Leonie Betz, Vitaly Raev, Dina Schmitz, Stefan Schulz, Claus-Peter Klages
(1) TU Braunschweig, Institute for Surface Technology, (2) TU Braunschweig, Institute of Organic Chemistry

(P2.1.3) *Comparison Study of Sliding and Water Electrode Discharges for Organic Pollutant Degradation*
Zinat Ara Nisha, Mikel Douangdara, Olga Pakhomova, Chunqi Jiang
(1)Frank Reidy Research Centre for Bioelectric, (2)Electrical and Computer Engineering, Old Dominion University Norfolk

(P2.1.4) *Thermal Plasma Pyrolysis of Hydrocarbon Gas to Produce Hydrogen*
V. Messerle, A. Mosse, G. Paskalov, A. Ustimenko
(1) Plasma Microsystems LLC, Los Angeles, California, USA (2) Heat and Mass Transfer Institute., Minsk, 220072, Belarus.

(P2.1.5) *Effects of RF-driven ion energy distribution on atomic layer etching of Si-based materials*
Jomar Tercero, Satoshi Hamaguchi
Osaka University

(P2.1.6) *Comparisons of Post-Etch Diamond XPS Analysis with Simulations*
Justin Boles, Jack Draney, Vincent Donnelly, David Graves
(1) University of Houston (2) Princeton University

(P2.1.7) *Packed bed reactor for in situ study of the catalyst surface during plasma assisted catalysis*
Sophia Gershman, Vashanti Storr, Maria Carreon
(1) Princeton Plasma Physics Laboratory, (2) University of Ar

(P2.1.8) *Insight into plasma polymerization with a significant contribution of etching to the deposition process*
Martina Janůšová, David Nečas, Paula Navascués, Dirk Hegemann, Stevan Gavranović, Lenka Zajíčková
(1) CEITEC, (2) EMPA, (3) Brno University of Technology, (4) Masaryk University

Topic 2. Fundamentals and applications of thermal plasma

(P2.2.1) *Modelling of micro-discharges in metal vapor of zinc for applications in explosion protection*
Aleksandar Jovanović, Margarita Baeva, Ralf Methling, Dominik Bratek, Niklas Schüler, Carsten Uber, Dirk Uhrlandt
(1) INP Greifswald (2) PTB Braunschweig

(P2.2.2) *Transport Properties of Water-Air Mixture System*
Makoto Sugimoto, Yosuke Kishimoto, Honatsu Sorai, Manabu Tanaka, Takayuki Watanabe, Masaya Shigeta
Tohoku University

(P2.2.3) *Numerical Study of Plasma Torch Performance Using LTE-Assumption*
Byeongryun Jeon, Hansol Kwon, Yeon Woo Yoo, Do Hyun Kim, Youngjin Park, Yong-jin Kang, Sunghun Lee, June Kee Min, Hunkwan Park
Korea Institute of Materials Science

(P2.2.4) *Development of a pilot scale thermal plasma reactor for research on in-situ plasma dynamics and thermal distribution*
Roar Jensen, Robert Fritzsch, Trygve Aarnæs, Anders H. Hansen, Håkon Sagberg, Halvor Dalaker
Plasma dynamics, thermal plasma torch, testing reactor, industrial scale

(P2.2.5) *Synthesis of Graphene Nanoflakes by Methane Pyrolysis in Thermal Plasma*
Gwangbeom Yang, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi
(1) Jeju National University, (2) Jeju National University, (3) Jeju National University, (4) Enclion Inc.

(P2.2.6) *Visualization of Thermal Plasma Jet Induced Turbulence Using Spatial-Frequency-Resolved Schlieren Sensor*
Yuito Yamada, Yuki Inada, Makoto Sugimoto, Joe Yoshikawa, Manabu Tanaka, Masaya Shigeta
(1) Tohoku University, (2) Saitama University, (3) Industrial Technology Institute, Miyagi Prefectural Government, (4) Kyushu University

(P2.2.7) *Synthesis of Iron Nitride Nanoparticles using DC Thermal Plasma*
Seong-Pyo Kang, Han Jun Lee, Tae-Hee Kim, Se Jin Oh
Wonkwang University

(P2.2.8) *Influence of Metal Catalysts on Synthesis of Low-Diameter Single-Walled Carbon Nanotubes by DC Thermal Plasma Process*
Seong-Pyo Kang, Han Jun Lee, Se Jin Oh, Tae-Hee Kim
Wonkwang Unversity

(P2.2.9) *Boron Nitride Nanotubes Using Ammonia by Triple Thermal Plasma*
Seunghyeon Kim, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi
(1) Jeju National University, (2) Jeju National University, (3) Jeju National University, (4) Enclion Inc.

(P2.2.10) *Computational Investigation of MCrAlY Coatings Under Different Gas Mixtures in Vacuum Plasma Spray*
Hunkwan Park, Yong-jin Kang, Do Hyun Kim, Hansol Kwon, Youngjin Park, Yeon Woo Yoo, Eungsun Byon
Korea Institute of Materials Science

Topic 3. Fundamentals of non-equilibrium plasma

(P2.3.1) *Characteristics of PT-Driven Plasma Discharge at Atmospheric Pressure*
Prangan Nandy, Md Fahim, Sourav Banerjee, Tanvir Farouk
University of South Carolina

(P2.3.2) *Instability and Striations in Water Vapor discharge*
John Hill, Tanvir Farouk, Rori Pumphrey
(1) University of South Carolina

(P2.3.3) *Interactions of guided ionization waves*
Swati Dahiya, Kevin Youngman, Brian Z Bentz
Sandia National Laboratories

(P2.3.4) *Time-resolved optical emission spectroscopy of an inductively coupled Ar-Cl_2 plasma at low-pressure for Atomic Layer Etching*
Raphaël Robert, Simon Chouteau, Luc Stafford
(1) Université de Montréal

(P2.3.5) *Atmospheric Pressure Non-Thermal Plasma: Comparing Silane and Methane*
Cameron Papson, Sankhadeep Basu, Rebecca Anthony
Michigan State University (MSU)

(P2.3.6) *New Evaluation Method of Charge of a Microparticle in Ar Plasma Using Optical Tweezers*
Takuro Sugita, Kousei Iguchi, Kunihiro Kamataki, Daisuke Yamashita, Takamasa Okumura, Naho Itagaki, Kazunori Koga, Masaharu Shiratani
Kyshu University

Topic 5. Plasma modeling

(P2.5.1) *Insight into energy transfer and NOx synthesis in the afterglow by chemical multi-temperature plasma modelling*
Qinghao Shen, Aleksandr Pikalev, Floran Peeters, Vasco Guerra, Richard van de Sanden
(1) DIFFER, (2) Maastricht University, (3) Universidade de Lisboa, (4) Leyden Jar Company, (5) Eindhoven University of Technology

(P2.5.2) *CFD modelling of a non-LTE helium discharge using reacting flow and ionic wind approaches*
Avinash Maharaj, Samuel Iwarere
(1) UKZN, (2) UP

(P2.5.3) *Transport Properties of an MnO/H_2 Based Thermal Plasma*
Sverre G. Johnsen, Quinn G. Reynolds, Stefan Andersson
(1) SINTEF, (2) Mintek

(P2.5.4) *Numerical simulation of chemical reactions induced by ionization waves propagation from an atmospheric pressure plasma jet*
Shota Okada, Tomoyuki Murakami
Seikei University

(P2.5.5) *Prediction of Reaction Rates with Machine Learning in a CCP*
Cameron Wagoner, Amanda Lietz
(1) NC State University

(P2.5.6) *Analysis of local ion tilting in a capacitively coupled pulsed plasma using a two-dimensional particle-in-cell simulation*
Ji Hyun Shin, Cheol Woong Kim, Dong Young Kim, Hae June Lee
Pusan National University

(P2.5.7) *Investigation of the Effects of Charging and Secondary Electron Emission on High Aspect Ratio ONO Plasma Etching*
Chenyao Huang, Steven Shannon, Mark Kushner
(1) University of Michigan (2) North Carolina State University (3) University of Michigan

Topic 10. Plasma-based gas conversion and chemical synthesis

(P2.10.1) *Carbon beds in CO_2 conversion by plasma: Reaction enhancement via the reverse Boudouard reaction*
Yury Gorbanev, Colin O'Modhrain, Omar Biondo, Hugo Vallet, Annemie Bogaerts
University of Antwerp

(P2.10.2) *Coupling a CO_2 plasma with a carbon bed: the closer the better*
Omar Biondo, Kaiyi Wang, Hao Zhang, Annemie Bogaerts
University of Antwerp

(P2.10.3) *NO and H_2 production from water and nitrogen using arc plasma for synthesizing ammonia*
Heesoo Lee, Hong Jae Kang, Dae Hoon Lee
Korea Institute of Machinery and Materials

(P2.10.4) *The chemistry of plasma-assisted dry reforming of methane*
N Hansen, E Litzer, L Sheps, H Chen, B Yang
(1) Sandia National Laboratories, (2) Tsinghua University

(P2.10.5) *Hybrid fs/ps CARS measurements of enhanced vibrational excitation of N2 in ferroelectric barrier discharge*
Yijie Xu, Ziqiao Chang, Tanubhav Srivastava, Yiguang Ju
(1)Princeton University, (2)Princeton Plasma Physics Laboratory

(P2.10.6) *Non-equilibrium vibrational kinetics and energy transfer in plasma-enhanced methane reforming*
Geon Hwi Kim, Ziqiao Chang, Bowen Mei, Zhiyu Shi, Tanubhav Srivastava, Mohammad Adil, Yiguang Ju
(1) Princeton University (2) Princeton Plasma Physics Laboratory

(P2.10.7) *Dehydrogenative Condensation via Plasma: Impacts on Sugar Alcohol Crystals*
Ryosuke Watanabe, Yosikazu Hattori, Yuya Haraguchi, Hiroyuki Kumeta, Gen Hayase, Aruga Hiroko Katori, Takahiro Muraoka, Shinichi Sato, Tomohide Saio, Daisuke Yoshino
(1) TUAT, (2) Tokushima University, (3) Hokkaido University, (4) NIMS, (5) Tohoku University

(P2.10.8) *Catalytic Plasma Co-Upcycling of Waste Plastics and CO2 with HZSM-5*
Sultan Ul Iffat Uday, Harish Radhakrishnan, Hui Hu, Xianglan Bai
(1) Iowa State University

(P2.10.9) *Thermo-Fluid Effects in Microwave Plasma Pyrolysis of Methane*
Spad Acharya, Siebe Dijcks, Aditya Bhan, Peter Bruggeman, Juan Pablo Trelles
(1) University of Massachusetts Lowell, (2) University of Minnesota

(P2.10.10) *Plasma Induced Biomass tar reformation: Thermodynamic Modelling and Experimental Validation.*
Mobish Shaji, Francis Eboh, Alexander Rabinovich, Liran Dor, Alexander Fridman
(1) Drexel University, (2) Bosson Energy

(P2.10.11) *Cyclic plasma-catalytic system applied for VOC removal with repetitive deactivation and regeneration of catalysts*
Richard Cimerman, Jana Kšanová, Christian Oberste-Beulmann, Oleksandr Galmiz, Peter Švec, Karol Hensel
(1) Comenius University, (2) Ruhr Univerity Bochum, (3) Slovak Academy of Sciences

(P2.10.12) *Partial Methane Oxidation to Methanol at Plasma-Catalyst-Liquid Interfaces*
James Ho, Matthew Hershey, Wesley Beck, Dayne Swearer
Northwestern University

(P2.10.13) *H_2 temperature measurements in a CH_4 microwave plasma for the production of higher hydrocarbons*
Niek den Harder, M.L. Moreira de Azevedo, T.W.H Righart, M.D. Ruijzendaal, Gerard van Rooij
Department of Circular Chemical Engineering, Faculty of Science and Engineering, Maastricht University, Maastricht, The Netherlands

(P2.10.14) *Catalytic Deconstruction Product Tunability Through Atmospheric Air Plasma Pre-Treatment*
Aunic Goodin, Sujoy Bepari, Shashwata Chakraborty, Tridip Das, William Goddard III, Debasish Kuila, Steven Shannon
(1)North Carolina State University (2) North Carolina Agricultural and Technical State University (3) California Institute of Technology,

(P2.10.15) *Catalyst-free oxalate production in water from CO2 discharge: Modelling perspectives*
Tianqi Zhang, Josip Knezevic, Menying Zhou, Jungmi Hong, Jarrod Algie, Renwu Zhou, Qiang Song, Luyao Ding, Jing Sun, Dingxin Liu, Rusen Zhou, Patrick J. Cullen, Anthony B. Murphy
(1)University of Sydney, (2) Xi'an Jiaotong University and (3) CSIRO

Topic 13. Plasmas for environmental applications

(P2.13.1) *State of Knowledge on Cold Plasma Technology for PFAS Degradation*
Leila Alidokht, Yue Sun, Mariana Lanzarini Lopes
University of Massachusetts Amherst

(P2.13.2) *Numerical investigation of NO reduction in an RF He plasma at atmospheric pressure in a confined geometry*
Tao Zhu, Margarita Baeva, Florian Sigeneger, Shubham Dongarwar, Peter Bruggeman
(1) INP Greifswald, (2) Minnesota University

(P2.13.3) *Mobile plasma unit for toxic organic waste destruction*
G. Paskalov, A. Mosse
(1) Plasma Microsystems LLC, Los Angeles, California, USA (2) Heat and Mass Transfer Institute., Minsk, 220072, Belarus.

Poster Session 3 (Thursday)

Topic 7. Plasma materials synthesis

(P3.7.1) *Morphologically Selective Low-Temperature Aqueous Synthesis of β-Ga_2O_3 Nanostructures in Pulsed Discharge Plasma Bubbles*
James Ho, Sikder Ayon, Shoshanna Peifer, Matthew Hershey, Xiaobing Hu, Dayne Swearer
Northwestern University

(P3.7.2) *Engineering Aluminum-Silica Core-Shell Nanoparticles via Nonthermal Plasma: Synthesis and Characterization*
Thomas Cameron, Bailey Klause, Uwe Kortshagen
UMN

(P3.7.3) *Structure and composition-tunable Au-Ag bimetallic nanoparticle synthesis from plasma-driven solution electrochemistry*
Jae Hyun Nam, Peter J. Bruggeman
University of Minnesota

(P3.7.4) *Synthesis of Si/C Nanocomposites Using Triple Thermal Plasma Process*
Su-Bin Yang, Seunghyeon Kim, Gwangbeom Yang, Hye Young Ko, Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi
(1) Jeju National University, (2) Jeju National University, (3) Jeju National University, (4) ENCLION Inc.

(P3.7.5) *Rapid solid compound reduction by an atmospheric pressure hydrogen microwave plasma toward carbon-free production*
Zichang Xiong, Uwe Kortshagen
Minnesota University

(P3.7.6) *Inflight Synthesis and Functionalization of Silicon Nanocrystals*
Masoumeh Amirifard, Uwe Kortshagen
(1) Minnesota University

(P3.7.7) *Shattering the Bulk: From Polystyrene Target to Nanoparticles via a Magnetron-based Gas Aggregation Cluster Source*
Jasna-Tinea Jelinek, Mehrnoush Narimisa, Zdeněk Krtouš, Ondřej Kylián, Rino Morent, Nathalie De Geyter
(1) Ghent University, (2) Charles University

(P3.7.8) *Plasma, heating and kinetics in diamond CVD*
Levi Cox, David Sims, Rebecca Anthony, Sergey Baryshev, Matthias Muehle
(1) Michigan State University, (2) Fraunhofer USA

(P3.7.9) *In-flight iron ore reduction in atmospheric microwave hydrogen plasma*
Mohammad Kazemi, Sachin Kumar, Julian Held, Uwe Kortshagen
UMN

(P3.7.10) *Liquid Phase Plasma-assisted Cobalt Oxide Nanoparticles Synthesis*
Ahmad Mukhtar, Sidra Saqib, Ekow Agyekum-Oduro, Md Mokter Hossain, Alia Nasir, Benjamin Miller, Sarah Wu
UOI

(P3.7.11) *Atomistic Simulation of Metal Catalyst Nanoparticle Melting in Plasma-Enhanced Synthesis of Carbon Nanotubes*
Louis Hoffenberg, Alexander Khrabry, Igor Kaganovich, David Graves
(1) Princeton University, (2) Princeton Plasma Physics Laboratory

(P3.7.12) *Controlled Synthesis of High-Entropy Alloy Nanoparticles by an Inductively Coupled Plasma Jet (ICPJ) with a Supersonic Nozzle*
Ziqi Tang, Martin Couillard, Olga Naboka, Dean Ruth, Mark Plunkett, Michel Nganbe, Keun Su Kim
(1) University of Ottawa, (2)National Research Council Canada

(P3.7.13) *Nanocomposite materials synthesized with an axial DBD plasma jet source with lateral injection*
Bogdana Mitu, Catalin Constantin, Cristian Stancu, Veronica Satulu, Mihai Zamfir, Gheorghe Dinescu
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