



XXXIV ICPIG & ICRP-10

**XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG)**

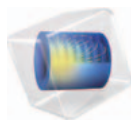
**10th International Conference on
Reactive Plasmas (ICRP-10)**

37th Symposium on Plasma Processing (SPP37) 32nd Symposium on Plasma Science for Materials (SPSM32)

July 14th Sun. — 19th Fri., 2019

**Sapporo Education and Culture Hall,
Sapporo, Hokkaido, Japan**





マルチフィジックスの進化論

無制限・強連成で実現象に即したシミュレーション事例のご紹介

プラズマモジュールの事例：Plasma Enhanced CVD

COMSOL CONFERENCE
2019 TOKYO2019年12月6日(金)：秋葉原UDXギャラリー/ネクスト
<https://kesco.co.jp/conference/>

プラズマモジュールの適用例

- 容量結合プラズマ (CCP)
- CVDとPECVD
- 直流放電
- 誘電体バリア放電
- ECR源
- エッチング
- 有毒ガス破壊
- 誘導結合プラズマ (ICP)*
- イオン源
- 材料プロセス
- マイクロ波プラズマ**
- オゾン発生
- プラズマ化学
- プラズマ・ディスプレイ・パネル (PDP)
- プラズマ源
- 電力システム
- 半導体プロセス
- スラスタ

Plasma Enhanced CVD

この例では、アルゴン・シラン混合ガス (SiH_4 5%) を使用してウエハ上のシリコンの付着をシミュレートしています。プラズマ化学は19のバルク反応と8の表面反応、そして11のバルク種と3の表面種から構成されます。プラズマは SiH_4 -イオンの存在のため強く電気負性を帯びています。

*プラズマモジュールは COMSOL Multiphysics と併用するアドオン製品です。

*印の適用は AC/DCモジュールとの併用が必要です。

**印の適用は RFモジュールとの併用が必要です。

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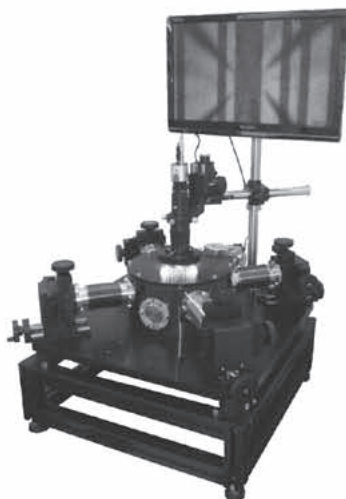
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Reactive Plasmas (ICRP-10)**

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July 14th Sun. — 19th Fri., 2019
Sapporo Education and Culture Hall,
Sapporo, Hokkaido, Japan

ICPIG & ICRP-10 Program

Sunday July 14		Monday July 15				
8:30		A: Hall-L (1100 seats)	B: Hall-S (360 seats)	C: Hall-K (156 seats)	D: Room 403 (84 seats)	E: Room 301, 302, 305
09:00		Registration 8:30-19:00				
09:15		Opening Ceremony ICRP Reactive Plasma Award Ceremony & Lecture by Prof. Alexander Fridman Chair: Prof. Masaharu Shiratani				
09:30						
09:45						
10:00		Coffee Break				
10:15						
10:30		Chair: Prof. Nikolay Britun	Chair: Dr. Edward Barnat	Chair: Prof. Osamu Sakai	Chair: Dr. Zoltan Donko	
10:45		Topical Invited lecture TL-01 by Prof. Marcel Fiebrandt	Topical Invited lecture TL-02 by Dr. Benjamin Goldberg	Topical Invited lecture TL-03 by Prof. Mario Janda	Topical Invited lecture TL-04 by Dr. Mi-Young Song	
11:00		Topical Invited lecture TL-05 by Prof. Grzegorz Greczynski	Topical Invited lecture TL-06 by Prof. Gabi-Daniel Stancu	Topical Invited lecture TL-07 by Prof. Vasco Guerra	Topical Invited lecture TL-08 by Dr. Bangdou Huang	
11:15		OR15AM-A01 Takayuki Ohta	OR15AM-B01 Bart Platier	OR15AM-C01 Gerard J van Rooij	OR15AM-D01 Aranka Derzi	
11:30		OR15AM-A02 Nicolas Mauchamp	OR15AM-B02 Felix Georg	OR15AM-C02 Masahiro Yamazaki	OR15AM-D02 Maria Tudorovskaya	
11:45		Lunch				
12:00						
12:15						
12:30		Break				
12:45						
13:00	Registration 13:00-19:00					
13:15		Poster session 1 PO15PM				
13:30						
13:45						
14:00		Break				
14:15						
14:30						
14:45	Satellite Workshops 1-4	Chair: Dr. Shota Nunomura	Chair: Prof. Nader Sadeghi	Chair: Prof. Svetlana Starikovskaia	Chair: Prof. Tetsu Mieno	
15:00		Topical Invited lecture TL-09 by Prof. Kazunori Koga	Topical Invited lecture TL-10 by Prof. Laurence Cherigier Kovacic	Topical Invited lecture TL-11 by Prof. Sergey Leonov	Topical Invited lecture TL-12 by Prof. Katsuyoshi Tsumori	
15:15		Topical Invited lecture TL-13 by Prof. Lenka Zajickova	Topical Invited lecture TL-14 by Prof. Hiroshi Akatsuka	Topical Invited lecture TL-15 by Prof. James Dedrick	Topical Invited lecture TL-16 by Prof. Yuan-Hong Song	
15:30		OR15PM-A01 Satoru Shiina	OR15PM-B01 Ji-Won Kwon	OR15PM-C01 Toshiyuki Kawasaki	OR15PM-D01 Surabhi Jaiswal	
15:45		OR15PM-A02 Kunihiro Kamataki	OR15PM-B02 Yoshinobu Matsuda	OR15PM-C02 She Chen	OR15PM-D02 Mikhail Pustynnik	
16:00		Chair: Prof. Francoise Massines	Chair: Prof. Ryo Ono	Chair: Prof. Yasunori Tanaka	Chair: Prof. Yuan-Hong Song	
16:15		Topical Invited lecture TL-17 by Prof. Tsuyohito Ito	Topical Invited lecture TL-18 by Mr. Viktor Schneider	Topical Invited lecture TL-19 by Prof. Dirk Uhrlandt	Topical Invited lecture TL-20 by Prof. Alexander Fedoseev	
16:30		OR15PM-A03 Lutfi Oksuz	OR15PM-B03 Masaharu Shiratani	OR15PM-C03 Yusuke Kikuchi	OR15PM-D03 Atsushi Ozaki	
16:45		OR15PM-A04 Po-Hsien Chiu	OR15PM-B04 Mathis Klette	OR15PM-C04 Naoto Kodama	OR15PM-D04 Abdulrahman H. Basher	
17:00		OR15PM-A05 Hiroki Kondo	OR15PM-B05 Stephan Reuter	OR15PM-C05 Wenjing Chen	OR15PM-D05 Tetsu Mieno	
17:15		OR15PM-A06 Andrey G Ushakov	OR15PM-B06 Frederick N Skiff	OR15PM-C06 Manabu Tanaka	OR15PM-D06 Efe H Kemaneci	
17:30		Welcome reception				
17:45						
18:00						
18:15		Welcome reception				
18:30						
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19:00		Welcome reception				
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19:45		Welcome reception				
20:00						
20:15						
20:30		Welcome reception				
20:45						
21:00						

Tuesday July 16				
8:30	A: Hall-L (1100 seats)	B: Hall-S (360 seats)	C: Hall-K (156 seats)	D: Room 403 (84 seats)
	E: Room 301, 302, 305			
09:00	Registration 8:30-19:00			
09:15	General Invited Lecture GL-01 by Prof. Stefan Matejcek Chair: Prof. Izumi Murakami IUPAP Young Scientist Award for the Commission on Plasma Physics: Ceremony & Awardee Presentation by Dr. Istvan Czigler Chair: Prof. M.Q.Tran			
09:30				
09:45				
10:00				
10:15				
10:30				
10:45	Coffee Break			
11:00	Chair: Dr. Milan Simcik	Chair: Dr. Keisuke Takashima	Chair: Prof. Ronny Brandenburg	Chair: Prof. Mario Janda
11:15	Topical Invited lecture TL-21 by Prof. Miran Mozevitz	Topical Invited lecture TL-22 by Dr. Nikola Skoro	Topical Invited lecture TL-23 by Prof. Sander Nijdam	Topical Invited lecture TL-24 by Prof. Tomoyuki Murakami
11:30	Topical Invited lecture TL-25 by Dr. Edward Barnat	Topical Invited lecture TL-26 by Prof. Vida Mildaziene	Topical Invited lecture TL-27 by Prof. Anne Bourdon	Topical Invited lecture TL-28 by Prof. J.S.Wu
11:45				
12:00	OR16AM-A01 Nader Sadeghi	OR16AM-B01 Yue Hu	OR16AM-C01 Luka Hansen	OR16AM-D01 Matthew S. Bieniek
12:15	OR16AM-A02 Emile Carbone	OR16AM-B02 Ahmad Shahir bin Ahmad Nor	OR16AM-C02 Yuliia Onyschenko	OR16AM-D02 Shota Abe
12:30				
12:45				
13:00				
13:15	Lunch			
13:30				
13:45				
14:00				
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14:30				
14:45				
15:00				
15:15				
15:30				
15:45				
16:00	Break			
16:15	Chair: Dr. Hiroki Kondo	Chair Dr. Nikola Skoro	Chair: Prof. John Foster	Chair: Dr. Peter Ventzek
16:30	Topical Invited lecture TL-29 by Prof. Nikolay Britun	Topical Invited lecture TL-30 by Prof. Katharina Stapelmann	Topical Invited lecture TL-31 by Prof. David Go	Topical Invited lecture TL-32 by Dr. Zoltan Donko
16:45	OR16PM-A01 Christian Lorenz S. Mahony	OR16PM-B01 Naoyuki Iwata	OR16PM-C01 Naoki Shirai	OR16PM-D01 Luca Vialetto
17:00	OR16PM-A02 Erik V Johnson	OR16PM-B02 Daye Sun	OR16PM-C02 Eric Robert	OR16PM-D02 Pedro Viegas
17:15	OR16PM-A03 Remi Dussart	OR16PM-B03 Antoine Rousseau	OR16PM-C03 Wencheng Luo	OR16PM-D03 Tiberiu Minea
17:30	OR16PM-A04 Erin Joy Capdos Tinacha	OR16PM-B04 Shogo Matsumura	OR16PM-C04 Cathy Rond	OR16PM-D04 Lijun Wang
17:45				
18:00	Coffee Break			
18:15	Arranged session 2 Chair: Dr. Kazuaki Kurihara	Arranged session 1 Chair: Prof. Ute Ebert		
18:30	Invited Talk (AS2-11) by Dr. Keizo Kinoshita	Invited Talk (AS1-11) by Prof. Pierre Tardiveau		
18:45	Invited Talk (AS2-12) by Prof. Satoshi Hamaguchi	Invited Talk (AS1-12) by Prof. Victor Tarasenko		
19:00	Invited Talk (AS2-13) by Dr. Takeshi Ohmori	Invited Talk (AS1-13) by Prof. Jannis Teunissen		
19:15	Invited Talk (AS2-14) by Dr. Mingmei Wang	Invited Talk (AS1-14) by Dr. Milan Simcik		
20:00				
20:15				
20:30				
20:45				
21:00				

Wednesday July 17				
8:30	A: Hall-L (1100 seats)	B: Hall-S (360 seats)	C: Hall-K (156 seats)	D: Room 403 (84 seats)
	E: Room 301, 302, 305			
09:00	Registration 8:30-13:00			
09:15	General Invited Lecture GL-02 by Prof. Luis Alves Chair: Prof. Ute Ebert General Invited Lecture GL-03 by Prof. Francoise Massines Chair: Prof. Alexander Fridman			
09:30				
09:45				
10:00				
10:15				
10:30	Coffee Break			
10:45				
11:00	Chair: Prof. Kazumori Koga	Chair Prof. Giichiro Uchida	Chair: Prof. Miran Mozetic	Chair: Prof. David Go Mozetic
11:15	Topical Invited lecture TL-33 by Prof. Osamu Sakai	Topical Invited lecture TL-34 by Prof. Jun-Seok Oh	Topical Invited lecture TL-35 by Dr. Kinga Kutasi	Topical Invited lecture TL-36 by Prof. John Foster
11:30	OR17AM-A01 Ahmad Nazri Dagang	OR17AM-B01 Tae Hun Chung	OR17AM-C01 Jon Tomas Gudmundsson	OR17AM-D01 Takuma Kaneko
11:45	OR17AM-A02 Wei-Hung Chiang	OR17AM-B02 Ryusei Sakai	OR17AM-C02 Uwe Reinhard Czarnetzki	OR17AM-D02 Arlette Vega Gonzalez
12:00	OR17AM-A03 Eugen Stamate	OR17AM-B03 Keisuke Takashima	OR17AM-C03 Anshu Verma	OR17AM-D03 Vladimir I. Kolobov
12:15	OR17AM-A04 Shota Nunomura	OR17AM-B04 Thomas Danny Michl	OR17AM-C04 Haruhisa Nakano	OR17AM-D04 Katsuyuki Takahashi
12:30	Lunch			
12:45				
13:00				
13:15				
13:30	Excursion			
13:45				
14:00				
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21:00				

Thursday July 18					
8:30	A: Hall-L (1100 seats)	B: Hall-S (360 seats)	C: Hall-K (156 seats)	D: Room 403 (84 seats)	E: Room 301, 302, 305
09:00	Registration 8:30-18:00				
09:15	General Invited Lecture GL-04 by Prof. Jan Benedikt Chair: Prof. Jun-Seok Oh General Invited Lecture GL-05 by Prof. Richard van de Sanden Chair: Prof. Tomohiro Nozaki				
09:30					
09:45					
10:00					
10:15					
10:30	Break				Poster session 3 PO18AM
10:45					
11:00					
11:15					
11:30					
11:45					
12:00					
12:15	Lunch				
12:30					
12:45					
13:00					
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14:45					
15:00					
15:15	Poster session 4 PO18PM				
15:30					
15:45					
16:00					
16:15					
16:30					
16:45	Chair: Prof. Hirotaka Toyoda Topical Invited lecture TL-37 by Prof. Olivier Guatiella	Chair Prof. Igal Kronhaus Topical Invited lecture TL-38 by Prof. Giichiro Uchida	Chair: Prof. Anne Bourdon Topical Invited lecture TL-39 by Prof. Svetlana Starikovskaya	Chair: Dr. Natalia Babaeva Topical Invited lecture TL-40 by Prof. Maria Luis Castela	
17:00	Topical Invited lecture TL-41 by Prof. Emilie Despiau-Pujo	Topical Invited lecture TL-42 by Prof. Sung Ha Hong	Topical Invited lecture TL-43 by Prof. Ronny Brandenburg	Topical Invited lecture TL-44 by Prof. Zdenek Bonaventura	
17:15	OR18PM-A01 Gilles CARTRY	OR18PM-B01 Jaroslav Kristof	OR18PM-C01 Andrew S Fierro	OR18PM-D01 Shahiar Mirpour	
17:30	OR18PM-A02 James Timothy Ellis	OR18PM-B02 Hiromasa Tanaka	OR18PM-C02 Wei Yang	OR18PM-D02 Victor P. Pasko	
17:45	OR18PM-A03 Dogyun Hwangbo	OR18PM-B03 Ying Zheng	OR18PM-C03 Hyun-Ha Kim	OR18PM-D03 Ciprian Dumitrache	
18:00					
18:15	Transfer to Conference Dinner				
18:30					
18:45					
19:00					
19:15					
19:30					
19:45					
20:00	Conference Dinner				
20:15					
20:30					
20:45					
21:00					

Friday July 19			
A: Hall-L (1100 seats)	B: Hall-S (360 seats)	C: Hall-K (156 seats)	E: Room 301, 302, 305
8:30	Registration 8:30-11:00		
09:00	Chair: Prof. Toshiyuki Kawasaki	Chair: Prof. Hiroshi Akutsuka	Chair: Prof. Sander Nijdam
09:15	Topical Invited lecture TL-45 by Dr. Giorgio Senesi	Topical Invited lecture TL-46 by Prof. Igal Kronhaus	Topical Invited lecture TL-47 by Prof. Nickolay Aleksandrov
09:30	OR19AM-A01 Savita K P Veerapandian	OR19AM-B01 Erik Wagenaars	OR19AM-C01 Yuki Kunishima
09:45	OR19AM-A02 Seigo Kameshima	OR19AM-B02 Yae Kuo	OR19AM-C02 K. Korytchenko
10:00	Break		
10:15	General Invited Lecture GL-06 by Dr.Hisataka Hayashi Chair: Dr. Tetsuya Tatsumi ICPIG2019/ICRP2019 Oral/Poster & ICRP Paper Awards Ceremony ICPIG von Engel & Franklin Prize Ceremony & Lecture by Prof. Mark J. Kushner Chair: Prof. Holger Kersten Closure		
10:30			
10:45			
11:00			
11:15			
11:30			
11:45			
12:00			
12:15			
12:30			
12:45			

Saturday July 20
Satellite Workshop 5 will be held on Saturday at the Campus of Hokkaido University.

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Foreword

The Joint Conference of XXXIV International Conference on Phenomena in Ionized Gases (XXXIV ICPIG) and the 10th International Conference on Reactive Plasmas (ICRP-10) will be held in Sapporo, Japan, July 14–19, 2019. Since 1953, ICPIG has been a renowned biennial international conference covering nearly all fields in plasma science, from fundamentals to applications. The last five ICPIG editions were held in Cancun (Mexico, 2009), Belfast (UK, 2011), Granada (Spain, 2013), Iasi (Romania, 2015), and Estoril (Portugal, 2017). The XXXIV edition of ICPIG will be a joint conference with ICRP, organized with the scope covering the fundamentals and applications of reactive plasmas. The joint conference will be a precious opportunity to cover both modelling and experimental, from the fundamentals of plasma elementary processes, basic data and diagnostic of discharge physics to applications by plasma treatment of surfaces and particles, high pressure and thermal plasma processing, radiation sources, plasma medicine, atmospheric and stellar plasmas, environmental protection and pollution control, plasma aerodynamics, and non-thermal plasmas in fusion devices.

The XXXIV ICPIG & ICRP-10 conference is attended more than 500 scientists from 28 countries. 9 general & plenary lectures, 48 invited talks, and 92 oral talks are presented. The 377 contributed papers are presented in 4 poster sessions. Beside this, five satellite workshops are held on July 14 and 20. The abstracts of all oral and poster contributions are published in the proceedings of the conference. Some of the papers will be published in the special issue of Plasma Sources Science and Technology (PSST) or the special issue of Japanese Journal of Applied Physics (JJAP), both published by IOP Publishing.

We would like to thank the committee members of XXXIV ICPIG & ICRP-10, especially the members of the Local Organizing Committee for their indispensable contributions for the success of this conference. Thanks are also due to the sponsors of the conference, particularly IUPAP and JSAP.

Prof. Holger Kersten
XXXIV ICPIG ISC Chair

Prof. Masaharu Shiratani
Prof. Fumiyoshi Tochikubo
ICRP-10 Organizing Chairs

Prof. Koichi Sasaki
XXXIV ICPIG & ICRP-10 LOC Chair

Committees

ICPIG International Scientific Committee

Holger Kersten, President of ISC (chair)	Kiel University, Germany
Igor Adamovich	Ohio State University, USA
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Costel Biloiu	Applied Materials, Inc., USA
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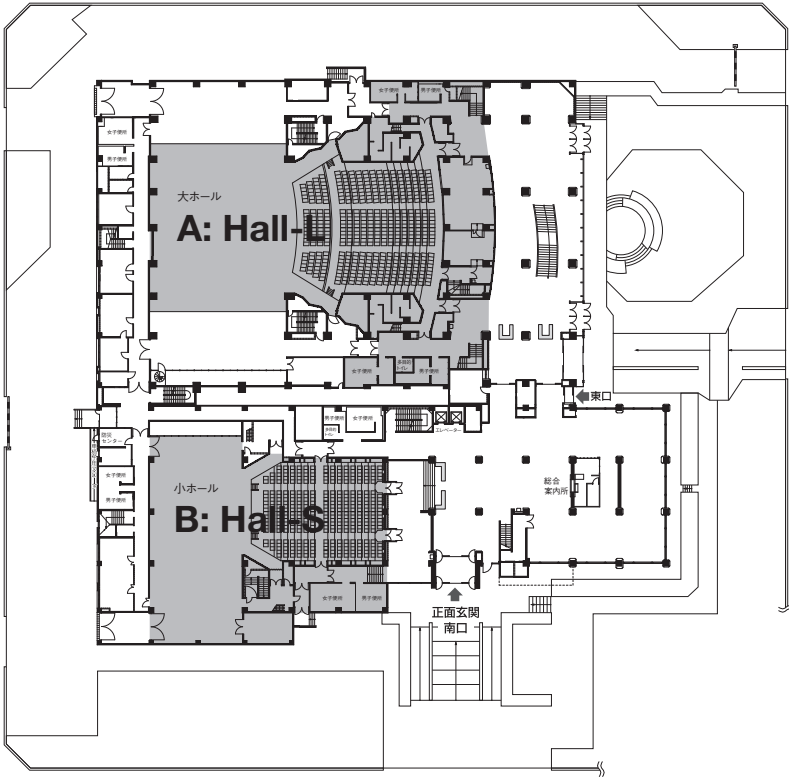
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Yi-Kang Pu	Tsinghua University, China
Antoine Rousseau	Ecole Polytechnique, France
Osamu Sakai	Shiga Prefecture University, Japan
Koichi Sasaki	Hokkaido University, Japan
Eugen Stamate	Technical University of Denmark, Denmark
Yasunori Tanaka	Kanazawa University, Japan
Ron White	James Cook University, Australia
Jong-Shinn Wu	National Chiao Tung University, Taiwan

XXXIV ICPIG & ICRP-10 Local Organizing Committee

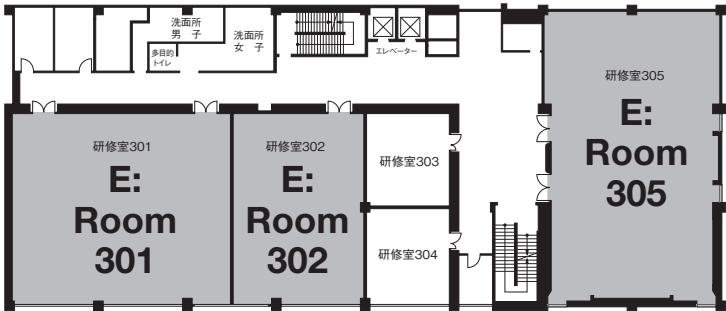
Koichi Sasaki, Chair	Hokkaido University, Japan
Tsuyohito Ito	The University of Tokyo, Japan
Toshiaki Kato	Tohoku University, Japan
Hiroki Kondo	Nagoya University, Japan
Shusuke Nishiyama	Hokkaido University, Japan
Ryo Ono	The University of Tokyo, Japan
Kohki Satoh	Muroran Institute of Technology, Japan
Toshihiro Shimada	Hokkaido University, Japan
Naoki Shirai	Hokkaido University, Japan
Hirotake Sugawara	Hokkaido University, Japan
Giichiro Uchida	Meijo University, Japan

Venue Layout

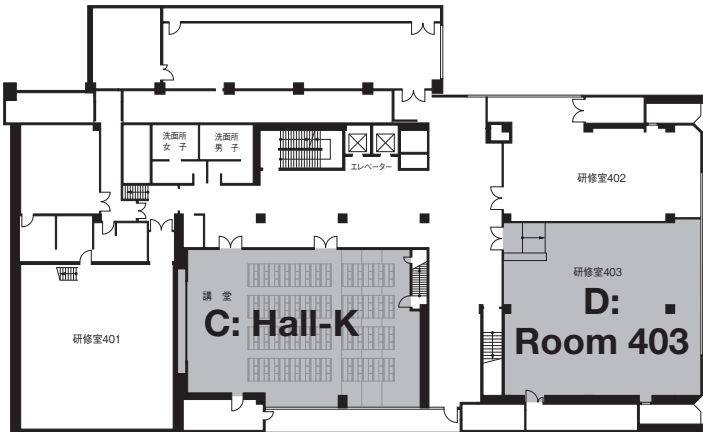
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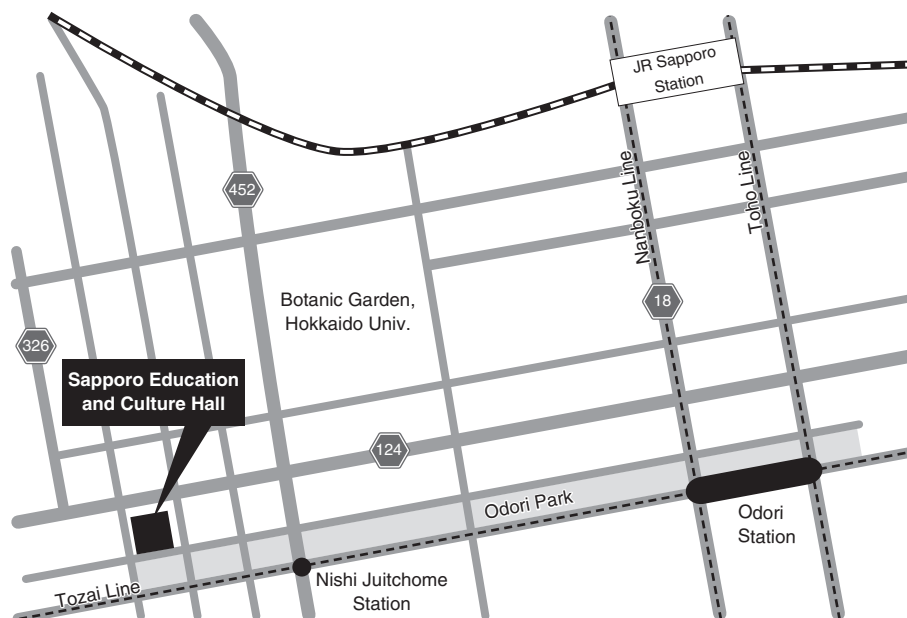


Map & Access

Sapporo Education and Culture Hall

Address: Kita 1-jo Nishi 13-chome, Chuo-ku, Sapporo, Sapporo, Hokkaido 060-0001, Japan

Phone: 81-11-271-5821



From New Chitose Airport to Sapporo City

By railway (JR)

JR is the fastest means of transportation to Sapporo City. The Rapid Airport to Sapporo runs approximately every 15 minutes (except early morning and late night) from after 8:00 to after 22:00, and takes passengers from the airport to Sapporo Station the quickest in just 37 minutes. If traveling prior to 8:00, you can take a local train bound for Sapporo. JR Hokkaido New Chitose Airport Station is directly connected with the first floor basement of the airport terminal building.

Time required: Approximately 40 minutes

One-way charges: ¥1,070

* Reserved seat +¥520 * Half price for children

* In addition to tickets purchased at ticket vending machines, you can also use smart cards such as “Kitaca,” “Suica,” and “PASMO.”

By bus (Airport Bus)

Hokkaido Chuo Bus and Hokuto Kotsu Bus operate services from the airport to Sapporo City departing every 10–15 minutes.

The bus takes approximately 70 minutes to arrive in central Sapporo.

There are bus terminals at two locations on the first floor of the domestic terminal and at one location on the first floor of the international terminal.

Tickets can be purchased at the bus counter or from ticket vending machines and used for buses from both companies.

There are also special deals such as round trip tickets and coupon tickets.

Time required: Approximately 70 minutes

One-way charges: ¥1,100

* In addition to tickets purchased at ticket vending machines, you can also use smart cards such as “Kitaca,” “Suica,” and “PASMO.”

Cooperative Societies

Organized by

International Scientific Committee of ICPIG

International Organizing Committee of ICRP

Co-sponsored by

Japan Society of Applied Physics

Division of Plasma Electronics, Japan Society of Applied Physics

Faculty of Engineering, Hokkaido University

In conjunction with

Plasma Science for Materials, Japan Society for the Promotion of Science 153 Committee

Financial supporters

Premier: International Union of Pure and Applied Physics

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**XXXIV International Conference on Phenomena in Ionized Gases
(XXXIV ICPIG) /
10th International Conference on Reactive Plasmas (ICRP-10)
Program**

Monday, July 15, 2019

Registration (8:30–19:00)

————— **A: Hall-L** —————

Opening Ceremony (09:15–09:45)

ICRP Reactive Plasma Award Lecture (9:45–10:45)

Chair: Prof. Masaharu Shiratani

Modern Atmospheric Pressure Non-Thermal Reactive Plasmas: from Gliding Arcs to DBD and Jets

Alexander Fridman

(Drexel University)

Topical Invited Lecture (11:15–12:15)

Chair: Prof. Nikolay Britun

[TL-01]

Plasma Diagnostics for Process Plasmas

Marcel Fiebrandt¹, Stefan Ries¹, Nikita Bibinov¹, Marcel Rudolph¹, Julian Schulze^{1,2}, Stanislav Mráz³,
Jochen M. Schneider³, Peter Awakowicz¹

(¹Ruhr University Bochum, ²West Virginia University, ³RWTH Aachen University)

[TL-05]

Time evolution of ion fluxes incident at the substrate plane during reactive high-power impulse magnetron sputtering: from gas-ion to metal-ion-controlled film growth

Grzegorz Greczynski

(Linköping University)

Oral Session (12:15–12:45)

[OR15AM-A01] Gas phase diagnostics of a carbon HiPIMS for a deposition of diamond-like carbon film

Takayuki Ohta¹, Kazunori Iga¹, Akinori Oda², Hiroyuki Kousaka³

(¹Meijo University, ²Chiba institute of Technology, ³Gifu University)

[OR15AM-A02] Sputtering of surfaces made of Lennard-Jones atoms: A Molecular Dynamics study

Nicolas Mauchamp, Michiro Isobe, Satoshi Hamaguchi

(Osaka University)

Topical Invited Lecture (16:30–17:30)

Chair: Dr. Shota Nunomura

- [TL-09] Growth Mechanism of Carbon Nanoparticles In Multi-Hollow Discharge Plasma Chemical Vapor Deposition
Kazunori Koga^{1,2}, Sung Hwa Hwang¹, Kunihiro Kamataki¹, Naho Itagaki¹, Masaharu Shiratani¹
(¹Kyushu University, ²NINS)
- [TL-13] Low pressure cyclopropylamine plasma polymerization studied by plasma diagnostics and molecular dynamic simulations
L. Zajíčková^{1,2}, M. Michlíček^{1,2}, S. Hamaguchi³
(¹RG Plasma Technologies, Central European Institute of Technology, Masaryk University, ²Department of Phys. Electronics, Faculty of Science, Masaryk University, ³CAMT, Graduate School of Engineering, Osaka University)

Oral Session (17:30–18:00)

- [OR15PM-A01] Plasma CVD synthesis of (6,4) single-walled carbon nanotubes and its growth mechanism
Satoru Shiina¹, Takuya Shima¹, Bin Xu¹, Toshiro Kaneko¹, Toshiaki Kato^{1,2}
(¹Graduate School of Engineering, Tohoku University, ²JST-PRESTO)
- [OR15PM-A02] Study on Relationship between Growth of Nanoparticles and Plasma Fluctuation due to Amplitude Modulated Discharge Voltage in Capacitively Coupled Reactive Plasma
Kunihiro Kamataki, Ren Zhou, H. Ohtomo, R. Iwamoto, D. Yamashita, N. Itagaki, K. Koga, M. Shiratani
(Kyushu University)

Topical Invited Lecture (18:00–18:30)

Chair: Prof. Françoise Massines

- [TL-17] Plasma-assisted inkjet printing
Tsuyohito Ito, Kaishu Nitta, Masanao Tsumaki, Tomoya Kawano, Kazuo Terashima
(The University of Tokyo)

Oral Session (18:30–19:30)

- [OR15PM-A03] Acoustic, Catalytic and Magnetic Nano/Micromotors
Lutfi Oksuz, Gozde Yurdabak Karaca, Gamze Celik Cogal, Emre Uygun, Aysegul Uygun Oksuz
(Suleyman Demirel University)
- [OR15PM-A04] Wettability of Plastics after Surface Modification Using Sanding and/or Atmospheric-Pressure Plasma Jet
Po-Hsien Chiu, Ching-Jung Wu, Chih-Tung Liu, Chun-Ping Hsiao, Mu-Chien Wu, Jong-Shinn Wu
(National Chiao Tung University)
- [OR15PM-A05] Effects of fluorine introduction and termination of CNWs on their electrochemical reactions
Hiroki Kondo¹, Masakazu Tomatsu¹, Takayoshi Tsutsumi¹, Kenji Ishikawa¹, Makoto Sekine¹, Masaru Hori¹, Mineo Hiramatsu²
(¹Nagoya University, ²Meijo University)
- [OR15PM-A06] Towards a compact low-ion-energy low-pressure plasma source for clean vacuum environments
Andrey G. Ushakov¹, Jacqueline van Veldhoven¹, Aneta S. Stodólna¹, Niels Geerits², Arnold Storm¹, Jeroen van den Brink¹, Michael Dekker¹
(¹TNO, ²Delft Technical University)

B: Hall-S

Topical Invited Lecture (11:15–12:15)

Chair: Dr. Edward Barnat

- [TL-02] Electric Field Induced Second Harmonic Generation Using Ultrafast Lasers for Measurements in Pulsed Nanosecond Plasmas
Benjamin Michael Goldberg
(Sandia National Lab)
- [TL-06] Development of advanced spectroscopic diagnostics for reactive plasmas at atmospheric pressure
Gabi-Daniel Stancu
(Laboratoire EM2C, CNRS, UPR 288, CentraleSupélec, Université Paris Saclay)

Oral Session (12:15–12:45)

- [OR15AM-B01] Plasma decay between successive discharges of pulsed plasma jet investigated by microwave cavity resonance spectroscopy
Bart Platier¹, Marc van der Schans¹, Peter Koelman¹, Ferdi van de Wetering¹, Jan van Dijk¹, Job Beckers¹, Sander Nijdam¹, Wilbert IJzerman^{2,3}
(¹Department of Applied Physics, Eindhoven University of Technology, ²Department of Mathematics and Computer Science, Eindhoven University of Technology, ³Signify)
- [OR15AM-B02] Determination of ion energy distribution and energy flux in ion source and rf plasma environments
Felix Georg, Thomas Trottenberg, Holger Kersten
(Institute of Experimental and Applied Physics, Kiel University)

Topical Invited Lecture (16:30–17:30)

Chair: Prof. Nader Sadeghi

- [TL-10] Static and RF electric field direct measurement based on Lyman- α emission from a hydrogen probe beam
Laurence Chérigier-Kovacic
(Aix-Marseille University)
- [TL-14] Optical emission spectroscopic analysis for diagnostics of electron density and temperature in non-equilibrium plasmas
Hiroshi Akatsuka
(Tokyo Institute of Technology)

Oral Session (17:30–18:00)

- [OR15PM-B01] Effect of High Energy Electron on Line Intensity Ratio in Bi-Maxwellian Argon Plasmas
Ji-Won Kwon¹, Myeong-Geon Lee¹, Sangwon Ryu¹, Yunchang Jang¹, Hyun-Kyung Chung², Mi-Young Song³, Gon-Ho Kim¹
(¹Department of Energy Systems Engineering, Seoul National University, ²Innovation Strategy Division, National Fusion Research Institute, ³Plasma Technology Research Center, National Fusion Research Institute)
- [OR15PM-B02] Measurement of energy distribution function of negative ions incident on substrate by using retarding field energy analyzer attached with magnetic filter
Yoshinobu Matsuda, Masaki Ishiba, Shu Yasumoto, Atsushi Kina, Tomohiro Furusato,

Takahiko Yamashita
(Nagasaki University)

Topical Invited Lecture (18:00–18:30)

Chair: Prof. Ryo Ono

- [TL-18] An optical trapping system for plasma diagnostics
Viktor Schneider, Holger Kersten
(Institute of Experimental and Applied Physics, Kiel University)

Oral Session (18:30–19:30)

- [OR15PM-B03] Position fluctuation of a fine particle trapped optically in Ar plasma
Masaharu Shiratani, K. Tomita, H. Ohtomo, R. Iwamoto, D. Yamashita, K. Kamataki, N. Itagaki, K. Koga
(Kyushu University)
- [OR15PM-B04] A force probe as a tool to characterize directionally resolved momentum fluxes during sputter processes
Mathis Klette, Thomas Trottenberg, Manuel Maas, Holger Kersten
(Institute of Experimental and Applied Physics, Kiel University)
- [OR15PM-B05] Flow Diagnostics in Non-thermal Atmospheric Pressure Plasma Jets
Stephan Reuter^{1,2}, Yibin Zhang^{1,3}, Arthur Dogariu¹, Ansgar Schmidt-Bleker², Sylvain Iséni^{2,4},
Klaus-Dieter Weltmann², Richard B. Miles^{1,5}
(¹MAE Department, Princeton University, ²INP Greifswald, ³Sandia National Laboratory, ⁴GREMI - UMR7344 Univ. Orleans / CNRS, ⁵Department of Aerospace Engineering, Texas A&M University)
- [OR15PM-B06] An electron plasma wave transmission diagnostic
Frederick N. Skiff, Ryan Hood, Lucas Beving
(University of Iowa)

————— **C: Hall-K** —————

Topical Invited Lecture (11:15–12:15)

Chair: Prof. Osamu Sakai

- [TL-03] Chemical kinetic modelling of NO_x formation in Transient Spark discharge
Mario Janda, Karol Hensel, Zdenko Machala
(Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava)
- [TL-07] Towards a reaction mechanism of non-equilibrium CO₂ plasmas
Vasco Guerra¹, T. Silva¹, M. Grofulović¹, L. Terraz¹, P. Ogloblina¹, C.D. Pintassilgo^{1,2}, R. Engeln³,
A.S. Morillo-Candas⁴, O. Guaitella⁴
(¹Universidade de Lisboa, ²Universidade do Porto, ³Eindhoven University of Technology, ⁴CNRS-Univ. Paris Sud-Sorbonne Université-Ecole Polytechnique)

Oral Session (12:15–12:45)

- [OR15AM-C01] CO₂ activation in microwave plasma – assessing vibrational non-equilibrium dynamics
Gerard J. van Rooij^{1,2}, Alex van de Steeg¹, Qin Ong¹, Ana Sovelas da Silva¹, Dirk C.M. van den Bekerom¹,
Richard M.C.M. van de Sanden^{1,2}
(¹Dutch Institute for Fundamental Energy Research, ²Eindhoven University of Technology)

[OR15AM-C02] Rate coefficient of CO₂ decomposition via vibrational excited states in recombining plasmas with ultralow electron temperature

Masahiro Yamazaki, Shusuke Nishiyama, Koichi Sasaki
(Division of Quantum Science and Engineering, Hokkaido University)

Topical Invited Lecture (16:30–17:30)

Chair: Prof. Svetlana Starikovskaia

[TL-11] Plasma-assisted control of supersonic airflow

Sergey B. Leonov¹, Skye Elliott¹, Alec Houpt¹, Yasumasa Watanabe^{1,2}
(¹University of Notre Dame, ²University of Tokyo)

[TL-15] Control of electron, ion and neutral heating in radio-frequency electrothermal microthrusters

Scott J. Doyle¹, Andrew R. Gibson^{1,2}, Teck S. Ho³, Rod W. Boswell³, Christine Charles³, Mark J. Kushner⁴, James P. Dedrick¹
(¹University of York, ²Ruhr-Universität Bochum, ³Australian National University, ⁴University of Michigan)

Oral Session (17:30–18:00)

[OR15PM-C01] Effects of surrounding gas on plasma-induced liquid flow

Toshiyuki Kawasaki¹, Keisuke Nishida², Makoto Kawaguchi³, Yuka Hazama³, Giichiro Uchida⁴, Fumiaki Mitsugi², Nozomi Takeuchi⁵, Kousuke Takenaka⁴, Kazunori Koga⁶, Yuichi Setsuhara⁴, Masaharu Shiratani⁶
(¹Nishinippon Institute of Technology, ²Kumamoto University, ³Nippon Bunri University, ⁴Osaka University, ⁵Tokyo Institute of Technology, ⁶Kyushu University)

[OR15PM-C02] Numerical simulation of an ionic-wind-driven aeroplane

She Chen¹, Jingyi Tu¹, Feng Wang¹, Yifei Zhu², Yuesheng Zheng³
(¹College of Electrical and Information Engineering, Hunan University, ²School of Electrical Engineering, Xi'an Jiaotong University, ³College of Electrical Engineering and Automation, Fuzhou University)

Topical Invited Lecture (18:00–18:30)

Chair: Prof. Yasunori Tanaka

[TL-19] Numerical and experimental approaches to high-pressure arcs with non-equilibrium consideration

Dirk Uhrlandt, Margarita Baeva, Guokai Zhang, Gregor Gött, Sergey Gortschakov
(Leibniz Institute for Plasma Science and Technology)

Oral Session (18:30–19:30)

[OR15PM-C03] Formation of nanostructured tungsten using a helium arc discharge plasma under sub-atmospheric pressure

Yusuke Kikuchi¹, Takuya Okumura¹, Kazumasa Kadowaki¹, Tatsuya Aota², Shiro Maenaka², Kazunobu Fujita², Shuichi Takamura^{2,3}
(¹University of Hyogo, ²Yumex Inc., ³Aichi Institute of Technology)

[OR15PM-C04] Fundamental study on role of silica-sand and polymer cylinder in terms of gas properties during DC interruption

Naoto Kodama¹, Yasunobu Yokomizu¹, Koya Nakamura¹, Asato Takahashi¹, Yusuke Kondo²
(¹Nagoya University, ²Pacific Engineering Corporation)

[OR15PM-C05] Decomposition of bisphenol A by water thermal plasma

Wenjing Chen, Hiroki Munekata, Manabu Tanaka, Takayuki Watanabe
(Department of Chemical Engineering, Kyushu University)

[OR15PM-C06] High-Speed Visualization of Metal Oxide Precursor in Multiphase AC Arc during Nanoparticle Formation

Manabu Tanaka, Yuki Saito, Hiroki Maruyama, Takayuki Watanabe
(Department of Chemical Engineering, Kyushu University)

————— **D: Room 403** —————

Topical Invited Lecture (11:15–12:15)

Chair: Dr. Zoltan Donko

- [TL-04]** Data evaluation on cross sections of electron-molecule collisions for process plasmas
Mi-Young Song¹, J.S. Yoon¹, H. Cho², G.P. Karwasz³, V. Kokoouline⁴, Y. Nakamura⁵, J. Tennyson⁶
(¹National Fusion Research Institute, ²Department of Physics, Chungnam National University, ³Institute of Physics, University Nicolaus Copernicus, ⁴Department of Physics, University of Central Florida, ⁵Kawasaki, ⁶Department of Physics and Astronomy, University College London)
- [TL-08]** The dynamics of the fast ionization wave discharge in different phases: from the breakdown to the afterglow
Bang-Dou Huang¹, Cheng Zhang¹, Tao Shao¹, Yi-Kang Pu²
(¹Key Laboratory of Power Electronics and Electric Drive, Institute of Electrical Engineering, Chinese Academy of Sciences, ²Department of Engineering Physics, Tsinghua University)

Oral Session (12:15–12:45)

- [OR15AM-D01]** Surface processes in capacitive radio frequency discharges driven by tailored voltage waveforms
Aranka Derzsi^{1,2}, Julian Schulze^{1,3}
(¹West Virginia University, ²Wigner Research Centre for Physics, ³Ruhr-University Bochum)
- [OR15AM-D02]** Reaction data for tokamak divertor and near-wall regions
Maria Tudorovskaya¹, Sebastian Mohr¹, Jonathan Tennyson^{1,2}, Christos K. Stavrou³, Mikhail Gryaznevich³
(¹Quantemol Ltd, ²University College London, UK, ³Tokamak Energy Ltd)

Topical Invited Lecture (16:30–17:30)

Chair: Prof. Tetsu Mieno

- [TL-12]** Plasmas in Caesium-Seeded Negative Ion Sources
Katsuyoshi Tsumori^{1,2}, H. Nakano^{1,2}, K. Ikeda¹, M. Kisaki^{1,2}, S. Geng³, K. Nagaoka^{1,4}, M. Wada⁵, Y. Haba⁴, S. Masaki², S. Kamio¹, Y. Fujiwara¹, M. Osakabe^{1,2}
(¹National Institute for Fusion Science, ²SOKENDAI (The Graduate University for Advanced Studies), ³Southwestern Institute of Physics, ⁴Nagoya University, ⁵Doshisha University)
- [TL-16]** Hybrid simulation of dust particles in a radio frequency capacitively coupled silane plasma
Yuan-Hong Song, Wen-Zhu Jia, You-Nian Wang
(School of Physics, Dalian University of Technology)

Oral Session (17:30–18:00)

- [OR15PM-D01]** Influence of magnetic field induced filaments on nanoparticle growth in a radio-frequency Ar/C₂H₂ discharge plasma
Surabhi Jaiswal¹, Vincent Holloman², Lenaic Couëdel^{3,4}, Edward Thomas Jr¹, Vijay Rangari²
(¹Auburn University, ²Tuskegee University, ³University of Saskatchewan, ⁴CNRS, Aix Marseille University)

[OR15PM-D02] Self-excited waves in complex plasmas under microgravity conditions

Mikhail Pustynnik¹, Victoriya Yaroshenko¹, Sergey Khrapak¹, Sergey Zhdanov¹, Hubertus Thomas¹,
Surabhi Jaiswal², Andrey Lipaev³, Vladimir Molotkov³, Alexander Usachev³, Vladimir Fortov³,
Markus Thoma⁴

(¹Institute of Material Physics in Space, German Aerospace Center (DLR), ²Physics Department, Auburn University, ³Joint Institute for High Temperatures, Russian Academy of Sciences, ⁴I. Physics Institute, Justus Liebig University Giessen)

Topical Invited Lecture (18:00–18:30)

Chair: Prof. Yuan-Hong Song

[TL-20]

Non-local electron kinetics in a low-temperature low-pressure DC discharge complex plasma

Alexander Fedoseev, Gennady Sukhinin
(Institute of Thermophysics SB RAS)

Oral Session (18:30–19:30)

[OR15PM-D03] Electrical conductivity for vertical direction of radical injection plasma enhanced chemical vapor deposited carbon nanowalls (RI-PECVD-CNW)

Atsushi Ozaki, Hiroki Kondo, Kenji Ishikawa, Takayoshi Tsutsumi, Makoto Sekine, Masaru Hori
(Department of Electronics, Nagoya University)

[OR15PM-D04] Reaction of hexafluoroacetylacetone on nickel and nickel oxide surfaces and its effects on thermal atomic layer etching (ALE) processes

A.H. Basher¹, M. Isobe¹, T. Ito¹, M. Kiuchi², T. Takeuchi³, K. Karahashi¹, S. Hamaguchi¹
(¹Osaka University, ²AIST, ³Nara Women's University)

[OR15PM-D05] Impact generation of hot gas plume and synthesis of amino acids in nitrogen gas simulating asteroid's impacts in space

Tetsu Mieno¹, Ulfa Azmi², Sunao Hasegawa³, Hiromi Shibata⁴, Yoko Kebukawa⁵, Kensei Kobayashi⁵
(¹Graduate School of Science & Technology, Shizuoka University, ²Dept. Physics, Shizuoka University, ³ISAS / JAXA, ⁴Fac. Engineering, Osaka University, ⁵Graduate School of Engineering, Yokohama National University)

[OR15PM-D06] A numerical analysis of a microwave induced coaxial surface wave discharge fed with a mixture of oxygen/hexamethyldisiloxane for the purpose of SiO_x film deposition

Efe H. Kemaneci¹, Felix Mitschker², Jan Benedikt³, Denis Eremin¹, Peter Awakowicz²,
Ralf Peter Brinkmann¹

(¹Theoretical Electrical Engineering, Ruhr-University Bochum, ²Institute for Electrical Engineering and Plasma Technology, Ruhr-University Bochum, ³Experimental Plasma Physics, Christian-Albrechts-University Kiel)

————— **E: Room 301, 302, 305** —————

Poster Session 1 (14:15–16:15)

[PO15PM-001] Washimi-Karpman magnetization in a quantum Fermi-Dirac plasma system

Myoung-Jae Lee, Young-Dae Jung
(Hanyang University)

- [PO15PM-002]** Extreme Ultraviolet Spectral Model for Highly Charged Tungsten Ions in Magnetically Confined Plasmas
Izumi Murakami^{1,2}, Akira Sasaki³, Daiji Kato^{1,4}
(¹National Institute for Fusion Science, ²SOKENDAI, ³National Institute of Quantum and Radiological Science and Technology, ⁴Kyushu University)
- [PO15PM-003]** Temperature anisotropy relaxation processes in dense plasma
Tlekkabul Ramazanov, Sandugash Kodanova, Moldir Issanova, Zhandos Moldabekov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO15PM-004]** VUV emission spectra of Oxygen and Nitrogen to generate initial electrons for surface discharge in air
Yasuhide Kashiwagi
(National Institute of Technology, Kisarazu College)
- [PO15PM-006]** The properties of streamer discharge channel under positive voltage in rod-plane air gap with different humidity
Ying zhe Cui, Ying zhe Cui, Chi jie Zhuang, Ze zhong Wang, Xuan Zhou, Rong Zeng
(Department of Electrical Engineering, Tsinghua University)
- [PO15PM-007]** The effect of temperature on electron recombination with water and hydrocarbon ions in high-voltage nanosecond discharge afterglow
Nickolay L. Aleksandrov¹, Maxim A. Popov¹, Andrey Yu. Starikovskiy², Igor V. Kochetov³
(¹Moscow Institute of Physics and Technology, ²Princeton University, ³SRC RF Troitsk Institute for Innovation and Fusion Research)
- [PO15PM-008]** Decay rates of helium metastable excited atoms in He and ionization coefficient in He/H₂O mixture
Susumu Suzuki, Ryu Hirata, Masato Yamazaki, Haruo Itoh
(Chiba Institute of Technology)
- [PO15PM-009]** Low temperature reaction of N⁺ with D₂
Radek Plašil, Artem Kovalenko, Thuy Dung Tran, Serhiy Rednyk, Š. Roučka, Petr Dohnal, Dmytro Shapko, Juraj Glosík
(Charles University, Prague)
- [PO15PM-010]** Database system for atomic, molecular and plasma-material interaction and plasma chemistry reaction data
Jun-Hyoung Park, Heechol Choi, Won-Seok Chang, Deuk-Chul Kwon, Mi-Young Song
(National Fusion Research Institute)
- [PO15PM-011]** The LXCat project: overview and recent updates
Emile A.D. Carbone¹, Luis L. Alves²
(¹Max Planck Institute for Plasma Physics, ²Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa)
- [PO15PM-012]** Impact of reduced cross section sets on e-beam interaction with Ar
Matthew M. Hopkins, Christopher H. Moore, Kate S. Bell, Andrew S. Fierro, Benjamin T. Yee
(Sandia National Laboratories)
- [PO15PM-013]** Ionic core effect on an electron-ion scattering in dense plasmas
Assem Temirbek¹, Maratbek Gabdullin², Mukhit Muratov³, Zhandos Moldabekov¹, Tlekkabul Ramazanov¹
(¹ITEP, al-Farabi Kazakh National University, ²Kazakh-British Technical University, ³NNLOT, al-Farabi Kazakh National University)

- [PO15PM-014]** e^+ -Ar total ionization in the energy range $10 \text{ eV} \leq E_i \leq 20 \text{ keV}$
 Abul Kalam Fazlul Haque¹, M.M. Haque¹, D.H. Jakubassa-Amundsen², M. Atiqur R. Patoary¹,
 A.K. Basak¹, M. Maaza³, B.C. Saha⁴, M. Alfaz Uddin¹
 (¹University of Rajshahi, ²Mathematics Institute, University of Munich, ³Nanosciences African network
 (NANOAFNET), iThemba LABS-National Research Foundation, ⁴Florida A & M University)
- [PO15PM-015]** Electron transport analysis in Cl_2 gas
 Satoru Kawaguchi^{1,2}, Kazuhiro Takahashi¹, Kohki Satoh¹
 (¹Muroran Institute of Technology, ²Research Fellow of Japan Society for the Promotion of Science)
- [PO15PM-016]** Characteristics of droplet emission from Taylor cone synchronized with corona discharge
 current
 Keisuke Nagao, Yusuke Nakagawa, Satoshi Uchida, Fumiyoshi Tochikubo
 (Tokyo Metropolitan University)
- [PO15PM-017]** Droplet emission form liquid surface of atmospheric pressure plasma in contact with liquid
 Naoki Shirai, Goju Suga, Takuya Imai, Koichi Sasaki
 (Hokkaido University)
- [PO15PM-018]** Relationship between emission intensity and time width of SBSL using phosphoric acid
 Ryoma Hara, Makoto Matsui
 (Shizuoka University)
- [PO15PM-019]** Effect of Repetition Frequency of Pulsed Voltage on Decomposition of Methylene Blue in
 Aqueous Solution by Cavitation Bubble Plasma
 Yoshihiro Oka, Kentaro Otsuka, Ryo Kurata, Mitsuyasu Yatsuzuka
 (University of Hyogo)
- [PO15PM-020]** Formation mechanism of hydrogen peroxide in an atmospheric pressure glow discharge
 electrolysis
 Yu-Lin Kuo, Kuen-Yu Tsai, Shang-Yuan Chung, Hao-Wei Zhang, Sagung Dewi Kencana, Jhao-Yu Guo,
 Song-Yu Chen
 (Department of Mechanical Engineering, National Taiwan University of Science and Technology)
- [PO15PM-021]** Effects of the Carrier Gas on Properties of Plasma-Activated Water
 Cheng Chun Lai, Yung Hsin Teng, Ying Hao Liao
 (Chiao Tung University)
- [PO15PM-022]** Chemical kinetic simulation of ROS/RNS in plasma-exposed water
 Kazuhiro Takahashi¹, Satoru Kawaguchi^{1,2}, Kohki Satoh¹, Hideki Kawaguchi¹, Igor Timoshkin³,
 Martin Given³, Scott MacGregor³
 (¹Muroran Institute of Technology, ²Research Fellow of the Japan Society for the Promotion of Science,
³University of Strathclyde)
- [PO15PM-023]** Track of plasma-originated electrons in liquid water for generation of hydrated electrons by
 Monte-Carlo simulation
 Naoki Akiyama, Yusuke Nakagawa, Satoshi Uchida, Fumiyosi Tochikubo
 (Tokyo Metropolitan University)
- [PO15PM-024]** Reaction frequencies of CTTS transition-induced solvated electrons in bulk region of ionic
 liquids irradiated with low-pressure Ar, O_2 , and N_2 plasmas
 Yoshinobu Inagaki, Koichi Sasaki
 (Hokkaido University)

- [PO15PM-025]** Effect of current on the synthesis of copper oxide nanoparticles by atmospheric-pressure plasma electrolysis
Jiandi Liu, Shirai Naoki, Koichi Sasaki
(Graduate School of Engineering, Hokkaido University)
- [PO15PM-026]** The Characteristics Analysis and Optimization of Coated Copper Nano-particles by Underwater Plasma for Electromagnetic Interference shielding films
Knagil Kim¹, Jin-Young Huh², Yong Cheol Hong¹
(¹National Fusion Research Institute, ²Korea Institute of Materials Science)
- [PO15PM-027]** Surface-modifications of graphene nano-plates via plasma in liquid
Masaki Iida^{1,2}, Taku Goto^{1,2}, Kazuto Hatakeyama², Tsuyohito Ito¹, Yoshiki Shimizu², Yukiya Hakuta², Kazuo Terashima^{1,2}
(¹Department of Advanced Materials Science, Graduate School of Frontier Sciences, The University of Tokyo, ²AIST-UTokyo Advanced Operando-Measurement Technology Open Innovation Laboratory (OPERANDO-OIL), National Institute of Advanced Industrial Science and Technology (AIST))
- [PO15PM-028]** On the formation of polymerized EDOT films using gas-liquid interfacial plasma
Tatsuru Shirafuji, Shiori Azuma, Ju-Seok Oh
(Osaka City University)
- [PO15PM-029]** Fabrication of Titania/Carbon Composite Nanoparticles by Discharge Plasma at Pressurized Gas/Liquid Interface
H. Kondo, Wahyudiono Wahyudiono, N. Takada, H. Kanda, M. Goto
(Nagoya University)
- [PO15PM-030]** Development of fs-TALIF diagnostics for Measurements of Atomic Nitrogen in NRP Discharges
Ciprian Dumitrache, Arnaud Gallant, Gabi Daniel Stancu, Christophe Laux
(CentraleSupélec)
- [PO15PM-031]** Comparison of radical densities in helium and nitrogen plasma jets to identify effective species for suppression of potato sprout
Katsunori Ueno, S. Nishiyama, K. Sasaki
(Division of Quantum Science and Engineering, Hokkaido University)
- [PO15PM-032]** TALIF spectroscopy of atomic oxygen density in extremely narrow gapped oxygen discharge
Takuya Kawakita, Yusuke Nakagawa, Satoshi Uchida, Fumiyoshi Tochikubo
(Tokyo Metropolitan University)
- [PO15PM-033]** Evaluation of measurement electron density ahead shock wave by CO₂ laser interferometer
Takashi Okamoto¹, Kazuhiko Yamada², Makoto Matsui¹
(¹Shizuoka University, ²Institute of Space and Astronautical Science, JAXA)
- [PO15PM-034]** Modification of laser-induced fluorescence spectrum by additional azimuthal Doppler effect in optical vortex beams
Shinji Yoshimura¹, Kenichiro Terasaka², Mitsutoshi Aramaki³
(¹National Institute for Fusion Science, ²Kyushu University, ³Nihon University)
- [PO15PM-035]** Simple electron density measurement for atmospheric pressure Ar plasma using laser interferometry
Jun Sup Lim¹, Se Hoon Ki¹, Eun Ha Choi^{1,2}
(¹Department of Electrical and Biological Physics, Kwangwoon University, ²Plasma Bio Research Center (PBRC), Kwangwoon University)

- [PO15PM-036]** The dynamic of Brillouin scattering at the oblique incidence of pump wave on a plasma slab and its using for plasma diagnostics
Davlat K. Solikhov¹, Sergey A. Dvinin², Shamsulhak S. Nurulhakov¹
(¹Tajik National University, ²Moscow State University, Faculty of Physics)
- [PO15PM-037]** Electric field measurements on plasma bullets in nitrogen with nanosecond Electric Field Induced Second-Harmonic Generation
Sander Nijdam, Anne Limburg, Marc van der Schans
(Eindhoven University of Technology, Dept. Applied Physics)
- [PO15PM-038]** Two-laser photo-detachment for negative ion diagnostic: Installation and preliminary results in the H⁻ source “Prometheus I”
M. Mitrou¹, P. Svarnas¹, S. Aleiferis^{1,2}, S. Béchu³, A. Lacoste³
(¹High Voltage Laboratory, Electrical and Computer Eng. Dep., University of Patras, ²EUROfusion Consortium, JET, Culham Science Centre, ³LPSC, Université Grenoble-Alpes, CNRS/IN2P3)
- [PO15PM-039]** Atomic hydrogen density measurement in inductively coupled plasma based on VUV absorption spectroscopy
Deog Gyun Cho, Dal Hyeon Ryu, Jong Gu Han, Se Youn Moon
(Chonbuk National University)
- [PO15PM-040]** CF₂ density measurement in plasma-chamber wall boundary of inductively coupled plasma using UV absorption spectroscopy
Jonggu Han¹, Yong Sung You², Se Youn Moon³
(¹Department of Applied Plasma and Quantum beam Engineering, Chonbuk National University, ²Department of Nuclear and Quantum Engineering, Korea Advanced Institute of Science and Technology, ³Department of Quantum System Engineering, Chonbuk National University)
- [PO15PM-041]** Spectroscopic characterization of a surfaguide microwave discharge for efficient plasma-based CO₂ conversion
Nikolay Britun¹, Thomos Godfroid², Rony Snyders^{1,2}
(¹Chimie des Interactions Plasma-Surface, University of Mons, ²Materia Nova Research Center)
- [PO15PM-042]** Time-dependent optical methods for determination of the electric field
Tomas Hoder¹, Markus M. Becker², Petr Bilek¹, Detlef Loffhagen²
(¹Masaryk University, ²Leibniz Institute for Plasma Science and Technology)
- [PO15PM-043]** Selective Plasma Light Intensity Measurement Technique for Process Uniformity using Transparent LCD Module adapted Optical Emission Spectroscopy
Ilgu Yun, In Joong Kim
(Yonsei University)
- [PO15PM-044]** Secondary electron effect on sustaining capacitively coupled discharges: a hybrid modeling investigation of the ionization rate
Yu-Ru Zhang, Ying-Ying Wen, Yuan-Hong Song, You-Nian Wang
(School of Physics, Dalian University of Technology)
- [PO15PM-045]** Magnetical asymmetric effect in geometrically and electrically symmetric capacitively coupled plasma
Shali Yang¹, Ya Zhang², Wei Jiang¹
(¹School of Physics, Huazhong University of Science and Technology, ²School of Science, Wuhan University of Technology)
- [PO15PM-046]** Measurement of ion energy in dual-frequency capacitive coupled plasma
Makoto Moriyama, Akihiro Mitsuya, Naoya Nakahara, Haruka Suzuki, Hirotaka Toyoda
(Nagoya University)

- [PO15PM-047]** Investigation of characteristics of etching process plasma by the addition gases
Jongsik Kim, Dae Chul Kim, Jaemin Song, Yonghyun Kim, Young-Woo Kim, Duksun Han, Jung Ho Song, Mi-Young Song, Jung-Sik Yoon
(National Fusion Research Institute)
- [PO15PM-048]** Experimental observation of nonlinear standing wave effect excited by higher harmonics in very-high-frequency capacitive discharges
Yong-Xin Liu, Kai Zhao, De-Qi Wen, You-Nian Wang
(Dalian University of Technology)
- [PO15PM-049]** Characteristics of dual frequency CCP with electron beam
Inshik Bae, Hongyoung Chang
(KAIST)
- [PO15PM-050]** Optical Emission Spectroscopy of the Radial Distribution of CCP Plasma through Gas Hole of Showerhead Electrode
Jaemin Song, Jongsik Kim, Dae Chul Kim, Mi-Young Song, Young-Woo Kim, Yonghyun Kim, Duksun Han, Jung Ho Song, Jung-Sik Yoon
(Plasma Technology Research Center, National Fusion Research Institute)
- [PO15PM-051]** The comparison of the electron density measured by Hairpin and Langmuir probes in pulse modulated inductively coupled plasma
Fei Gao, Xiang-Yun Lv, Xue-Chun Li, You-Nian Wang
(Key Laboratory of Materials Modification by Laser, Ion, and Electron Beams (Ministry of Education), School of Physics, Dalian University of Technology)
- [PO15PM-052]** Global model for large scale ferromagnetic enhanced inductively coupled Cl_2/Ar plasma source
Alexander Fedoseev, Gennady Sukhinin, Mikhail Isupov, Vadim Pinaev, Nikon Demin, Mikhail Salnikov
(Institute of Thermophysics SB RAS)
- [PO15PM-053]** Modelling on tandem type of inductively coupled thermal plasma with thermal interaction from powder feeding
Yulianta Siregar^{1,2}, Yasunori Tanaka¹, Yusuke Nakano¹, Tatsuo Ishijima¹, Yoshihiko Uesugi¹
(¹Kanazawa University, ²University of Sumatera Utara)
- [PO15PM-054]** Electromagnetic thermofluid simulation on tandem type of Ar/O_2 inductively coupled thermal plasmas driven by upper and lower coils
Keita Akashi¹, Kotaro Shimizu¹, Kazuki Onda¹, Yusuke Nakano¹, Yasunori Tanaka¹, Yoshihiko Uesugi¹, Tatsuo Ishijima¹, Shiori Sueyasu², Shu Watanabe², Keitaro Nakamura²
(¹Kanazawa University, ²Nisshin Seifun Group)
- [PO15PM-055]** Evaluation of Fe-Ti ingots prepared by hydrogen plasma arc melting using pretreated Ti scraps
Jaewon Lim, Suhwan Yoo, Jikwang Chae, Jung-Min Oh
(Chonbuk National University)
- [PO15PM-056]** Shock waves in supercritical carbon dioxide generated by pulsed arc discharge plasma
Kosuke Goto¹, Naokazu Ashizuka¹, Tomohiro Furusato¹, Tsuyoshi Kiyan², Mitsuru Sasaki³, Takahiko Yamashita¹
(¹Graduate School of Engineering, Nagasaki University, ²Faculty of Humanity – Oriented Science and Engineering, Kindai University, ³Institute of Pulsed Power Science, Kumamoto University)
- [PO15PM-057]** Numerical simulation of radiation transfer in a model gas circuit breaker using CO_2 , O_2 and CO_2/O_2 mixture gas
Kouki Yoshida¹, Takayasu Fujino², Tomoyuki Yoshino³, Sato Ogawa³, Tadashi Mori³
(¹Department of Engineering Mechanism and Energy, University of Tsukuba, ²Faculty of Engineering, Information and Systems, University of Tsukuba, ³Toshiba Energy Systems & Solutions Corporation)

- [PO15PM-058]** Internal-plasma-current-driven axial force in a magnetic nozzle MPD thruster
Takumi Iijima, Astushi Komuro, Kazunori Takahashi, Akira Ando
(Tohoku University)
- [PO15PM-059]** Enhancement of Wear-resistance of Polyurethane Film Composite with Plasma-processed Multi-walled Carbon Nanotubes
Daisuke Ogawa, Hideo Uchida, Keiji Nakamura
(Chubu University)
- [PO15PM-060]** Plasma Functionalization of Isocyanate Groups onto Multi-walled Carbon Nanotubes
Daisuke Ogawa, Kazuki Michiya, Hideo Uchida, Keiji Nakamura
(Chubu University)
- [PO15PM-061]** Preparation of diamond-like carbon films using pulse-arc Ar plasma jet in C₂H₂ atmosphere
Ryoya Tominaga¹, Toru Harigai¹, Tsuyoshi Tanimoto¹, Hirofumi Takikawa¹, Shinsuke Kunitsugu², Satoru Kaneko³, Masao Kamiya⁴, Hidenobu Gonda⁵
(¹Toyohashi University of Technology, ²Industrial Technology Center of Okayama Prefecture, ³Kanagawa Institute of Industrial Science and Technology, ⁴Itoh Optical Industrial Co., Ltd., ⁵OSG Coating Service Co., Ltd.)
- [PO15PM-062]** Intermediate pressure microwave plasma sources: application to nano- and micro- diamond film deposition
Alexandre Bès, Alvaro Martin-Ortega, Runxiao Yang, Ana Lacoste
(LPSC - Université Grenoble-Alpes - CNRS/IN2P3)
- [PO15PM-064]** PECVD synthesis of nitrogen-doped diamond and charge state control of NV centers
Hiroki Takehana, T. Tamura, T. Yanase, T. Nagahama, T. Shimada
(Division of Applied Chemistry, Hokkaido Univ.)
- [PO15PM-065]** Effects of Ion Bombardment Energy Flux on Chemical Compositions and Structures of Hydrogenated Amorphous Carbon Films Grown by a Radical-Injection Plasma-Enhanced Chemical Vapor Deposition
Hitotsugu Sugiura, Hiroki Kondo, Takayoshi Tsutsumi, Kenji Ishikawa, Masaru Hori
(Nagoya University)
- [PO15PM-066]** Investigate on thickness of Ni catalyst for CNTs generation by PCVD
Koki Kuroda, Kenta Goto, Miki Goto, Takanori Komuro
(Kanagawa Institute of Technology)
- [PO15PM-067]** Performance improvement of graphene nanoribbon transistor with plasma CVD
Noritada Ogura¹, Hiroo Suzuki¹, Toshiro Kaneko¹, Toshiaki Kato^{1,2}
(¹Graduate School of Engineering, Tohoku University, ²JST-PRESTO)
- [PO15PM-068]** Influence of DC Substrate Bias Voltage on Deposition of Carbon Nanoparticles Produced by Ar+CH₄ Multi-Hollow Discharge Plasma CVD method
Sung Hwa Hwang¹, Kunihiro Kamataki¹, Naho Itagaki¹, Kazunori Koga¹, Masaharu Shiratani¹, Jun Seok Oh², Tatsuyuki Nakatani³
(¹Kyushu University, ²Osaka City University, ³Okayama University of Science)
- [PO15PM-069]** Carbon nanowalls synthesis in the plasma of a radio-frequency discharge
Yerassyl Yerlanuly^{1,2}, Didar G. Batryshev¹, Tlekkabul S. Ramazanov¹, Maratbek T. Gabdullin²
(¹Al-Farabi Kazakh National University, ²Kazakh British Technical University)
- [PO15PM-070]** Carbon nanowall growth using biomineralized catalyst nanoparticles
Shinya Kumagai¹, Takuya Meijo¹, Keigo Takeda¹, Ichiro Yamashita², Mineo Hiramatsu¹
(¹Meijo University, ²Osaka University)

- [PO15PM-071]** Characteristics of HiPIMS plasma driven by spiker-sustainer pulses for DLC deposition
Mutsumi Takahashi¹, Shoki Abe¹, Katsuyuki Takahashi^{1,2}, Seiji Mukaigawa¹, Koichi Takaki^{1,2}, Ken Yukimura¹
(¹Faculty of Science and Engineering, Iwate University, ²Agri-Innovation Center, Iwate University)
- [PO15PM-072]** Evaluation of unexpected arc discharge characteristic of DLC films formation using HF-HiPIMS power supply
Hiroyuki Fukue¹, Tadayuki Okano², Masahide Kuroiwa², Shinsuke Kunitsugu³, Hiroki Oota⁴, Ken Yonezawa⁴, Tatsuyuki Nakatani⁵
(¹Graduate School of Engineering, Okayama University of Science, ²Tokyo Electronics Co., Ltd, ³Industrial Technology Center of Okayama Prefecture, ⁴Kenix Corporation, ⁵Research Institute of Technology, Okayama University of Science)
- [PO15PM-073]** Comparison of discharge characteristics and performance in large area 3-D confined and planar magnetron sputtering
Jeon Geon Han, Min W. Lee, B.B. Sahu
(Sungkyunkwan University)
- [PO15PM-074]** On recycling in high power impulse magnetron sputtering discharge
Jon Tomas Gudmundsson¹, Nils Brenning², Michael A. Raadu², Thomas J. Petty³, Tiberiu Minea³, Daniel Lundin³
(¹University of Iceland, ²KTH Royal Institute of Technology, ³LPGP, Université Paris-Sud)
- [PO15PM-075]** Gas phase diagnostics on TiN film deposition using high power impulse magnetron sputtering
Masayuki Nakamura, Keigo Takeda, Takayuki Ohta
(Meijo University)
- [PO15PM-076]** Structure and Properties of YSZ Thin Films Deposition by High Power Impulse Magnetron Sputtering
YU-Wei Lin¹, You-Chen Chang², Wei-Chun Chen¹, Hung-Pin Chen¹, Fong-Zhi Chen¹
(¹Taiwan Instrument Research Institute, National Applied Research Laboratories, ²Department of Engineering and System Science National Tsing Hua University)
- [PO15PM-078]** A Comparative Characterization Study of Characteristic of Plasma Modified Graphane Oxides
Lutfi Oksuz, Esin Eren, Ali Ihsan Komur, Aysegul Uygun Oksuz
(Suleyman Demirel University)
- [PO15PM-079]** Low Damage Radical Nitridation of Graphene using Surface Plasmon Resonance of Gold Nanoparticle Catalyst
Takeshi Kitajima, Ryo Katou, Machiko Miyake, Toshiki Nakano
(National Defense Academy)
- [PO15PM-080]** High Rate Synthesis of Graphene-Encapsulated Silicon Nanoparticles using Pulse-Modulated Induction Thermal Plasmas with Intermittent Feedstock Feeding
Yasunori Tanaka¹, Kentaro Shimizu¹, Kazuki Onda¹, Keita Akashi¹, Yoshihiko Uesugi¹, Tatsuo Ishijima¹, Shiori Sueyasu², Shu Watanabe², Keitaro Nakamura²
(¹Kanazawa University, ²Nisshin Seifun Group Inc.)
- [PO15PM-081]** Influence of Pressure on Polycrystalline Diamond Film Fabricated Using Modulated Induction Thermal Plasma
Kazufumi Hata¹, Takashi Arai¹, Yusuke Nakano¹, Yasunori Tanaka¹, Tatsuo Ishijima², Yoshihiko Uesugi¹
(¹Faculty of Electrical and Computer Science, Kanazawa University, ²Research Center for Sustainable Energy and Technology, Kanazawa University)

- [PO15PM-082]** Numerical Simulation on High-Speed Surface Oxidation of SiC Substrate by Sweeping Exposure of Loop Type Inductively Coupled Thermal Plasmas
Genki Ozeki¹, Atsushi Fujita¹, Yusuke Nakano¹, Yasunori Tanaka¹, Tatsuo Ishijima¹, Yoshihiko Uesugi¹, Tetsuya Yukimoto², Hiroshi Kawaura²
(¹Kanazawa University, ²CV Research Corporation)
- [PO15PM-083]** Voltage Fluctuations Related to Arc Rotation in a Direct Current Plasma Torch with Externally Applied Magnetic Field
Hikaru Matsumoto¹, Hiroki Saito¹, Takayasu Fujino²
(¹Graduate School of Systems and Information Engineering, University of Tsukuba, ²Faculty of Engineering, Information and Systems, University of Tsukuba)
- [PO15PM-084]** On NH radicals in pulsed-arc plasma jet with N₂/H₂ gas mixture
Ryuta Ichiki, Yuka Kanbara, Kiho Toda, Kosuke Tachibana, Takashi Furuki, Seiji Kanazawa
(Oita University)
- [PO15PM-085]** Electron temperature of femtosecond laser induced high-pressure argon plasma
Yuki Mori, K. Tsuchida, N. Tsuda, J. Yamada
(Aichi Institute of Technology)
- [PO15PM-086]** Laser shock processing of nanomaterials using laser-induced plasma
Jeonghong Ha¹, Dongsik Kim²
(¹Advanced Forming Process R&D Group, Korea Institute of Industrial Technology (KITECH), ²Department of Mechanical Engineering, Pohang University of Science and Technology (POSTECH))
- [PO15PM-087]** Cherenkov radiation and cathodoluminescence in leucosapphire, quartz and diamond under the excitation of electron beam
Victor F. Tarasenko, Vladimir I. Oleshko, Mikhail V. Erofeev, Elgeniy I. Lipatov
(Institute of High Current Electronics)
- [PO15PM-088]** Radiation Emission Characteristics of a Low Energy Dense Plasma Focus
Seong Ling Yap¹, Kheng Yew Tsung¹, Lian Kuang Lim¹, Ming Chuan Lee¹, Chen Hon Nee², Seong Shan Yap²
(¹University of Malaya, ²Multimedia University)
- [PO15PM-089]** Pulsed Low Dose Rate Radiation from Plasma Discharge for Superficial Radiation Therapy
Seong Ling Yap¹, Hung Seng Poh¹, Ling Hong Lim¹, David Bradley², Chen Hon Nee³, Seong Shan Yap³
(¹University of Malaya, ²Sunway University, ³Multimedia University)
- [PO15PM-090]** Soft X-Ray Radiation from C₃H₈ Discharge in the Divergent Gas-Puff Z Pinch
Keiichi Takasugi¹, Mineyuki Nishio²
(¹Nihon University, ²National College of Technology)

Tuesday, July 16, 2019

Registration (8:30–19:00)

A: Hall-L

General Invited Lecture (09:00–09:45)

Chair: Prof. Izumi Murakami

- [GL-01] Electron excitation and dissociative excitation processes to plasma relevant molecules
Stefan Matejcik, Juraj Orszagh, Michal Ďurian
(Comenius University Bratislava)

IUPAP Young Scientist Award Lecture (9:45–10:30)

Chair: Prof. M.Q. Tran

- Flow–turbulence coupling in magnetic confinement for fusion
Istvan Cziegler
(University of York)

Topical Invited Lecture (11:00–12:00)

Chair: Dr. Milan Šimek

- [TL-21] Plasma characterization using catalytic probes
Rok Zaplotnik, Gregor Primc, Alenka Vesel, Miran Mozetič
(Jozef Stefan Institute)
- [TL-25] Ultrafast Laser Diagnostics to Interrogate High Pressure, Highly Collisional Plasma Environments
Edward V. Barnat
(Sandia National Laboratories)

Oral Session (12:00–12:30)

- [OR16AM-A01] VUV-absorption spectroscopy and delocalized plasma-induced emission used for the species detection in a down-stream soft-etch plasma reactor
Nader Sadeghi, Robert Soriano, Emilie Provost, Gilles Cunge
(Laboratoire des Technologies de la Microélectronique)
- [OR16AM-A02] 2.45 GHz microwave plasma sources for CO₂ dissociation: spectroscopic analysis of a surfaguide and a resonator plasma torch
Emile Carbone¹, Nikolay Britun², Federico D’Isa¹, Ante Hecimovic¹, Ursel Fantz¹
(¹Max Planck Institute for Plasma Physics, ²Chimie des Interactions Plasma-Surface, University of Mons)

Topical Invited Lecture (16:15–16:45)

Chair: Hiroki Kondo

- [TL-29] Understanding high power magnetron sputtering by combined optical diagnostics
Nikolay Britun¹, Jaroslav Hnilica², Matthieu Michiels^{1,3}, Peter Klein², Petr Vašina², Rony Snyders^{1,3}
(¹Chimie des Interactions Plasma-Surface, University of Mons, ²Department of Physical Electronics, Masaryk University, ³Materia Nova Research Center)

Oral Session (16:45–17:45)

- [OR16PM-A01]** Synthesis of TiC using an annular DC Magnetron Sputtering System with Ar and C₂H₂ plasma
Christian Lorenz Sillero Mahinay, Juan Gabriel B. Troncales, Paz Victoria T. Ramos, Franulfo Dela Cruz, Raphael Alexander L. Carreon, Ivan B. Culaba
(Department of Physics, School of Science and Engineering, Ateneo de Manila University)
- [OR16PM-A02]** Experimental Demonstration of Multifrequency Matching for Tailored Voltage Waveform Plasma Excitation
Erik V. Johnson¹, Junkang Wang¹, Sebastien Dine², Jean Paul Booth³
(¹LPICM, CNRS, Ecole Polytechnique, ²Solayl SAS, ³LPP, CNRS, Ecole Polytechnique, UPMC Univ. Paris Sud, Université Paris Saclay, Sorbonne Universites)
- [OR16PM-A03]** Plasma processes applied to SiO₂ cryo-atomic layer etching
Antoun Gaele¹, Remi Dussart¹, Philippe Lefaucheux¹, Thomas Tillocher¹, Kumiko Yamazaki², Koichi Yatsuda², Jacques Faguet³, Kaoru Maekawa³
(¹GREMI - CNRS - Université d'Orleans, ²Tokyo Electron Limited, ³TEL Technology Center, America)
- [OR16PM-A04]** Molecular dynamics simulation of reactive ion etching of Si and SiO₂ by fluorine containing ions
Erin Joy Capdos Tinacba, Michiro Isobe, Kazuhiro Karahashi, Satoshi Hamaguchi
(Osaka University)

Arranged Session 2 (18:15–20:15)

Chair: Dr. Kazuaki Kurihara

- [AS2-I1]** CMOS/MEMS Hybrid Process Integration for Silicon Photonics Devices
Keizo Kinoshita
(AIO Core Co., Ltd., / Mass-production Technology Project, PETRA, AIST Tsukuba West)
- [AS2-I2]** Atomic Layer Etching: its Science and Technology
Satoshi Hamaguchi, Michiro Isobe, Tomoko Ito, Kazuhiro Karahashi
(Center for Atomic and Molecular Technologies, Graduate School of Engineering, Osaka University)
- [AS2-I3]** Machine Learning Applications for Etching Profile Optimization
T. Ohmori, H. Nakada, M. Ishikawa, T. Usui, M. Kurihara
(Hitachi, Ltd., Research & Development Group)
- [AS2-I4]** Smarter Plasma Etching Processes: Multi-Scale Modelling and Beyond
Mingmei Wang, Yanxiang Shi, Yu-Hao Tsai, Du Zhang, Hojin Kim, Aelan Mosden, Peter Biolsi
(TEL Technology Center, America, LLC)

B: Hall-S

Topical Invited Lecture (11:00–12:00)

Chair: Dr. Keisuke Takashima

- [TL-22]** Plasma treatment of liquids and applications in agriculture
Nikola Škoro¹, Nevena Puač¹, Olivera Jovanović¹, Gordana Malović¹, Zoran Lj. Petrović^{1,2}
(¹Institute of Physics Belgrade, ²Serbian Academy of Sciences and Arts)

[TL-26] Cold plasma treatment stimulates seed germination by inducing dormancy loss due to changes in phytohormone balance

Vida Mildaziene¹, Laima Degutyte-Fomin¹, Giedre Pauzaite¹, Anatolii Ivankov¹, Rasa Zukiene¹, Zita Nauciene¹, Irina Filatova², Veronika Lyushkevich², Kazunori Koga³, Masaharu Shiratani³
(¹Vytautas Magnus University, ²National Academy of Sciences of Belarus, ³Kyushu University)

Oral Session (12:00–12:30)

[OR16AM-B01] Investigation of plasma effluent gas-dissolved-solution for suppressing *Colletotrichum gloeosporioides* conidia germination

Yue Hu, Kenji Nihei, Tsubasa Goti, Keisuke Takashima, Toshiro Kaneko
(Graduate School of Engineering, Tohoku University)

[OR16AM-B02] *Arabidopsis Thaliana* Sensitivity and Response to an Air Plasma Effluent Gas

Ahmad Shahir bin Ahmad Nor, Keisuke Takashima, Toshiro Kaneko
(Graduate School of Engineering, Tokoku University)

Topical Invited Lecture (16:15–16:45)

Chair Dr. Nikola Skoro

[TL-30] Interactions of low temperature plasmas with biological systems for plasma sterilization

F. Kogelheide², M. Fiebrandt², Farina Vogt², P. Awakowicz², K. Stapelmann¹
(¹North Carolina State University, ²Ruhr University Bochum)

Oral Session (16:45–17:45)

[OR16PM-B01] Generation of bactericidal efficacy in neutral pH range using oxygen-radical treatment of organic compound

Naoyuki Iwata¹, Vladislav Gamaleev¹, Jun-Seok Oh², Hiroshi Hashizume³, Takayuki Ohta¹, Kenji Ishikawa³, Masaru Hori³, Masafumi Ito¹
(¹Meijo University, ²Osaka City University, ³Nagoya University)

[OR16PM-B02] Microplasma synthesized silver nanoparticle/chitosan nanocomposite for antimicrobial applications

Daye Sun¹, Jonathan Turner², Li Zhang³, Brian Falzon¹, Colin McCoy², Paul Maguire⁴, Davide Mariotti⁴, Dan Sun¹
(¹School of Mechanical and Aerospace Engineering, Queen's University Belfast, ²School of Pharmacy, Queen's University Belfast, ³Analytical & Testing Center, Sichuan University, ⁴Nanotechnology and Integrated Bioengineering Centre, Ulster University)

[OR16PM-B03] Plasma jet for healing skin graft

Constance Duchesne^{1,2}, Nadira Frescaline^{1,2}, Sebastien Banzet², Jean-Jacques Lataillade², Antoine Rousseau¹
(¹Ecole Polytechnique, ²INSERM)

[OR16PM-B04] Enhancement of alcohol production of budding yeasts by treatment of non-equilibrium atmospheric pressure plasma

Shogo Matsumura¹, Kenji Ishikawa^{1,2}, Hiromasa Tanaka^{2,3}, Hiroshi Hashizume³, Masafumi Ito⁴, Masaru Hori^{1,2,3}
(¹Department of Electronics, Nagoya University, ²Plasma Medical Science Global Innovation Center, Nagoya University, ³Institute of Innovation for Future Society, Nagoya University, ⁴Graduate School of Science & Technology, Meijo University)

Arranged Session 1 (18:15–20:15)

Chair: Prof. Ute Ebert

- [AS1-I1] Ionization waves in diffuse atmospheric pressure air plasmas generated at high overvoltage conditions
P. Tardiveau
(LPGP, CNRS, Univ. Paris-Sud, Université Paris-Saclay)
- [AS1-I2] Generation runaway electrons and formation diffuse discharges in different gases
V.F. Tarasenko
(High Current Electronics Institute)
- [AS1-I3] A computational study of positive streamer branching in air
Jannis Teunissen^{1,2}, Behnaz Bagheri¹, Ute Eberta^{1,3}
(¹Group Multiscale Dynamics, Centrum Wiskunde & Informatica (CWI), ²Centre for mathematical Plasma Astrophysics, ³Department of Applied Physics, Eindhoven University of Technology)
- [AS1-I4] Recent advances in the research of nanosecond discharges in liquid water
M. Šimek¹, P. Hoffer¹, V. Prukner¹, J. Schmidt¹, P. Bílek², Z. Bonaventura²
(¹Department of Pulse Plasma Systems, Institute of Plasma Physics CAS, ²Department of Physical Electronics, Faculty of Science, Masaryk University)

C: Hall-K

Topical Invited Lecture (11:00–12:00)

Chair: Prof. Ronny Brandenburg

- [TL-23] Recent developments in streamer-related experiments
Sander Nijdam¹, Yuan Li^{1,2}, She Chen^{1,3}, Siebe Dijcks¹
(¹Eindhoven University of Technology, Dept. Applied Physics, ²State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University, ³College of Electrical and Information Engineering, Hunan University)
- [TL-27] Modeling of low-temperature plasma jets at atmospheric pressure
Anne Bourdon¹, Pedro Viegas^{1,2}, Zdenek Bonaventura³
(¹LPP, CNRS, Ecole Polytechnique, Sorbonne Université, Université Paris-Sud, Observatoire de Paris, Université Paris-Saclay, PSL Research University, ²DIFFER - Dutch Institute for Fundamental Energy Research, ³Department of Physical Electronics, Faculty of Science, Masaryk University)

Oral Session (12:00–12:30)

- [OR16AM-C01] Energy transfer in interaction of non-equilibrium atmospheric pressure plasmas with substrates
Luka Hansen¹, Stephan Reuter², Kristian Reck¹, Benjamin M. Goldberg³, David Feng³, Richard B. Miles³, Holger Kersten¹
(¹Institute for Experimental and Applied Physics, Kiel University, ²Department of Computer and Electrical Engineering, Lublin University of Technology, ³Department of Mechanical and Aerospace Engineering, Princeton University)
- [OR16AM-C02] Investigation of plasma jet spreading on a flat surface with and without shielding gases
Yuliia Onyshchenko, Mehrnoush Narimisa, Nathalie De Geyter, Rino Morent
(Research Unit Plasma Technology (RUPT), Department of Applied Physics, Ghent University)

Topical Invited Lecture (16:15–16:45)

Chair: Prof. John Foster

- [TL-31] Solvated electrons at a plasma-liquid interface
David B. Go
(University of Notre Dame)

Oral Session (16:45–17:45)

- [OR16PM-C01] Visualization of OH radical in liquid induced by atmospheric pressure plasma by luminol chemiluminescence
Naoki Shirai, Goju Suga, Yuki Owada, Koichi Sasaki
(Hokkaido University)
- [OR16PM-C02] Tailoring reactive species generation using Plasma Gun in single and multi-jets mode delivered above or inside liquid solutions
Eric Robert¹, Audoin Hamon¹, Sebastien Dozias¹, Claire Douat¹, Alina Raluca Bisag², Romolo Laurita², Matteo Gherardi^{2,3}, Vittorio Colombo^{2,3}, Jean Michel Pouvesle¹
(¹GREMI CNRS/Université d'Orléans, ²Department of Industrial Engineering, Alma Mater Studiorum-Università di Bologna, ³CIRI-Advanced Applications in Mechanical Engineering & Materials Technology, Alma Mater Studiorum-Università di Bologna)
- [OR16PM-C03] Decay measurement of OH radicals in plasma-exposed water using high-speed liquid flow
Wencheng Luo, Shota Sasaki, Ryosuke Honda, Toshiro Kaneko
(Graduate School of Engineering, Tohoku University)
- [OR16PM-C04] Characterization of pin-to-pin electrical underwater discharge regimes according to the solution conductivity and the applied voltage
C. Rond, N. Fagnon, X. Aubert, A. Vega, X. Duten
(LSPM – CNRS UPR3407, Université Paris 13)

D: Room 403

Topical Invited Lecture (11:00–12:00)

Chair: Prof. Mario Janda

- [TL-24] Modelling of complex chemical kinetics in atmospheric pressure plasmas
Tomoyuki Murakami
(Seikei University)
- [TL-28] Development of a Parallel Fluid Modeling Code Using Unstructured Grid and Its Application for Complex Gas Discharges
K.-L. Chen¹, J.-S. Wu^{1,2}, Y.-M. Lee³, M.-H. Hu³, S. Hamaguchi²
(¹Department of Mechanical Engineering, National Chiao Tung University, ²Center for Atomic and Molecular Technologies, Graduate School of Engineering, Osaka University, ³Plasma Taiwan Innovative Corp.)

Oral Session (12:00–12:30)

- [OR16AM-D01] One-dimensional and global modelling of excited species during methane upgrading by dielectric barrier discharge
Pierre A. Maitre, Matthew S. Bieniek, Panagiotis N. Kechagiopoulos
(Chemical and Materials Engineering Group, School of Engineering, University of Aberdeen)

- [OR16AM-D02]** Hydronitrogen Molecular Assisted Recombination process: Contribution from ammonia molecules for divertor plasma detachment
 Shota Abe^{1,2,3}, Saikat Chakraborty Thakur³, Russel P. Doerner³, George R. Tynan^{2,3}
 (¹Department of Chemical and Biological Engineering, Princeton University, ²Mechanical and Aerospace Engineering, University of California San Diego, ³Center for Energy Research, University of California San Diego)

Topical Invited Lecture (16:15–16:45)

Chair: Dr. Peter Ventzek

- [TL-32]** Kinetics of capacitively coupled discharges driven by tailored voltage waveforms
 Zoltan Donkó
 (Wigner Research Centre for Physics)

Oral Session (16:45–17:45)

- [OR16PM-D01]** Monte Carlo Flux simulations of electrons for plasma modelling
 Luca Vialetto¹, Savino Longo², Paola Diomede¹
 (¹DIFFER, ²Università degli Studi di Bari)
- [OR16PM-D02]** Self-consistent Fokker-Planck approach to CO₂ vibrational kinetics
 Pedro Viegas¹, M.C.M. van de Sanden¹, Savino Longo², Paola Diomede¹
 (¹DIFFER - Dutch Institute for Fundamental Energy Research, ²Dipartimento di Chimica, Università degli Studi di Bari)
- [OR16PM-D03]** Correlations between short and long-scale instabilities in magnetron plasmas, combining modeling and experiments
 Tiberiu Minea¹, Sedina Tsikata², Adrien Revel¹, Huan Luo³
 (¹LPGP, UMR 8578 CNRS, Université Paris-Sud, Université Paris-Saclay, 91405 Orsay Cedex, France, ²ICARE, CNRS (UPR 3021), 1C ave. de la Recherche Scientifique, 45071 Orléans, France, ³FEMTO-ST, UMR 6174 CNRS, MN2S, Univ. Bourgogne Franche-Comte, UTBM, Site de Montbéliard, 90000 Belfort Cedex, France)
- [OR16PM-D04]** Influence of magnetic field on the plasma decay in the post-arc phase of vacuum circuit breakers
 Dan Wang, Lijun Wang, Yuan Wang, Shenli Jia
 (State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University)

————— **E: Room 301, 302, 305** —————

Poster Session 2 (14:00–16:00)

- [PO16PM-001]** Time-resolved optical emission spectroscopy on streamer plasmas in underwater pulsed spark discharge
 Kern Lee, Kyoung-Jae Chung, Y.S. Hwang
 (Seoul National University)
- [PO16PM-002]** Spectroscopic measurement of needle discharge in pure water
 Satoshi Uehara¹, Haruki Ishizuka², Takehiko Sato¹
 (¹Institute of Fluid Science, Tohoku University, ²School of Engineering, Tohoku University)

- [PO16PM-003]** Mapping of 2-D plasma-induced fluid flow using particle image velocimetry
J. Lai, J. Foster
(Department of Nuclear Engineering and Radiological Sciences, University of Michigan)
- [PO16PM-004]** Evaluation of discharge characteristics of solution plasma in ethanol-water mixed solution
Fumisato Gamou, Kazuma Kawahara, Nozomi Takeuchi
(Tokyo Institute of Technology)
- [PO16PM-005]** Electrical and optical characterisation of single-filament dielectric barrier discharges on a water surface
Hans Höft, Manfred Kettlitz, Ronny Brandenburg
(Leibniz Institute for Plasma Science and Technology (INP))
- [PO16PM-006]** Evaluation of local thermal equilibrium of pulsed surface discharge on water
Kazushi Oura, Tomohiro Furusato, Takahiko Yamashita
(Nagasaki University)
- [PO16PM-007]** Evaluation of current density of pulsed surface discharge on water solution by analyzing voltage/current waveforms
Takuya Sakamoto, Tomohiro Furusato, Yota Yamamoto, Kensuke Sasaki, Takahiko Yamashita
(Nagasaki University)
- [PO16PM-008]** Power alteration in a DBD-based plasma-jet system due to its interaction with aqueous solutions
D.K. Athanasopoulos, P. Svarnas
(High Voltage Laboratory, Electrical & Computer Eng. Dept., University of Patras)
- [PO16PM-009]** Picosecond interferometry and analysis of pressure fields around nanosecond microdischarge filaments in deionized water
Petr Hoffer, Vaclav Prukner, Jiri Schmidt, Milan Šimek
(Institute of Plasma Physics of the CAS)
- [PO16PM-010]** The behavior of cavitation bubble plasma with time progress in sodium chloride solution
Sho Okada, Yoshihiro Oka, Hideki Ueno
(University of Hyogo)
- [PO16PM-011]** Identification of nanocavitation area during (sub)nanosecond electrical breakdown in deionized liquid water
Petr Břilek¹, Petr Hoffer², Vaclav Prukner², Z. Bonaventura¹, Milan Šimek²
(¹Masaryk University, Faculty of Science, Department of Physical Electronics, ²Department of Pulse Plasma Systems, Institute of Plasma Physics, Academy of Sciences of the Czech Republic)
- [PO16PM-012]** Droplet ejection from liquid gallium and tin interacting with inductively coupled argon and helium plasmas
Yuki Hamana, N. Shirai, K. Sasaki
(Division of Quantum Science and Engineering, Hokkaido University)
- [PO16PM-013]** Feature profile simulation of plasma-enhanced Ti atomic layer deposition
Kazuki Denpoh¹, Paul Moroz², Taiki Kato¹, Masaaki Matsukuma¹
(¹Tokyo Electron Technology Solutions Ltd., ²TEL Technology Center, America, LLC)
- [PO16PM-014]** Computer modelling of plasma-optical filter
Iryna V. Litovko¹, Alexey A. Goncharov²
(¹Institute for Nuclear Research NAS of Ukraine, ²Institute of Physics NASU)

- [PO16PM-015]** Simulation of the Coulomb expansion of pulsed ion beams with plasma neutralization without taking into account the external compressive force
Tlekkabul Ramazanov¹, Karlygash Dzhumagulova¹, Erik Shalenov¹, Alexandr Tikhonov², Marat Kaikanov²
(¹Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University, ²Department of Physics, Nazarbayev University)
- [PO16PM-016]** Simulation study of physical processes in self-irradiated tungsten
Arimichi Takayama¹, Atsushi M. Ito¹, Hiroaki Nakamura^{1,2}
(¹National Institute for Fusion Science, National Institutes of Natural Sciences, ²Nagoya University)
- [PO16PM-017]** Simulation study of capacitively coupled radio frequency plasma discharges using a boundary value problem approach
Lizhu Tong
(Keisoku Engineering System Co., Ltd.)
- [PO16PM-018]** The simulation of high power microwave breakdown of dielectric window with gas release: PIC/MC/DSMC and multi-time scale estimation
Hong-Yu Wang¹, Peng Sun¹, Ai-Dong Deng²
(¹School of Physics Science and Technology, Anshan Normal University, ²Shanghai Bright-Tech Information Corp. Inc.)
- [PO16PM-019]** Self-consistent simulation of microwave assisted plasmas
Swaminathan Prasanna, Armelle Michau, Khaled Hassouni
(LSPM, UPR 3407 CNRS, Université Paris 13)
- [PO16PM-020]** The behaviour of multi-charged ions inside the cathode spot of copper vacuum arcs: insight from 2D electrostatic PIC-DSMC simulation
Wei Yang, Qianhong Zhou, Zhiwei Dong
(Institute of Applied Physics and Computational Mathematics)
- [PO16PM-021]** The critical avalanche of runaway electrons
Evgeny Oreshkin
(P.N. Lebedev Physical Institute of the Russian Academy of Sciences / Institute of High Current Electronics, Siberian Branch, Russian Academy of Sciences)
- [PO16PM-022]** Electron kinetics in fast-pulsed discharges
Antonio Tejero-del-Caz¹, Vasco Guerra¹, Mario Lino da Silva¹, Luis Marques², Nuno Pinhão¹, Carlos Daniel Pintassilgo³, Luis L. Alves¹
(¹Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, ²Centro de Física da Universidade do Minho, Campus de Gualtar, ³Faculdade de Engenharia da Universidade do Porto)
- [PO16PM-023]** Critical assessment of reaction mechanisms using the LisbOn KInetics tool suit
Antonio Tejero-del-Caz¹, Vasco Guerra¹, Mario Lino da Silva¹, Luis Marques², Nuno Pinhão¹, Carlos Daniel Pintassilgo³, Tiago Silva¹, Luis L. Alves¹
(¹Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Universidade de Lisboa, ²Centro de Física da Universidade do Minho, Campus de Gualtar, ³Faculdade de Engenharia da Universidade do Porto)
- [PO16PM-024]** Determination of the EEDF by Continuum Spectrum Analysis of Atmospheric Pressure Plasma using a Genetic Algorithm
Thijs van der Gaag, Hiroshi Akatsuka, Hiroshi Onishi
(Tokyo Institute of Technology)

- [PO16PM-025]** Measurement of energy distribution function of negatively charged particles incident on a substrate using retarding field energy analyzer in DC magnetron sputtering
Yoshinobu Matsuda, Masaki Ishiba, Shu Yasumoto, Atsushi Kina, Tomohiro Furusato, Takahiko Yamashita
(Nagasaki University)
- [PO16PM-026]** Time-of-flight mass spectrometric diagnostics for ionized and neutral species in high power pulsed magnetron sputtering
Keizo Tsukamoto^{1,2}, Tetsuro Tamura¹, Hiromi Matsusaki¹, Masahide Tona², Hiroaki Yamamoto², Yoshihiro Hirai^{2,3}, Hiroshi Nishida³, Yuki Nakagomi³, Nobuo Nishimiya³, Masaomi Sanekata³, Keiji Ohshimo¹, Kiichirou Koyasu¹, Fuminori Misaizu¹
(¹Department of Chemistry, Graduate School of Science, Tohoku University, ²Ayabo Corporation, ³Faculty of Engineering, Tokyo Polytechnic University)
- [PO16PM-027]** Effect of tantalum deposition on plasma electrode surface upon negative hydrogen ion production
Kenta Maeshiro¹, Motoi Wada¹, Singo Masaki²
(¹Doshisha University, ²SOKENDAI (The Graduate University for Advanced Studies))
- [PO16PM-028]** Electron density diagnostics in atmospheric pressure radio frequency dielectric barrier discharge and discharge with bare electrode
Lei Wang¹, Nikola Cvetanović², Brastilav Obradović², Eusebiu-Rosini Ionita³, Gheorghe Dinescu³, Christophe Leys¹, Anton Nikiforov¹
(¹Department of Applied Physics, Ghent University, ²Faculty of Physics, University of Belgrade, ³National Institute of Laser, Plasma and Radiation)
- [PO16PM-029]** Application of chemical probes to study on radical transportation inside of flexible tubes
Hiroto Matsuura, Yoshiki Matsui, Nguyen Trung Tran, Bounyang Ouanthavinsak, Jin Sakamoto, Ryoko Asada, Masakazu Furuta
(Osaka Prefecture University)
- [PO16PM-030]** Development of planar type cutoff probe for measurement of the plasma electron density in low-pressure plasmas
Dae-Woong Kim¹, Si-Jun Kim², Shin-Jae You², Min Hur¹, Woo-Seok Kang¹
(¹Korea Institute of Machinery and Materials, ²Chungnam National University)
- [PO16PM-031]** Effect of probe-induced perturbations in Capacitively Coupled Radio Frequency (CCRF) Discharges
Arti Rawat, Ashish Ganguli, Ramesh Narayanan, R.D. Tarey
(Indian Institute of Technology Delhi)
- [PO16PM-032]** Comparison of three methods for sheath potential analysis using an emissive probe measurement
In Je Kang¹, In Sun Park¹, Eugene Wackerbarth², Min-Keun Bae¹, Noah Hershkowitz³, Greg Severn², Kyu-Sun Chung²
(¹Hanyang University, ²University of San Diego, ³University of Wisconsin-Madison)
- [PO16PM-033]** Experimental Investigation of Vacuum Arc in Microsecond scale between Small-Size Trigatron with Refractory-electrodes
Yuan Wang, Lijun Wang, Jie Deng, Shenli Jia
(State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University)
- [PO16PM-034]** Measurement of Metal Vapor Composition in Vacuum Plasma Generated between CuCr Electrodes
Ryo Kikuchi¹, Yuki Inada², Hiroyuki Nagai¹, Shigeyasu Matsuoka¹, Akiko Kumada¹, Kunihiko Hidaka¹
(¹The University of Tokyo, ²Saitama University)

- [PO16PM-035]** Measurement of 2-D Temperature Distribution in Vacuum Arc
Takuya Mitani¹, Akiko Kumada¹, Kunihiro Hidaka¹, Akihiro Suwa², Yoshihiko Matsui²,
Masayuki Sakaki²
(¹The University of Tokyo, ²Meidensha Corporation)
- [PO16PM-037]** Temporal evolution of sound waves produced by pulsed laser ablation on metals at atmospheric pressure
Sena Tsuchiya, Riku Watase, Kanji Shibagaki
(Department of Electrical and Electronic Engineering, National Institute of Technology, Suzuka College)
- [PO16PM-038]** Spatiotemporal measurement of OH radical density in helium atmospheric pressure plasma jet
Tokuhiko Makoto, Ryo Ono
(The University of Tokyo)
- [PO16PM-039]** Characteristics of OH radical emission by microwave atmospheric pressure plasma jet
Jun Choi¹, Jea hee Lee², Da Young Hong²
(¹Korea Institute of Industrial Technology, ²University of Ulsan)
- [PO16PM-040]** Spectroscopic observation of argon atmospheric pressure plasma jet
Susumu Suzuki¹, Kenji Teranishi², Naoyuki Shimomura², Haruo Itoh¹
(¹Chiba Institute of Technology, ²Tokushima University)
- [PO16PM-041]** Behavior of metastable Ar atom generated in microwave excited atmospheric pressure Ar gas plasma jet in open air
Keigo Takeda¹, Fumiya Satake¹, Masaki Kataoka¹, Mineo Hiramatsu¹, Kenji Ishikawa², Masaru Hori²
(¹Meijo University, ²Nagoya University)
- [PO16PM-042]** Optical emission spectroscopy of atmospheric pressure micro-plasma jets under the influence of a strong magnetic field
Kalyani Barman¹, Deepika Behmani¹, Mohit Mudgal¹, Sudeep Bhattacharjee¹, Ramkrishna Rane²,
Sudhir K. Nema²
(¹Indian Institute of Technology Kanpur, ²Institute for Plasma Research, Gandhinagar)
- [PO16PM-043]** Influence of admixtures on atmospheric pressure microwave plasma torch used for graphene nanosheets synthesis
Vit Kudrle, Miroslav Snirer, Jozef Toman, Ondrej Jasek, Jana Jurmanova
(Masaryk University)
- [PO16PM-044]** The time-spatial structure of streamers in helium and argon atmospheric pressure plasma jets driven by AC DBD
Olga Stepanova¹, Mikhail Pinchuk¹, Alexander Astafiev¹, Zhaoquan Chen²
(¹Laboratory of Plasma Diagnostics, Institute for Electrophysics and Electrical Power of Russian Academy of Sciences, ²College of Electrical and Information Engineering, Anhui University of Technology)
- [PO16PM-045]** Parameters of the non-equilibrium plasma torch, sustained by focused radiation of the gyrotron
Alexander Vodopyanov, S. Sintsov, D. Mansfeld
(Institute of Applied Physics of RAS)
- [PO16PM-047]** Conversion and energy efficiency of microwave plasma torch for CO₂ conversion in pressure range 60-900 mbar
Ante Hecimovic, Federico D'Isa, Emile Carbone, Ursel Fantz
(Max-Planck-Institut für Plasmaphysik)

- [PO16PM-048]** Influences of the quartz tube diameter on the propagation length of the radio-frequency atmospheric-pressure glow discharge plasma jets
Heping Li, M.A. Khan, Jing Li
(Department of Engineering Physics, Tsinghua University)
- [PO16PM-049]** Understanding the evolution of a He and He/O₂ capillary plasma jet
Constantinos Lazarou^{1,2}, Charalambos Anastassiou^{1,2}, Ionut Topala³, Alina Silvia Chiper³, Ilarion Mihaila⁴, Valentin Pohoata³, Pascal Vogel⁵, Alexander Knodel⁵, Bienvenida Gilbert Lopez⁶, Juan Francisco Garcia Reyes⁶, Antonio Molina-Diaz⁶, Joachim Franzke⁵, George Elias Georgiou^{1,2}
(¹FOSS Research Centre for Sustainable Energy, Department of Electrical and Computer Engineering, University of Cyprus, ²ENAL Electromagnetics and Novel Applications Lab, Department of Electrical and Computer Engineering, University of Cyprus, ³Iasi Plasma Advanced Research Center (IPARC), Faculty of Physics, Alexandru Ioan Cuza University of Iasi, ⁴Integrated Center of Environmental Science Studies in the North-Eastern Development Region (CERNESIM), Alexandru Ioan Cuza University of Iasi, ⁵ISAS – Leibniz Institut für Analytische Wissenschaften, ⁶Analytical Chemistry Research Group, Department of Physical and Analytical Chemistry, University of Jaén)
- [PO16PM-050]** Temporal variation of plasma discharge current in atmospheric pressure helium plasma jet
Veda Prakash Gajula, Narayan Behera, Kiran Kumar Patel, Ajai Kumar
(Institute for Plasma Research)
- [PO16PM-051]** Effect of oxygen impurity on an atmospheric nanosecond pulsed helium plasma jet impinging on a dielectric surface
Lijun Wang, Yashuang Zheng, Jie Liu, Dan Wang
(Xi'an Jiaotong University)
- [PO16PM-052]** Behavior of Atmospheric Pressure Plasma Jet using Double Electrode with Additional Ground Electrode
Wannakuwaththawaduge Thomas Leon Suganda Fernando, Kazumasa Takahashi, Takashi Kikuchi, Toru Sasaki
(Nagaoka University of Technology)
- [PO16PM-053]** Experimental observation of the moving striation in glow-like Ar-NH₃ APPJ
Zhengshi Chang¹, Ni Zhao², Cong Wang¹, Guoqiang Li¹, Congwei Yao¹, Guanjun Zhang¹
(¹Xi'an Jiaotong University, State Key Laboratory of Electrical Insulation and Power Equipment, ²Institute of Water Resources and Hydro-Electric Engineering, Xi'an University of Technology)
- [PO16PM-054]** Suppress of Plasma Source Temperature Increment for Long Time Irradiating with Argon Jet
Nguyen Trung Tran¹, Hiroto Matsuura¹, Bounyang Oanthasavik¹, Ba Duc Nguyen²
(¹Osaka Prefecture University, ²Jeju National University)
- [PO16PM-055]** Statistics of current pulses in a surface barrier discharge on electrodes of various materials
Igor Selivonin^{1,2}, Ivan Moralev¹
(¹Joint Institute for High Temperatures RAS, ²Moscow Power Engineering Institute)
- [PO16PM-056]** SiH₄ gas velocity dependence of deposition rate and Si-H₂ bond density of a-Si:H films deposited by multi-hollow discharge plasma CVD method
Hisayuki Hara, Shota Nagaishi, Ryosuke Iwamoto, Daisuke Yamashita, Kunihiro Kamataki, Naho Itagaki, Kunihiro Kamataki, Masaharu Shiratani
(Kyushu University)
- [PO16PM-058]** Low Temperature Fabrication of Low Hydrogen Content SiN films in a Multi-Hollow Discharge Plasma CVD
Kunihiro Kamataki, S. Nagaishi, Y. Sasaki, H. Hara, D. Yamashita, N. Itagaki, K. Koga, M. Shiratani
(Kyushu University)

- [PO16PM-059]** Detection efficiencies of a micro-channel plate for positive/negative low energy hydrogen ions
Fumiya Ikemoto¹, Ippei Yamada¹, Yuji Shimabukuro¹, Nozomi Tanaka², Katsuyoshi Tsumori³,
Hitoshi Yamaoka⁴, Mamiko Sasao⁵, Motoi Wada¹
(¹Graduate School of Science and Engineering, Doshisha University, ²Institute of Laser Engineering,
Osaka University, ³National Institute for Fusion Science, ⁴RIKEN SPring-8, ⁵Institute for R&D
Promotion, Doshisha University)
- [PO16PM-060]** Spatial Distribution Measurement of Ion Beams Extracted from a Carbon Molecular Ion
Source
Hajime Aki, Naoki Miyamoto, Yuta Imamura, Toshiro Kasuya, Motoi Wada
(Graduate School of Science and Engineering, Doshisha University)
- [PO16PM-061]** Detection of electrically charged dusts in ion beam transport region
Motoi Wada, Kentaro Yoshioka, Yusuke Kuwata, Naoki Miyamoto
(Doshisha University)
- [PO16PM-062]** Variable gaseous plasma ion beams for nano-structuring
Sanjeev Kumar Maurya, Sushanta Barman, Nandita Pan, Sudeep Bhattacharjee
(Indian Institute of Technology Kanpur)
- [PO16PM-063]** Temperature and velocity measurements for plasma spray droplets using the simple monitoring
system
Yasuyuki Kawaguchi^{1,3}, M. Shiratani¹, Y. Yamagata², K. Muraoka³
(¹Graduate School and Faculty of ISEE, Kyushu University, ²Interdisciplinary Graduate School of
Engineering Sciences, Kyushu University, ³Plazwire Co., Ltd.)
- [PO16PM-065]** Molecular Dynamics Simulation of SiO₂ Etching with Fluorocarbon Ions and Radicals
Charisse Marie Donato Cagomoc, Michiro Isobe, Satoshi Hamaguchi
(Osaka University)
- [PO16PM-066]** Fabrication of diffraction gratings on organic crystals by using plasma etching
S. Murakami¹, H. Kishimoto¹, M. Odani², Y. Inada², K. Takahashi¹, T. Yamao²
(¹Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology, ²Faculty of Materials
Science and Engineering, Kyoto Institute of Technology)
- [PO16PM-067]** Nanopatterning on metal by ion-plasma technologies for holograms
Markizat M. Myrzabekova¹, Muratov M. Muratov¹, Nazim Guseinov¹, Renata Nemkayeva¹,
Ya. Shabelnikova², Sergey I. Zaitsev²
(¹National Nanotechnological Laboratory of Open Type at Al-Farabi Kazakh National University,
²Institute of Microelectronics Technology and High-Purity Materials RAS)
- [PO16PM-068]** Uniformity Control in Capacitively Coupled Plasmas
SangHeon Song
(Lam Research Corporation)
- [PO16PM-069]** Effect of substrate temperature on the crystalline of MgO thin films by sputtering gas of Ar+N₂
mixture
Miki Goto, H. Nakayama
(Department of Electrical and Electronic Engineering, Kanagawa Institute of Technology)
- [PO16PM-070]** Computational study of thin films growth by plasma deposition using atomistic modelling
Vit Gabriel, Pavel Kocán, Jakub Palacký
(Department of Surface and Plasma Science, Faculty of Mathematics and Physics Charles University)

- [PO16PM-071]** Experimental and computational study on aluminium oxide surfaces exposed to halogen containing plasmas
Hojun Kang¹, Kazuhiro Karahashi¹, Tomoko Ito¹, Takuya Ishihara², Masaru Soeda², Masashi Sekine², Satoshi Hamaguchi¹
(¹Center for Atomic and Molecular Technologies, Osaka University, ²Azbil Corporation)
- [PO16PM-072]** Plasma CVD of BN nanotubes using catalytic nanoparticles
Tatsuya Shiratori, T. Yanase, T. Nagahama, Y. Yamamoto, T. Shimada
(Division of Applied Chemistry, Hokkaido Univ.)
- [PO16PM-073]** Low Damage Radical Nitridation of Silicon using Surface Plasmon Resonance of Gold Nanoparticle Catalyst
Machiko Miyake, Kohei Honda, Takeshi Kitajima, Toshiki Nakano
(National Defense Academy)
- [PO16PM-074]** Cyclic BCl₃-based plasma treatments for enhancing surface quality of (010) β-Ga₂O₃ substrates
Yohan Eric Douest^{1,2}, Cedric Mannequin¹, Toshimistu Ito³, Y. Ozaki³, Christophe Vallee^{1,4}, Etienne Gheeraert^{1,5}, Katsuhiro Akimoto¹, Masahiro Sasaki¹, Takashi Teramoto⁶, Christian Dussarrat⁶
(¹Department of Applied Physics, University of Tsukuba, ²Univ. Grenoble Alpes, Polytech Grenoble, ³National Institute of Advanced Industrial Science and Technology (AIST), (⁴Univ. Grenoble-Alpes, CNRS, LTM, ⁵Univ. Grenoble Alpes, CNRS, Grenoble INP, Institut Néel, ⁶Air Liquide Laboratories)
- [PO16PM-075]** Silicon wafer etching by burst-mode high-power ICP with 150 kHz frequency band
Kodai Shibata¹, Katsuyuki Takahashi^{1,2}, Seiji Mukaigawa¹, Koichi Takaki^{1,2}, Ken Yukimura¹, Hisato Ogiso³, Shizuka Nakano³
(¹Faculty of Science and Engineering, Iwate University, ²Agri-Innovation Center, Iwate University, ³National Institute of Advanced Industrial Science and Technology)
- [PO16PM-076]** DC atmospheric pressure microplasma for the synthesis of gold nanoparticle/graphene oxide nanocomposites
Daye Sun¹, Miao Tang², Li Zhang³, Brian Falzon¹, Dilli Babu Padmanaban⁴, Davide Mariotti⁴, Paul Maguire⁴, Mei Chen², Dan Sun¹
(¹School of Mechanical & Aerospace Engineering, Queen's University Belfast, ²School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast, ³Analytical & Testing Center, Sichuan University, ⁴Nanotechnology and Integrated Bioengineering Centre, Ulster University)
- [PO16PM-077]** Mass spectrometric analysis of ionic species in and around atmospheric pressure helium plasma jets
Kenkichi Nagato¹, Takahito Seto²
(¹National Institute of Technology, Kochi College, ²Toyohashi University of Technology)
- [PO16PM-078]** Effects of liquid properties on plasma-induced liquid flow
Keisuke Nishida¹, Makoto Kawaguchi², Yuka Hazama², Giichiro Uchida³, Fumiaki Mitsugi¹, Nozomi Takeuchi⁴, Kousuke Takenaka³, Kazunari Koga⁵, Yuichi Setsuhara³, Masaharu Shiratani⁵, Toshiyuki Kawasaki⁶
(¹Kumamoto University, ²Nippon Bunri University, ³Osaka University, ⁴Tokyo Institute of Technology, ⁵Kyushu University, ⁶Nishinippon Institute of Technology)
- [PO16PM-079]** Distribution measurement of reactive oxygen species in water irradiated from atmospheric-pressure oxygen-radical source
Nozomi Iio¹, Naoyuki Iwata¹, Vladislav Gamaleev¹, Toshiyuki Kawasaki², Masaru Hori³, Masafumi Ito¹
(¹Department of Electrical and Electronic Engineering, Meijo University, ²Department of Electrical Engineering, Nishinippon Institute of Technology, ³Institute of Innovation for Future Society, Nagoya University)

- [PO16PM-080]** Selective dismantlement of waste photovoltaic panels by electrical discharge for recycling
Soowon Lim¹, Maiko Nishi², Shuhei Maruyama², Yukihiro Sawamura², Takao Namihira³, Chiharu Tokoro²
(¹Waseda Research Institute for Science and Engineering, Waseda University, ²Department of Creative Science and Engineering, Waseda University, ³Institute of Pulsed Power Science, Kumamoto University)
- [PO16PM-081]** Generation of high purity nitric oxide (NO) for plasma farming application
Joo Young Park, Sanghoo Park, Hyungyu Lee, Wonho Choe
(Korea Advanced Institute of Science and Technology)
- [PO16PM-082]** Characterization of a cold helium plasma jet at atmospheric pressure impinging on glass, water and metal substrates
J. Cosimi, N. Merbahi, F. Marchal, M. Yousfi
(Universite de Toulouse)
- [PO16PM-083]** Plasma-Assisted Synthesis and Modification of Electrocatalysts and Electrode Materials for Renewable Energy
Yanru Guo^{1,2}, Xinghua Chang¹, Jie Zheng¹, Xingguo Li¹, Kostya (Ken) Ostrikov²
(¹Peking University, ²Queensland University of Technology)
- [PO16PM-084]** Floating bacteria removal characteristics using plasma activated photocatalyst air purification system
Naohiko Shimura, Noboru Segawa
(Toshiba Environmental Solutions Corporation)
- [PO16PM-085]** Removal of low concentration toluene using a combined non-thermal plasma with catalyst
Yoohyun Seo^{1,2}, Juyoung Park^{3,4}, Choi Jun⁴, Suhan Kim²
(¹Busan National University, ²Green Materials & Processes Group, Korea Institute of Industrial Technology, ³Department of electronic Engineering, Busan National University, ⁴Advanced Forming Process R&D Group, Korea Institute of Industrial Technology)
- [PO16PM-086]** Decomposition of vanillin using non-equilibrium atmospheric-pressure oxygen radical source and rotating arc plasma
Ginji Ito¹, Naoyuki Iwata¹, Vladislav Gamaleev¹, Motoyuki Shimizu², Masashi Kato², Masaru Hori³, Masafumi Ito¹
(¹Faculty of Science and Technology, Meijo University, Nagoya, ²Faculty of Agriculture, Meijo University, Nagoya, ³Institute of Innovation for Future Society, Nagoya University)
- [PO16PM-087]** Air flow effect on bacteria inactivation with DBD
Jun Choi¹, Juyoung Park^{1,2}, Yookyum Shin^{1,2}
(¹Korea Institute of Industrial Technology, ²Pusan National University)
- [PO16PM-088]** Mass production of plasma activated water by an atmospheric plasma
Yun Sik Jin, Chuhyun Cho, Chang-seung Ha, Chaehwa Shon, Daejong Kim, Seong-Tae Han
(Korea Electrotechnology Research Institute (KERI))
- [PO16PM-089]** Characterization of air dielectric barrier discharges over a water surface in atmospheric pressure for water treatment
Nima Bolouki¹, J.H. Hsieh^{1,2}, W. H. Kuan³, Y.Y. Huang³
(¹Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, ²Department of Materials Engineering, Ming Chi University of Technology, ³Department of Safety, Health and Environmental Engineering, Ming Chi University of Technology)
- [PO16PM-090]** Analysis of concentrations of species generated by rotating arc jet in gas phase and treated liquid
Vladislav Anatolyevich Gamaleev¹, Naoyuki Iwata¹, Jun-Seok Oh², Mineo Hiramatsu¹, Masafumi Ito¹
(¹Meijo University, ²Osaka City University)

- [PO16PM-091]** Sterilization Efficacy of Green Nails Symptom and Gray Nails on Bovine Hoof Model Using an Argon Atmospheric-Pressure Plasma Jet
Mu-Chien Wu¹, Chin-Wei Liao¹, Yu-Ping Cheng^{2,3}, Zhi-Hua Lin¹, Chih-Man Yang^{2,4}, Jong-Shinn Wu¹
(¹Department of Mechanical Engineering, National Chiao Tung University, ²Institute of Molecular Medicine and Biochemical Engineering, National Chiao Tung University, ³Hsinchu Cathay General Hospital, ⁴National Taiwan University Hospital Hsinchu Branch)
- [PO16PM-092]** Oxygen plasma treatment and Grafted PNIPAAm Composite Hydrogel with silver nanoparticles for Promotion of Antibacterial Properties
Shih-Ju LIU, Shu-Chuan Liao
(Da-Yeh University)
- [PO16PM-093]** The effect of DCSBD plasma treatment on wheat seed germination and α -amylase enzyme activity
Yerbolat Ussenov^{1,2}, A. Akildinova^{1,2}, A.K. Bissenbaev³, Ye. Yerlanuly¹, M.T. Gabdullin¹, M.K. Dosbolayev¹, T.T. Daniyarov², T.S. Ramazanov¹
(¹NNLOT, Al-Farabi Kazakh National University, ²Institute of Applied Sciences and Information Technologies, ³SRI Of Biology and Biotechnology Problems, Al-Farabi Kazakh National University)
- [PO16PM-094]** Enhancement of growth and antioxidant activity of green-leaf lettuce by DBD plasma irradiation to seeds
Mamoru Shirakami¹, Masako Shindo¹, Nobuya Hayashi²
(¹Faculty of Engineering, Osaka Institute of Technology, ²Interdisciplinary Graduate School of Engineering Sciences, Kyushu University)
- [PO16PM-095]** Viability of shelf life extension of blueberries using a plasma pouch
Jinwoo Kim, Sanghoo Park, JooYoung Park, Wonho Choe
(Korea Advanced Institute of Science and Technology)

Wednesday, July 17, 2019

Registration (8:30–13:00)

A: Hall-L

General Invited Lecture (09:00–09:45)

Chair: Prof. Ute Ebert

[GL-02] Numerical simulation tools for plasma chemistry
Luis L. Alves
(Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico)

General Invited Lecture (09:45–10:30)

Chair: Prof. Alexander Fridman

[GL-03] Multi-frequency atmospheric pressure plasma for surface treatment
Francoise Massines
(CNRS PROMES)

Topical Invited Lecture (11:00–11:30)

Chair: Prof. Kazunori Koga

[TL-33] Plasma metamaterials: present and future
Osamu Sakai¹, A. Iwai^{1,2}, A. Bambina¹, Y. Kabe¹, C. Inami¹, G. Itami¹, T. Naito¹, S. Miyagi¹
(¹The University of Shiga Prefecture, ²Kyoto University)

Oral Session (11:30–12:30)

- [OR17AM-A01]** Simulation of Plasma and Solid Based Metamaterial for Antenna Application
Ahmad Nazri Dagang¹, H. Jaafar², R.L. Tan¹, S.N. Dahaman¹
(¹School of Ocean Engineering, Universiti Malaysia Terengganu, ²Faculty of Electrical Engineering, Universiti Teknologi Mara Dungun)
- [OR17AM-A02]** Micorplasma-Assisted Synthesis of GQD-AgNP Nanohybrids with Enhancing Light-Matter Coupling for SERS-based Detection
Wei-Hung Chiang
(National Taiwan University of Science and Technology)
- [OR17AM-A03]** Low-emissivity glass based on aluminium doped zinc oxide thin films deposited by magnetron sputtering
Eugen Stamate, Kion Norrman, Poul Norby
(Technical University of Denmark)
- [OR17AM-A04]** Generation and annihilation kinetics of plasma-induced electronic defects in hydrogenated amorphous silicon
Shota Nunomura, Isao Sakata, Koji Matsubara
(National Institute of Advanced Industrial Science and Technology)

B: Hall-S

Topical Invited Lecture (11:00–11:30)

Chair Prof. Giichiro Uchida

- [TL-34]** Dynamic analysis of reactive oxygen nitrogen species in plasma-activated liquid by UV absorption spectroscopy
Jun-Seok Oh^{1,2}, Endre J. Szili³, Masafumi Ito⁴, Akimitsu Hatta^{5,6}
(¹Department of Physical Electronics and Informatics, Osaka City Univ., ²BioMedical Engineering Center, Osaka City Univ., ³Future Industries Institute, Univ. of South Australia, ⁴Department of Electrical and Electronic Engineering, Meijo Univ., ⁵Department of Electronic and Photonic Systems Engineering, Kochi Univ. Technol., ⁶Center for Nanotechnology, Research Institute of Kochi Univ. Technol.)

Oral Session (11:30–12:30)

- [OR17AM-B01]** Measurement of reactive species in gas- and liquid-phase controlled by operating parameters in microwave-excited atmospheric pressure plasma
Tae Hun Chung, Hea Min Joh, Hwa Suk Kim, Ara Jo, Jin Woong Chung
(Dong-A University)
- [OR17AM-B02]** Optimized properties of carbon nanowall surface for laser desorption / ionization mass spectrometry
Ryusei Sakai¹, Tomonori Ichikawa¹, Shun Imai¹, Hiroki Kondo¹, Kenji Ishikawa¹, Takayuki Ohta², Mineo Hiramatsu², Makoto Sekine¹, Masaru Hori³
(¹Department of Electronics, Nagoya University, ²Meijo University, ³Institute of Innovation for Future Society, Nagoya University)
- [OR17AM-B03]** Reactive oxygen nitrogen species induced reactions at the gas-liquid interface by air plasma effluent gas
Keisuke Takashima, Shota Sasaki, Yutaka Kimura, Toshiro Kaneko
(Graduate School of Engineering, Tohoku University)
- [OR17AM-B04]** From plasma polymer to bladder cancer diagnostic device: A story about the journey from the laboratory to industrial scale production
Thomas Danny Michl¹, Kola Ostrikov^{1,2}, Kit Man Chan¹, Hanieh Safizadeh Shirazi¹, Melanie MacGregor^{1,2}, Simon Belcher³, Stephen Robb³, Alex Grochowski³, Adam Di Fiore³, Jonathan Gleadle⁴, Jordan Li⁴, Krasimir Vasilev^{1,2}
(¹School of Engineering, University of South Australia, ²Future Industries Institute, University of South Australia, ³Motherson Innovations, ⁴College of Medicine and Public Health, Flinders University, Flinders Medical Centre)

C: Hall-K

Topical Invited Lecture (11:00–11:30)

Chair: Prof. Miran Mozetic

- [TL-35]** The tunability of flowing afterglow systems based on surface-wave (surfatron) microwave discharges
Kinga Kutasi¹, Vasco Guerra²
(¹Wigner Research Centre for Physics of Hungarian Academy of Sciences, ²Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, Univ. de Lisboa)

Oral Session (11:30–12:30)

- [OR17AM-C01] On electron heating mode transition in low pressure capacitively coupled oxygen discharge
Jon Tomas Gudmundsson^{1,2}, Andrea Proto¹
(¹Science Institute, University of Iceland, ²Department of Space and Plasma Physics, School of Electrical Engineering and Computer Science, KTH Royal Institute of Technology)
- [OR17AM-C02] INCA: A new scalable large area plasma source at low pressures
Uwe Reinhard Czarnetzki, Philipp Ahr, Jan Kuhfeld, Tsanko V. Tsankov
(Ruhr University Bochum, Faculty of Physics and Astronomy)
- [OR17AM-C03] A Compact ECR Plasma Source Thruster
Anshu Verma, Ashish Ganguli, Ramesh Narayanan, Ram D. Tarey, Debaprasad Sahu
(Indian Institute of Technology Delhi)
- [OR17AM-C04] First deuterium experiment on NIFS-RNIS
Haruhisa Nakano^{1,2}, Masashi Kisaki^{1,2}, Katsunori Ikeda¹, Katsuyoshi Tsumori^{1,2}, Kenichi Nagaoka^{1,3}, Yasuaki Haba³, Shingo Masaki², Yutaka Fujiwara¹, Shuji Kamio¹, Masaki Osakabe^{1,3}
(¹National Institute for Fusion Science, National Institutes of Natural Sciences, ²Department of Fusion Science, SOKENDAI (The Graduate University for Advanced Studies), ³Division of Particle and Astrophysical Science, Nagoya University)

D: Room 403

Topical Invited Lecture (11:00–11:30)

Chair: Prof. David Go

- [TL-36] Self-Organization in Atmospheric Pressure Plasmas: Occurrence, Mechanisms of Formation and Applications
John E. Foster¹, Yao E. Kovach¹, Maria C. Garcia², Janis Lai¹
(¹The University of Michigan, ²University of Cordoba)

Oral Session (11:30–12:30)

- [OR17AM-D01] Measurement of surface tension at interface between water and spatial afterglow of an atmospheric-pressure helium plasma
Takuma Kaneko, Naoki Shirai, Koichi Sasaki
(Hokkaido Univ.)
- [OR17AM-D02] Synthesis of silver nanoparticles using a pin to pin pulsed electrical discharge in water
Arlette Vega Gonzalez, Mine Er, Nicolas Fagnon, Cathy Rond, Xavier Duten
(LSPM - CNRS / Institut Galilée - Université Paris 13)
- [OR17AM-D03] Simulations of Glow and Arc Discharges with Liquid Electrodes
Dmitry Levko¹, Robert R. Arslanbekov¹, Vladimir I. Kolobov^{1,2}
(¹CFD Research Corporation, ²The University of Alabama in Huntsville)
- [OR17AM-D04] Decomposition of allelochemicals in hydroponic nutrient solution using discharge inside bubble
Katsuyuki Takahashi^{1,2}, Rikuya Oikawa¹, Syuhei Kawamura¹, Koichi Takaki^{1,2}, Naoya Satta³, Takuya Fujio⁴
(¹Faculty of Science and Engineering, Iwate University, ²Agri-Innovation Center, Iwate University, ³Faculty of Agriculture, Iwate University, ⁴Agricultural Research Center)

Thursday, July 18, 2019

Registration (8:30–18:00)

A: Hall-L

General Invited Lecture (09:00–09:45)

Chair: Prof. Jun-Seok Oh

[GL-04]

Mass spectrometry and plasma chemistry of atmospheric pressure plasma jets

Jan Benedikt¹, K. Sgonina¹, G. Willems², M. Mokhtar Hefny^{2,3}, S. Große-Kreul², S. Schneider²,
D. Ellerweg²

(¹Institute of Experimental and Applied Physics, Kiel University, ²Research Department Plasmas with
Complex Interactions, Ruhr-University Bochum, ³Mathematics and Engineering Physics Department,
Faculty of Engineering and Technology, Future University in Egypt)

General Invited Lecture (09:45–10:30)

Chair: Prof. Tomohiro Nozaki

[GL-05]

Recent trends in renewable energy driven chemistry for energy conversion and storage: plasma
chemistry as the special case

Richard van de Sanden

(Dutch Institute for Fundamental Energy Research (DIFFER))

Topical Invited Lecture (16:30–17:30)

Chair: Prof. Hirotaka Toyoda

[TL-37]

Influence of surfaces in the kinetic of CO₂ plasma

O. Guaitella¹, A.S. Morillo-Candas¹, T. Dias^{1,2}, E. Baratte¹, P. Ogloblina^{1,2}, T. Silva², J.P. Booth¹,
B. Klarenaar³, R. Engeln³, V. Guerra²

(¹Laboratoire de Physique des Plasmas, Ecole Polytechnique-CNRS, ²IPFN, Instituto Superior Tecnico,
Universidade de Lisboa, ³Department of Applied Physics, Eindhoven University of Technology)

[TL-41]

Molecular dynamics simulations for a better understanding of plasma-surface interactions

Emilie Despiau-Pujo, Alexandra Davydova, Vahagn Martirosyan, Gilles Cunge, Olivier Joubert
(LTM, Univ. Grenoble Alpes/CNRS)

Oral Session (17:30–18:15)

[OR18PM-A01]

Production of negative-ions upon positive-ion impact on surfaces in low-temperature low-
pressure plasma

Gilles Cartry¹, Lenny Tahri¹, Jean-Marc Layet¹, Alain Simonin²

(¹aix marseille universite, ²CEA IRFM)

[OR18PM-A02]

Effect of different surface materials upon plasma dynamics and hydrogen densities in a radio-
frequency inductively coupled plasma

James Timothy Ellis¹, Scott Doyle¹, Sandra Schroeter¹, Andrew R. Gibson^{1,2}, Kari Niemi¹, Timo Gans¹

(¹York Plasma Institute, Department of Physics, University of York, ²Research Group for Biomedical
Plasma Technology, Ruhr-Universität Bochum)

[OR18PM-A03]

Arc behavior on tungsten nanostructure under helium plasma exposure

Dogyun Hwangbo¹, Daisuke Nishijima², Shin Kajita³, Russell P. Doerner², Hirohiko Tanaka¹,
Noriyasu Ohno¹

(¹Graduate School of Engineering, Nagoya University, ²Center for Energy Research, University of California San Diego, ³Institute of Materials and Systems for Sustainability, Nagoya University)

B: Hall-S

Topical Invited Lecture (16:30–17:30)

Chair Prof. Igal Kronhaus

- [TL-38] Studies on selective production of RONS and chemical change of amino acids in plasma-treated solutions
Giichiro Uchida¹, Kosuke Takenaka¹, Jun-ichiro Ikeda², Yuichi Setsuhara¹
(¹JWRI, Osaka University, ²Grad. Sch. Med., Chiba University)
- [TL-42] Unravelling the mechanism of plasma interaction with biological material
Sung Ha Hong^{1,2}, J. Van der Paal³, M. Yusupov³, N. Gaur², J.-S. Oh⁴, R. Short⁵, E. Szili², A. Bogaerts³
(¹Centre for Plasmas and Fluids, Department of Physics and Engineering, The Australian national University, ²Future Industries Institute, University of South Australia, ³Research Group PLASMANT, Department of Chemistry, University of Antwerp, ⁴Department of Electrical and Electronic Engineering, Meijo University, ⁵Materials Science Institute and Department of Chemistry, The University of Lancaster)

Oral Session (17:30–18:15)

- [OR18PM-B01] Microplasma discharge in transdermal drug delivery
Jaroslav Kristof, Tomomichi Aoshima, Marius Blajan, Kazuo Shimizu
(Shizuoka University)
- [OR18PM-B02] Differences of intracellular molecular mechanisms of cell death between plasma-activated medium-treated glioblastoma cells and plasma-activated Ringer's lactate solution-treated glioblastoma cells
Hiromasa Tanaka, Masaaki Mizuno, Yuko Katsumata, Kenji Ishikawa, Hiroki Kondo, Hiroshi Hashizume, Shinya Toyokuni, Kae Nakamura, Nobuhisa Yoshikawa, Hiroaki Kajiyama, Fumitaka Kikkawa, Masaru Hori
(Nagoya University)
- [OR18PM-B03] On using Dielectric Barrier Discharge to diagnose and Treat Cancer
Ying Zheng¹, Z. Zheng²
(¹Purple Mountain Observatory, Chinese Academy of Sciences, ²Jiangsu Posts and Communications Planning and Designing Institute Co. LTD.)

C: Hall-K

Topical Invited Lecture (16:30–17:30)

Chair: Prof. Anne Bourdon

- [TL-39] Pulsed nanosecond discharges and their applications
T.L. Chng¹, I.S. Orel¹, Ch. Ding¹, S.A. Shcherbanev¹, N.A. Popov², S.M. Starikovskaia¹
(¹Ecole Polytechnique, ²Moscow State University)
- [TL-43] Breakdown and plasma formation in reactive nonthermal plasmas at atmospheric pressure
Ronny Brandenburg¹, Hans Höft¹, Clemence Tyl², Manfred Kettlitz¹, Xi Lin², Simon Dap², Nicolas Naude²
(¹Leibniz Institute for Plasma Science and Technology, ²LAPLACE, Université de Toulouse, CNRS)

Oral Session (17:30–18:15)

- [OR18PM-C01]** Photoionization and photoemission in helium and helium/nitrogen gas mixtures
Andrew S. Fierro, Christopher H. Moore, Benjamin T. Yee, Edward V. Barnat, Paul G. Clem,
Matthew M. Hopkins
(Sandia National Laboratories)
- [OR18PM-C02]** Time-dependent modelling on initiation of pre-ionized laser filament in atmospheric air under an external field far below conventional threshold
Wei Yang, Qianhong Zhou, Zhiwei Dong
(Institute of Applied Physics and Computational Mathematics)
- [OR18PM-C03]** Plasma candle: Toward larger plasma jet
Hyun-Ha Kim¹, Yoshiyuki Teramoto¹, Nozomi Takeuchi^{1,2}, Atsushi Ogata¹
(¹AIST, ²Tokyo Institute of Technology)

D: Room 403

Topical Invited Lecture (16:30–17:30)

Chair: Dr. Natalia Babaeva

- [TL-40]** Modelling non-thermal plasma-flow reactive systems
Maria Luis G.B. Castela, B. Fiorina, O. Gicquel, N. Darabiha, C.O. Laux
(Laboratoire EM2C, CNRS, CentraleSupélec, Université Paris-Saclay)
- [TL-44]** Streamer-induced kinetics of the ground and excited states in N₂-O₂ including highly excited and auto-ionizing states of atomic species
Zdenek Bonaventura¹, Petr Bílek¹, Milan Šimek²
(¹Masaryk University, Faculty of Science, Department of Physical Electronics, ²Department of Pulse Plasma Systems, Institute of Plasma Physics, Academy of Sciences of the Czech Republic)

Oral Session (17:30–18:15)

- [OR18PM-D01]** Experimental investigation of streamer inception by hydrometeor
Shahriar Mirpour, Sander Nijdam
(Eindhoven University of Technology)
- [OR18PM-D02]** Photoionization of molecular oxygen by non-thermal gas discharges in air
Reza Janalizadeh Choobbasti, Victor P. Pasko
(Penn State University)
- [OR18PM-D03]** Study of Hydrodynamic effects induced by Nanosecond Repetitively Pulsed (NRP) Discharges
Ciprian Dumitrache, Arnaud Gallant, Gabi Daniel Stancu, Christophe Laux
(CentraleSupélec)

Poster Session 3 (10:45–12:45)

- [PO18AM-001]** Transport coefficients of Dense Helium Plasmas
Akmara Kenzhebekova, Sandugash Kodanova, Moldir Issanova, Tlekkabul Ramazanov, Zhandos Moldabekov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO18AM-002]** The comparison between experimental and simulation results of negative ion mobility in O₂ in relation to reduced electric field intensity
Kazuki Ikeda¹, Yui Okuyama¹, Hiratake Sugawara²
(¹National Institute of Technology, Tomakomai College, ²Hokkaido University)
- [PO18AM-003]** Evaluation of electron drift velocity vector in gas under RF electric and DC magnetic fields
Takeshi Sato, Hirotake Sugawara
(Hokkaido University)
- [PO18AM-004]** Electron energy gain mechanisms near chamber wall in inductively coupled magnetized plasmas
Hironori Takahashi, Hirotake Sugawara
(Hokkaido University)
- [PO18AM-005]** Quantification of electron confinement effect under confronting divergent magnetic fields considering mutual electron transfer across separatrix
Ryosuke Ozawa, Hirotake Sugawara
(Hokkaido University)
- [PO18AM-006]** Complex chemical reactions in low-temperature ammonia plasma
Ryuta Tsukamoto, Yasutaka Mizui, Shigeyuki Miyagi, Osamu Sakai
(The University of Shiga Prefecture)
- [PO18AM-007]** On the radical production in remote plasma sources in a remote inductively coupled plasma source
Youbin Seol, HongYoung Chang
(Korea Advanced Institute of Science and Technology)
- [PO18AM-008]** Effect of the voltage oscillation on the formation of the secondary streamer in an atmospheric-pressure streamer discharge
Atsushi Komuro, Akira Ando
(Tohoku University)
- [PO18AM-009]** Changing the chemical kinetic mechanism of ignition under the influence of SDBD in a rapid compression machine
Anastasia Dobrovolskaya¹, Elena Filimonova¹, Svetlana Starikovskaia², Alexey Bocharov¹, Valentin Bityurin¹
(¹Joint Institute for High Temperatures RAS, ²Laboratoire de Physique des Plasmas (CNRS, Ecole Polytechnique, Sorbonne University, University Paris-Sud, Observatoire de Paris, University Paris-Saclay))
- [PO18AM-010]** Implicit Fluid Plasma Solver with Adaptive Mesh Refinement
Robert R. Arslanbekov¹, Vladimir I. Kolobov^{1,2}
(¹CFD Research Corporation, ²The University of Alabama in Huntsville)

- [PO18AM-011]** Characterizing streamer discharges in CO₂ and Air
Behnaz Bagheri Varnousfaderani¹, Jannis Teunissen^{1,2}, Ute Ebert^{1,3}
(¹Centrum Wiskunde & Informatica (CWI), ²Centre for Mathematical Plasma-Astrophysics, KU Leuven, ³Department of Applied Physics, Eindhoven University of Technology)
- [PO18AM-012]** A dimensionless model for direct current corona discharge in ionization region around cylindrical conductor
Yuesheng Zheng, Shengwen Shu
(Fuzhou University)
- [PO18AM-013]** Plasma jet dynamics control by external electric fields
Natalia Yu Babaeva, George V. Naidis
(Joint Institute for High Temperatures, Russian Academy of Sciences)
- [PO18AM-014]** Computational Study on Fundamental Properties of Pulsed Discharge at Atmospheric-Pressure for Hard Coatings Technology by Plasma Assisted Chemical Vapor Deposition
Akinori Oda¹, Masahiro Kojima¹, Yuta Kimura¹, Takayuki Ohta², Hiroyuki Kousaka³
(¹Chiba Institute of Technology, ²Meijo University, ³Gifu University)
- [PO18AM-015]** Determination of Helium discharge atmospheric pressure plasma parameters using numerical simulation
Thanet Kladphet, Wannakuwaththawaduge Thomas Leon Suganda Fernando, Kazumasa Takahashi, Takashi Kikuchi, Toru Sasaki
(Nagaoka University of Technology)
- [PO18AM-016]** Time-varying nonlinear kinetics in micro capacitively coupled plasma for the change of the driving frequency
Jung Yeol Lee, Chang Ho Kim, Hae June Lee
(Pusan National University)
- [PO18AM-017]** Computational modelling of RONS generation and its enhancement by UV photolysis in atmospheric pressure plasmas
HyunGyu Lee, Sanghoo Park, Joo Young Park, Wonho Choe
(Korea Advanced Institute of Science and Technology)
- [PO18AM-018]** Molecular Dynamics Potential Development toward Z-Universal Model for Plasma-Material Interaction
Atsushi M. Ito
(National Institute for Fusion Science)
- [PO18AM-019]** On-Average Error from DSMC Collisions
William Joseph McDoniel, Christopher Hudson Moore, Gregg Arthur Radtke, Keith Cartwright, Matthew Tyler Bettencourt
(Sandia National Laboratories)
- [PO18AM-020]** Diagnostics of Low Pressure Inductively Coupled VHF Plasma Used for Nanostructured Carbon Deposition
Katsuyuki Okada
(National Institute for Materials Science)
- [PO18AM-021]** Propagation of lead plasma jet in the crossed ExB fields in background reflex and RF discharges
Nikolai Nikolaevich Antonov, Gennadii Dmitrievich Liziakin, Ravil Anatolevich Usmanov, Andrey Vladimirovich Gavrikov, Valentin Panteleymonovich Smirnov, Rinat Askhatovich Timirkhanov, Sergey Dmitrievich Kuzmichev
(Joint Institute for High Temperatures of Russian Academy of Sciences)

- [PO18AM-022]** Electronegative gas experiments in a helicon source
 Monojit Chakraborty¹, Narayan Sharma¹, Nirod Kumar Neog¹, Mainak Bandyopadhyay²
 (¹Centre of Plasma Physics – Institute for Plasma Research, ²ITER-India, Institute for Plasma Research)
- [PO18AM-023]** Effect of magnetic filter field configuration in a large-diameter radio-frequency negative hydrogen ion source
 Daiki Fujihira, Atsushi Komuro, Kazunori Takahashi, Akira Ando
 (Tohoku University)
- [PO18AM-024]** Non-equilibrium Thermodynamics of electrons in Diverging Magnetic Field
 June Young Kim, Seongcheol Kim, K.S. Chung, Jae-young Jang, Soobin Lim, Kyung-Jae Chung, Y.S. Hwang
 (Seoul National University)
- [PO18AM-025]** Study of particle transport across transverse magnetic field in negative ion sources for fusion
 Masashi Kasaki^{1,2}, Haruhisa Nakano^{1,2}, Katsuyoshi Tsumori^{1,2}, Katsunori Ikeda¹, Yasuaki Haba³, Shingo Masaki², Shuji Kamio¹, Yutaka Fujiwara¹, Kenichi Nagaoka^{1,3}, Masaki Osakabe^{1,2}
 (¹National Institute for Fusion Science, ²SOKENDAI (The Graduate University for Advanced Studies), ³Nagoya University)
- [PO18AM-026]** Particle balance in a steady state plasma confined in a dipole magnetic field
 Anuj Ram Baitha, Sargam Hunjan, Ayesha Nanda, Sudeep Bhattacharjee
 (Indian Institute of Technology Kanpur)
- [PO18AM-027]** Observation of Cold Electrons in the Downstream of a Compact ECR Produced Hydrogen Plasma
 Priti Singh, D. Sahu, R. Narayanan, A. Ganguli, R.D. Tarey, S. Kar
 (Indian Institute of Technology, Delhi)
- [PO18AM-028]** Space charge neutralization of an ion beam channel by an ECR plasma flood gun
 Yusuke Kuwata¹, Takahito Arai¹, Shu Ito², Naoki Miyamoto¹, Kotaro Yoshida², Motoi Wada¹
 (¹Graduate School of Science and Engineering, Doshisha University, ²School of Science and Engineering, Doshisha University)
- [PO18AM-029]** Spectroscopic Study of CO Excited States in Microwave Discharge CO₂ Plasma
 Shota Yamada, Hiroshi Akatsuka, Atsushi Nezu
 (Tokyo Institute of Technology)
- [PO18AM-030]** Molecular gases dissociation in microwave plasmas via electronically excited states production of atomic species
 Guillaume Lombardi, Enrico Bisceglia, Mostafa Aldanawi, Xavier Aubert, Swaminathan Prasanna, Corinne Duluard, Khaled Hassouni
 (CNRS LSPM)
- [PO18AM-031]** Measurement of OH density in water vapor microwave excited plasma using laser-induced fluorescence
 Itsuki Inoue¹, Ryo Ono¹, Takeshi Aizawa^{2,3}, Tatsuo Ishijima²
 (¹The University of Tokyo, ²Kanazawa University, ³Yonekura MFG)
- [PO18AM-032]** Potential Control of Surface Wave Excited Plasma by Pulsed DC Voltage Applied to Plasma-Immersed Waveguide
 Sho Fukuda¹, Ko Udagawa¹, Haruka Suzuki¹, Yuki Tauchi², Hirotaka Toyoda¹
 (¹Department of Electronics, Nagoya University, ²Applied Physics Research Lab., Technical Development Group, Kobe Steel Ltd.)

- [PO18AM-033]** Experimental approach to flattening profiles in diffraction-loss area of microwaves using plasma-metamaterial structure
Chui Inami¹, Yuki Kabe¹, Akinori Iwai², Alexandre Bambina¹, Shigeyuki Miyagi¹, Osamu Sakai¹
(¹Department of Electric System Engineering, University of Shiga Prefecture, ²Research Institute for Sustainable Humanosphere, Kyoto University)
- [PO18AM-034]** Radiation of the sliding surface discharge interacting with the shock wave
Irina V. Mursenkova, Aleksander Yu. Kuznetsov, Pavel Yu. Ulanov
(Lomonosov Moscow State University, Faculty of Physics)
- [PO18AM-035]** Model of the convective thermal desorption of deuterium and formation of plasma ion composition in a pulsed vacuum arc discharge with a metal deuteride cathode
Igor Vladimirovich Uimanov¹, Dmitry Leonidovich Shmelev¹, Sergey Alexandrovich Barengolts^{1,2}
(¹Institute of Electrophysics UB RAS, ²Prokhorov General Physics Institute RAS)
- [PO18AM-036]** Study of the hollow cathode discharge in argon
Xinyu Hou, Yutai Li, Quan Zhou, Hao Wang, Xiaobing Zou, Haiyun Luo, Xinxin Wang
(Tsinghua University)
- [PO18AM-037]** Studies of the influence of the electrode material and geometry on the characteristics of Hollow Cathode Discharges
Steve Muhl¹, R. Sangines², J. Cruz³, E. Camps⁴
(¹Instituto de Investigaciones en Materiales, Universidad Nacional Autonoma de México, ²CONACYT, Centro de Nanociencias y Nanotecnología, Universidad Nacional Autonoma de México, ³Centro de Nanociencias y Nanotecnología, Universidad Nacional Autonoma de México, ⁴Departamento de Física, ININ)
- [PO18AM-038]** Characterization of the Penning ionization gauge source through electron energy distribution function analysis
June Young Kim¹, Jae Young Jang¹, Won Ik Jeong¹, Kyumin Choe¹, M.A. Elgarhy², Kyung-Jae Chung¹, Y.S. Hwang¹
(¹Seoul National University, ²Al-Azhar University)
- [PO18AM-039]** Determination of plasma current by force balance condition
Kiyoyuki Yambe, Takuya Inamura
(Niigata University)
- [PO18AM-040]** Gas flow channel analysis by three-dimensional cylindrical coordinate system using plasma emission observation
Kiyoyuki Yambe, Hidetoshi Saito
(Niigata University)
- [PO18AM-041]** Plasma-assisted reactive processes for low-temperature fabrication of high-mobility InGaZnOx TFTs
Yuichi Setsuhara¹, Masashi Endo¹, Horoyuki Hirayama¹, Tomoki Yoshitani¹, Kosuke Takenaka¹, Giichiro Uchida¹, Akinori Ebe²
(¹Osaka University, ²EMD Corporation)
- [PO18AM-042]** Metal organic plasma decomposition method for formation of zinc oxide thin film with low temperature and under atmospheric pressure
Hiroshi Akamatsu¹, Shin-ichi Yamamoto², Kazunori Ichikawa³
(¹Kobe City College of Technology, ²Ryukoku University, ³National Institute of Technology, Matsue College)

- [PO18AM-043]** Femtosecond laser ablation of tin-doped indium oxide film on PET
Seong Shan Yap, Chern Yang Leong, Chen Hon Nee, Ming Tao Gan, Guang Liang Ong
(Faculty of Engineering, Multimedia University)
- [PO18AM-044]** Ultrasonic Assisted Fabrication of Metal Nanoparticles by Laser Ablation in Liquid
Xin Hu, Mardiansyah Mardis, Wahyu Diono, Noriharu Takada, Hideki Kanda, Motonobu Goto
(Nagoya University)
- [PO18AM-045]** Droplet-vaporization behavior in vacuum during plasma-assisted mist chemical vapor deposition
Kosuke Takenaka, Yuichi Setsuhara
(Osaka University)
- [PO18AM-046]** Epitaxial InN nanocolumns grown on Si(111) by RF plasma-assisted metalorganic molecular beam epitaxy using nitrided InN/Si₃N₄ double-buffer layers
Wei-Chun Chen¹, Sheng Chen², Yu-Wei Lin¹, Chin-Pao Cheng²
(¹Instrument Technology Research Center, National Applied Research Laboratories, ²Department of Mechatronic Engineering, National Taiwan Normal University)
- [PO18AM-047]** P-type nitrogen doped zinc oxide films prepared by magnetron sputtering
Jyh-Shiarn Cherng^{1,2}, J.Y. Chen¹, H.T. Zhang³, Q. Chen³, F. Husian¹
(¹Department of Materials Engineering, Ming Chi University of Technology, ²Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, ³Laboratory of Plasma Physics & Materials, Beijing Institute of Graphic Communication)
- [PO18AM-048]** Deposition of GaN on AlN thin films using conventional rf magnetron sputtering plasma
Muliana Tahan¹, Nafarizal Nayan¹, Anis Suhaili Bakri¹, Muhammad Zainizan Sahdan², Nur Amaliyana Raship³, Muhammad Khairul Ahmad¹, Chin Phong Soon¹, Muhammad Yazid Ahmad⁴
(¹Microelectronics and Nanotechnology-Shamsuddin Research Centre (MiNT-SRC), Institute for Integrated Engineering, Universiti Tun Hussein Onn Malaysia (UTHM) Batu Pahat, ²Preston GeoCEM Sdn. Bhd., No.33A Jalan Universiti 4, Taman Universiti, ³Department of Electrical and Electronic Engineering, National Defense University of Malaysia, ⁴Nanorian Technologies Sdn Bhd)
- [PO18AM-049]** Sputter Epitaxy of (ZnO)_x(InN)_{1-x} Films on Sapphire Substrates
Nanoka Miyahara, Seichi Urakawa, Daisuke Yamashita, Kunihiro Kamataki, Kazunori Koga, Masaharu Shiratani, Naho Itagaki
(Kyushu University)
- [PO18AM-050]** Prediction of Sputtering Conditions for Amorphous and Low Resistive ITO/In₂O₃ Films via Machine Learning
Ryosuke Iwamoto¹, Kunihiro Kamataki¹, Soichiro Muraoka¹, Nanoka Miyahara¹, Daisuke Yamashita¹, Daisuke Ikeda², Kazunori Koga¹, Naho Itagaki¹, Masaharu Shiratani¹
(¹Department of Electrical and Electronic Engineering, Kyushu University, ²Department of Infomatics, Kyushu University)
- [PO18AM-051]** Sputter deposition of wide bandgap (ZnO)_x(AlN)_{1-x} alloys: a new material system with tunable bandgap
Seiichi Urakawa, Nanoka Miyahara, Daisuke Yamashita, Kunihiro Kamataki, Kazunori Koga, Masaharu Shiratani, Naho Itagaki
(School of Information Science and Electrical Engineering, Kyushu University)
- [PO18AM-052]** Robust superhydrophobic coating on glass substrate by atmospheric pressure plasma jet at level of kHz frequency
Md. Mokter Hossain, Duc Ba Nguyen, Sudhakaran M.S.P., Young Sun Mok
(Jeju National University)

- [PO18AM-053]** Effectiveness of flow control using DBD Plasma Actuator under Reduced Pressure Environment evaluated by Static Pressure Measurement
Yoshiki Maruyama¹, A. Komuro¹, T. Nonomura², K. Asai², A. Ando¹
(¹Department of Electrical Engineering, Tohoku University, ²Department of Aerospace Engineering, Tohoku University)
- [PO18AM-054]** Experimental Study of Surface-Wave Oscillator with Different Electron Beam Forms
Yuta Annaka, Kazuo Ogura, Yuki Sato, Makoto Nakasone
(Niigata University)
- [PO18AM-055]** High repetitive pulse generation with rotary trigger double spark gap switch
Chuhyun Cho, Yun Sik Jin, Chang-seung Ha, Chaehwa Shon, Daejong Kim
(Korea Electrotechnology Research Institute)
- [PO18AM-056]** Plasma evolution of gas breakdown with partial surface flash-over
Wei Zhong^{1,2}, Yuanjie Shi¹, Ao Xu¹, Xingwen Li²
(¹Institute of Electronic Engineering, China Academy of Engineering Physics, ²State Key Laboratory of Electrical Insulation and Power Equipment, Xi'an Jiaotong University)
- [PO18AM-057]** Comparative study of an atmospheric pressure helium plasma jet driven by unipolar nanosecond-pulses
Tianyu Tang¹, H.W. Kim¹, G.H. Kim², B. Lee², H.J. Lee¹
(¹Department of Electrical and Computer Engineering, Pusan National University, ²Korea Electrotechnology Research Institute)
- [PO18AM-058]** Development and Analysis of Static Parameter Testing Platform for Solid State Microwave Power Devices
Shan Zhang, Jie Li, Chong Liu
(China Electronics Standardization Institute)
- [PO18AM-059]** Nanosecond Discharge in Air in “needle – electrolyte” system
O.K. Shuaibov, V.I. Chyhin
(Lviv LF National Academy)
- [PO18AM-060]** Low temperature atmospheric pressure plasma treatment for medicine, agriculture and food industry
Joanna Pawlat¹, P. Terebun¹, M. Kwiatkowski¹, A. Starek², A. Przekora³, B. Chudzik⁴, M. Kopacki², G. Ginalska³, Z. Machala⁵, M. Janda⁵, K. Hensel⁵
(¹Lublin University of Technology, ²University of Life Sciences in Lublin, ³Medical University of Lublin, ⁴Maria Curie-Skłodowska University, ⁵Comenius University)
- [PO18AM-061]** Influence of Seed Coat Color on Reactive Species in Plasma Irradiated Seeds of Radish Sprouts
Kazunori Koga^{1,2}, Kunihiro Kamataki¹, Naho Itagaki¹, Masaharu Shiratani¹, Vida Mildaziene³
(¹Kyushu University, ²National Institute of Natural Science, ³Vytautas Magnus University)
- [PO18AM-062]** Atmospheric pressure plasma treatment of wheat seeds in ambient air
Vlasta Štěpánová¹, Zlata Tučková¹, Michal Fleischer¹, Jakub Kelar¹, Miroslav Zemánek¹, Pavel Slaviček¹, Monika Stupavská¹, Jan Prášil², Vaclav Prášil², Lenka Petrželová²
(¹Masaryk University, Faculty of Science, Department of Physical Electronics, ²SEMO a.s.)
- [PO18AM-063]** Anti-tumor Effect Induced by Irradiation to Normal Tissue Using Nanosecond Pulsed Streamer Discharge
Hiromu Ishizaki¹, Yosuke Kondo¹, Kazue Mizuno², Ryo Ono¹
(¹The University of Tokyo, ²Stanford University)

- [PO18AM-064]** Electrets from Corona Plasma Discharges for Regulation of TGF β /Smads Signalling Pathway in Hypertrophic Scar Tissue
Jian Jiang¹, Xinrong Zhang², Yuanyuan Liang¹, Hejuan Liang¹, Ping Huang¹, Xin Guo¹, Lili Cui²
(¹Department of Physics and Mathematics, Faculty of Health Service, Navy Medical University, ²Department of Inorganic Chemistry, School of Pharmacy, Navy Medical University)
- [PO18AM-065]** The Regulation Effect of Electret from Corona Plasma Discharges on Growth and Migration of Hypertrophic Scar Fibroblasts
Jian Jiang¹, Xin Guo¹, Hejuan Liang¹, Yuanyuan Liang¹, Jiajie Xu¹, Xiaoqiang An², Lili Cui²
(¹Department of Physics and Mathematics, Faculty of Health Service, Navy Medical University, ²Department of Inorganic Chemistry, School of Pharmacy, Navy Medical University)
- [PO18AM-066]** Enhancement of surface discharge in catalyst pores in dielectric barrier discharges
Jian-Guo Gu¹, Ya Zhang², Ming-Xiang Gao², Hong-Yu Wang^{3,4}, Quan-Zhi Zhang⁵, Lin Yi¹, Wei Jiang¹
(¹School of Physics, Huazhong University of Science and Technology, ²Department of Physics, Wuhan University of Technology, ³School of Physics Science and Technology, Anshan Normal University, ⁴Shanghai Bright-Tech Information Technology Co. Ltd., ⁵Research group PLASMANT Department of Chemistry, University of Antwerp)
- [PO18AM-067]** Short-lived reactive oxygen nitrogen species continuously generated in plasma-exposed solution activates TRP channels and drug uptake
Shota Sasaki¹, Masayoshi Kawase², Makoto Kanzaki², Toshiro Kaneko¹
(¹Graduate School of Engineering, Tohoku University, ²Graduate School of Biomedical Engineering, Tohoku University)
- [PO18AM-068]** Growth promotion of mouse fibroblasts using irradiation of nitric oxide radicals and ultraviolet light
Yuki Hori¹, Naoyuki Iwata¹, Tomiyasu Murata², Masaru Hori³, Masafumi Ito¹
(¹Faculty of Science and Engineering, Meijo University, ²Faculty of Pharmacy, Meijo University, ³Faculty of Engineering, Nagoya University)
- [PO18AM-069]** Ion mobility spectrometry monitoring of decomposition of phthalates by corona discharge
Ladislav Moravský, Bartosz Michalczuk, Štefan Matejčík
(Comenius University Bratislava)
- [PO18AM-070]** Numerical investigation on membrane permeation of reactive oxygen species with umbrella sampling
Hayato Ohta, Satoshi Uchida, Fumiyoshi Tochikubo, Yusuke Nakagawa
(Tokyo Metropolitan University)
- [PO18AM-071]** Melanoma cancer cell deactivation by means of atmospheric-pressure DBD-based pulsed plasma jet
D.K. Athanasopoulos¹, A. Marazioti², K. Sklias¹, K. Pefani-Antimisiari³, P. Svarnas¹, A. Gerakis⁴, S.G. Antimisiaris^{2,3}
(¹High Voltage Laboratory, Electrical & Computer Eng. Dept., University of Patras, ²Institute of Chemical Engineering Sciences (ICES)-(FORTH), ³Pharmaceutical Technology Laboratory, Pharmacy Dept., University of Patras, ⁴Aerospace Engineering Dept., Texas A&M University)
- [PO18AM-072]** Experimental study for distinguishing DBD and plasma-jet power towards biomedical applications
D.K. Athanasopoulos¹, P. Svarnas¹, P.K. Papadopoulos²
(¹High Voltage Laboratory, Electrical & Computer Eng. Dept., University of Patras, ²Mechanical Engineering and Aeronautics, University of Patras)

- [PO18AM-073]** The Effect of Atmospheric Oxygen Plasma on Macrophage-like Cells
YiCi Yao, Nobuya Hayashi
(Interdisciplinary Graduate School of Engineering Sciences)
- [PO18AM-074]** Bactericidal effect and maintain the quality of the pepper mint by atmospheric plasma jet
Yuichiro Takemura¹, Yusuke Morita¹, Masakazu Furuta²
(¹Kindai University, ²Osaka Prefecture University)
- [PO18AM-075]** Dielectric barrier discharge plasma treatment of porcine whole blood
Sho Sakamaki¹, Yoshinori Tateishi², Kenji Teranishi³, Naoyuki Shimomura³, Toshiya Okahisa⁴
(¹Graduate School of Advanced Technology and Science, Tokushima University, ²Faculty of Engineering, Tokushima University, ³Graduate School of Technology, Industrial and Social Sciences, Tokushima University, ⁴Graduate School of Biomedical Sciences, Tokushima University)
- [PO18AM-076]** Molecular dynamics simulations on transport of reactive oxygen and nitrogen species in cell membrane under electric field application
Atsushi Kokubu¹,
A. Kokubu¹, S. Uchida¹, Y. Nakagawa¹, F. Tochikubo¹, T. Sato²
(¹Department of Electrical Engineering and Computer Science, Tokyo Metropolitan University, ²Institute of Fluid Science, Tohoku University)
- [PO18AM-077]** Biomedical Applications of Diamond-Like Carbon Coatings on Ti6Al4V by Plasma Enhanced Chemical Vapor Deposition
Yan Fen Wei¹, Shu Chuan Liao¹, Shui-Yang Lien²
(¹Da-Yeh University, ²Xiamen University of Technology)
- [PO18AM-078]** Sterilization of aqua pathogens using a DBD plasma with an asymmetric electrode configuration based on a plasma oxidation process
Yong Cheol Hong, Kang I. Kim, S.H. Ma
(Plasma Technology Research Center)
- [PO18AM-079]** Quantum chemical analysis on oxidation of membrane constituent molecules by plasma irradiation
Kazuki Toda¹, Satoshi Uchida¹, Yusuke Nakagawa¹, Fumiyoshi Tochikubo¹, Takehiko Sato²
(¹Department of Electrical Engineering and Computer Science, Tokyo Metropolitan University, ²Institute of Fluid Science, Tohoku University)
- [PO18AM-080]** The first installation and initial evaluation of practical DBD electrodes retrofitted on the blade of commercial 300kW wind turbine
Motofumi Tanaka¹, Noritsugu Kubo¹, Hirokazu Kawabata¹, Nobuyoshi Watanabe², Hideaki Sato², Masafumi Takeyama², Kiyoshi Minegishi², Yukihiro Oryu³
(¹National Institute of Advanced Industrial Science and Technology, ²Asahi Rubber Inc., ³Hokutaku Co., Ltd.)
- [PO18AM-081]** Specific localization of quasi-DC discharge and its influence on jet structure in supersonic airflow
Dmitry A. Yarantsev¹, Aleksandr A. Firsov¹, Ivan A. Moralev¹, Aleksandr V. Efimov¹, Sergey B. Leonov²
(¹Joint Institute for High Temperatures, ²University of Notre Dame)
- [PO18AM-082]** Effect of the pulse voltage rise rate in the separation flow control by nanosecond-pulsed-driven plasma actuator
Kento Suzuki¹, Atsushi Komuro¹, Kohei Mitsuhashi¹, Shoki Kanno¹, Keisuke Takashima², Taku Nonomura³, Toshiro Kaneko², Keisuke Asai³, Akira Ando¹
(¹Department of Electrical Engineering, Tohoku University, ²Department of Electronic Engineering, Tohoku University, ³Department of Mechanical and Aerospace Engineering, Tohoku University)

- [PO18AM-083]** Study on electron cross-field drift by an azimuthal electric-field in Hall thrusters: from plasma density and potential structures
Junhwi Bak, Rei Kawashima, Kimiya Komurasaki, Hiroyuki Koizumi
(The University of Tokyo)
- [PO18AM-084]** Generation experiment of laser sustained plasma using penning effect for application to laser propulsion
Tomoki Kamei¹, Takahiro Ono¹, Ryoki Niwa¹, Makoto Matsui¹, Koichi Mori²
(¹Department of Engineering, Shizuoka University, ²Graduate School of Engineering, Nagoya University)
- [PO18AM-085]** Spectroscopic investigations of atomic processes in Xe plasma of Hall Thruster
Dariya Dmitrievna Krivoruchko, Alexander Skrylev
(Moscow Institute of Physics and Technology (State University))

Poster Session 4 (14:15–16:15)

- [PO18PM-001]** ITER VSRS First mirror plasma cleaning using high frequency gas discharge – understanding RF circuit design and plasma effects
Andrey G. Ushakov¹, Ad Verlaan¹, Ulf Stephan², Olaff Steinke², Maarten de Bock³, Matthew Maniscalco¹, Peter Verhoeff¹
(¹TNO, ²FAP GmbH, ³ITER-IO)
- [PO18PM-002]** Experiments of hydrogen isotope exchange in tungsten in a compact plasma device APSEDAS
Mizuki Sakamoto, Masao Takeda, Yu Suzuki, Akihiro Terakado, Naomichi Ezumi
(Plasma Research Center, University of Tsukuba)
- [PO18PM-003]** Linear growth of nano-fibers on hcp-metals by He plasma irradiation
Shin Kajita¹, Tomohiro Nojima¹, Yuta Yamamoto¹, Naoaki Yoshida², Tatsuki Okuyama¹, Noriyasu Ohno¹
(¹Nagoya University, ²Kyusyu University)
- [PO18PM-004]** Electron Impact Ionization Cross Sections of plasma facing component in fusion devices
Prithvi Singh
(Sir Padampat Singhania University)
- [PO18PM-005]** Development of a Numerical Thermofluid Model on Arc Plasmas with Ablation of Polyacrylate Gel for Arc Quenching
Masao Shibayama¹, Yasunori Tanaka², Yusuke Nakano², Tatsuo Ishijima³, Yoshihiko Uesugi²
(¹Division of Electrical and Computer Science, Kanazawa University, ²Faculty of Electrical and Computer Engineering, Kanazawa University, ³Research Center for Sustainable Energy and Technology, Kanazawa University)
- [PO18PM-006]** On the mechanism of radio-frequency vacuum breakdown
Sergey A. Barenholts^{1,2}, Evgenii V. Oreshkin², Vladimir I. Oreshkin³, Konstantin V. Khishchenko⁴, Dmitry L. Shmelev⁵, Igor V. Uimanov⁵
(¹Prohorov General Physics Institute RAS, ²Lebedev Physical Institute RAS, ³Institute of High Current Electronics SB RAS, ⁴Joint Institute for High Temperatures RAS, ⁵Institute of Electrophysics RAS)
- [PO18PM-007]** Investigation of cathode destruction processes in atmospheric pressured dc arc plasma torches
Mikael Armenovich Sargsyan, Dmitriy Viktorovich Tereshonok, Makhach Khairudinovich Gadzhiev, Alexander Semenovitch Tyuftyaev, Georgiy Evgenievich Valyano
(Joint Institute for High Temperatures of the Russian Academy of Sciences)
- [PO18PM-008]** Magnetic field influence on the vacuum arc cathode spot plasma
Mikhail M. Tsvetoukh¹, Dmitry L. Shmelev², Sergey A. Barenholts^{1,3}
(¹Lebedev Physical Institute of Russian Academy of Sciences, ²Institute of Electrophysics of Ural Branch of Russian Academy of Sciences, ³Prokhorov General Physics Institute of Russian Academy of Sciences)

- [PO18PM-009]** Criterion of Molten Jets Formation in the Vacuum Arc Cathode Spot
Mikhail A. Gashkov¹, Nikolay M. Zubarev^{1,2}
(¹Institute of Electrophysics, ²Lebedev Physical Institute, RAS)
- [PO18PM-010]** The role of cathode sputtering in low-pressure glow discharge
Merlan Dosbolayev, A.R. Abdirakhmanov, T.S. Ramazanov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO18PM-011]** Features of the erosion of the surface of carbon materials in the interaction of pulsed plasma flow
Merlan Dosbolayev, Aigerim Tazhen, Zhanibek Rayimkhanov, Tilekkabul Ramazanov
(IETP, Al-Farabi Kazakh National University)
- [PO18PM-012]** Research on the Plasma-Resistant Film used for Dry Etching Equipment
Umi Ito, H. Sakamoto, T. Nakamura, H. Sasaoka, M. Furuse
(Department of Electronic-Mechanical Engineering, National Institute of Technology, Oshima College)
- [PO18PM-013]** Facility Wall Accommodation Model of Xenon Ion Extracted from Plasma Thruster
Gen Ito, Rei Kawashima, Kimiya Komurasaki, Hiroyuki Koizumi
(Department of Aeronautics and Astronautics, The University of Tokyo)
- [PO18PM-014]** Ozone generation and destruction on ozonizer electrode surfaces
Vera Mazankova¹, Anezka Krzyzankova², David Trunec³, Frantisek Krcma²
(¹Department of Mathematics and Physics, University of Defence, ²Institute of Physical and Applied Chemistry, Brno University of Technology, ³Department of Physical Electronics, Masaryk University)
- [PO18PM-015]** Impact of charged particles on a strong shock wave in a weakly ionized gas: numerical evaluation
Jaroslav Vladimirovich Triaskin, Valery A. Pavlov
(St. Petersburg State University)
- [PO18PM-016]** Low-temperature plasma instabilities related to the nonlinear dynamics of fireballs and multiple double layers
Dan G. Dimitriu, Sebastian Popescu
(Alexandru Ioan Cuza University, Faculty of Physics)
- [PO18PM-018]** Study of Nonlinear Current in the Dusty Plasma
Reenu Gill¹, H.K. Malik²
(¹Manipal University Jaipur, ²PWAPA Laboratory, Department of Physics)
- [PO18PM-019]** The dynamics of dust particles in the atmosphere of white dwarfs
Akmaral Kenzhebekova, Sandugash Kodanova, Tlekkabul Ramazanov, Zhandos Moldabekov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO18PM-020]** Photoionization and electron impact ionization of metallic species at sprite altitudes as a mechanism of initiation of sprite streamers
Reza Janalizadeh Choobbasti, Victor P. Pasko
(Penn State University)
- [PO18PM-021]** On the reasons for the inversion of the polarity effect during subnanosecond breakdown
Dmitry Beloplotov, Dmitry Genin, Victor Tarasenko
(Institute of High Current Electronics)
- [PO18PM-022]** Relationship between dynamic displacement current and streamer velocity
Dmitry V. Beloplotov, Anton A. Grishkov, Dmitry A. Sorokin, Valery A. Shklyayev, Victor F. Tarasenko
(Institute of High Current Electronics SB RAS)

- [PO18PM-023]** Optimisation of a ns-pulsed micro-hollow cathode discharge array in Ar/N₂ for atomic nitrogen production
Guillaume Lombardi¹, Salima Kasri¹, Kristaq Gazeli², Joao Santos Sousa², Gerard Bauville², Michel Fleury², Stephane Pasquiers², Xavier Aubert¹, Jocelyn Achard¹, Alexandre Tallaire¹, Claudia Lazzaroni¹
(¹CNRS LPSM, ²CNRS LPGP)
- [PO18PM-024]** Verification of simulation on vacuum ultraviolet photolysis method for selectively producing reactive species
Atsuro Iwase, Ryo Ono
(The University of Tokyo)
- [PO18PM-025]** Plasma properties of non-equilibrium microarcs in atmospheric pressure argon from unified modelling of the plasma and the refractory cathode
Margarita Baeva, Detlef Loffhagen, Dirk Uhrlandt
(Leibniz Institute for Plasma Science and Technology)
- [PO18PM-026]** Investigation of prebreakdown phenomena near the electrodes in a conductive liquid
Dmitrii Viktorovich Tereshonok, Vladislav A. Panov, Michael A. Sargsyan
(Joint Institute for High Temperatures of Russian Academy of Sciences)
- [PO18PM-027]** Temporal variation of OH density in wet nitrogen pulsed streamer discharge with a trace amount of oxygen
Xiang Zhang¹, Atsushi Komuro², Ryo Ono¹
(¹The University of Tokyo, ²Tohoku University)
- [PO18PM-028]** Measurement of single-filament pulsed positive streamer discharge and its comparison with 2D simulation results
Ryo Ono¹, Xiang Zhang¹, Atsushi Komuro²
(¹The University of Tokyo, ²Tohoku University)
- [PO18PM-029]** Measurement of acoustic wave emitted by plasmas using optical wave microphone
Ryo Kikuchi¹, Sho Honda¹, Toshiyuki Nakamiya², Yoshito Sonoda², Fumiaki Mitsugi³
(¹Graduate School of Science and Technology, Kumamoto University, ²Shin-Giken Co., Ltd., ³Faculty of Advanced Science and Technology, Kumamoto University)
- [PO18PM-030]** Study on Discharge Plasma Modeling Aiming at Accurate Simulation of Electrohydrodynamic Force Generation in Dielectric Barrier Discharge
Kumi Nakai, Hiroyuki Nishida
(Tokyo University of Agriculture and Technology)
- [PO18PM-031]** Decomposing characteristics of waste water treatments using Ball-lightning like discharge
Mitsuaki Maeyama, Jyun-itiro Tachiro, Yuki Inada
(Saitama University)
- [PO18PM-032]** Simulation of glow-like dielectric barrier discharge in high-pressure Ar/C₂H₄ mixtures -Influence of Penning ionization-
Fumiyoshi Tochikubo, Satoshi Uchida
(Tokyo Metropolitan University)
- [PO18PM-033]** Dynamic displacement current induced by a streamer in a point-to-plane gap
Dmitry Beloplotov, Dmitry Sorokin, Victor Tarasenko, Mikhail Lomaev
(Institute of High Current Electronics)

- [PO18PM-034]** Electrical breakdown in pulsed asymmetric DBDs with mesh electrode
Manfred Kettlitz¹, Olivier van Rooij², Hans Höft¹, Ana Sobota², Ronny Brandenburg¹
(¹Leibniz Institute for Plasma Science and Technology (INP), ²Eindhoven University of Technology, EPG)
- [PO18PM-035]** OES methods applicable for diagnosing a plasma produced by a discharge in strongly overvoltaged gaps filled with dense gases
Dmitry A. Sorokin, Dmitry V. Beloplotov, Mikhail I. Lomaev, Vasily S. Ripenko
(Institute of High Current Electronics SB RAS)
- [PO18PM-036]** Effective generation of atomic nitrogen radicals in dielectric barrier discharge at medium pressure
Yusuke Nakagawa, Tatsuki Yoshii, Satoshi Uchida, Fumiyoshi Tochikubo
(Tokyo Metropolitan University)
- [PO18PM-038]** Electron loss process in afterglow of pulsed magnetic neutral loop discharge using Ar/O₂/CF₄ or C₄F₈
X. Xie¹, J. Ni¹, T. Tsutsumi¹, K. Ishikawa¹, H. Kondo¹, M. Sekine¹, M. Hori²
(¹Graduated School of Engineering, Nagoya University, ²Institute of Innovation for Future Society, Nagoya University)
- [PO18PM-039]** Quantum dot photoluminescence; a versatile diagnostic for plasma charging
Zahra Marvi, Tim Donders, Job Beckers
(Applied Physics, Eindhoven University of Technology)
- [PO18PM-040]** Dust particles falling down to electrodes in dusty plasmas
Jiashu Lin^{1,2}, Rui Togashi¹, Hiroto Tanaka¹, He Huang³, Kazuo Takahashi⁴, Marie Hénault², Laïfa Boufendi²
(¹Dept. of Electronics, Kyoto Institute of Technology, ²GREMI, University of Orléans, ³College of Science, Donghua University, ⁴Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology)
- [PO18PM-041]** Structural properties and dynamics of dust particles in cryogenic plasmas
Mukhit M. Muratov^{1,2}, Yessenbek Aldakulov², Tlekkabul S. Ramazanov², Zhandos A. Moldabekov^{2,3}
(¹NNLOT, Al-Farabi Kazakh National University, ²IETP, Al-Farabi Kazakh National University, ³Institute of Applied Science and IT)
- [PO18PM-042]** Living Bacteria levitated in Dusty Plasmas
Hiroto Tanaka¹, Kazuo Takahashi², Rui Togashi¹, Eigo Ito¹, Gaëtan Herry³, Marie Hénault⁴, Laïfa Boufendi⁴
(¹Kyoto Institute of Technology, ²Faculty of Electrical Engineering and Electronics, Kyoto Institute of Technology, ³Polytech Orléans, University of Orléans, ⁴GREMI, University of Orléans)
- [PO18PM-043]** Collision of an Atom with a Charged Nanoparticle in Plasmas
Sandugash Kulmagambetovna Kodanova, Nuriya Bastykova, Tlekkabul Ramazanov, Zhandos Moldabekov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO18PM-044]** The study of the rotational motion of dust structures in DC glow discharge in a magnetic field
Sandugash Kulmagambetovna Kodanova, Assan Abdirakhmanov, Zhandos Moldabekov, Merlan Dosbolayev, Tlekkabul Ramazanov
(Institute of Experimental and Theoretical Physics, Al-Farabi Kazakh National University)
- [PO18PM-047]** The effect of the threshold occurrence of the rotation of dust clusters in a magnetic field
Sergei Ivanovich Pavlov, Elena Soslanovna Dзлиeva, Viktor Yurievich Karasev, Leontiy Aleksandrovich Novikov
(Saint-Petersburg State University)

- [PO18PM-048]** Effect of buoyancy on dusty plasmas in high-density carbon dioxide
Noritaka Sakakibara, Yasuhito Matsubayashi, Tsuyohito Ito, Kazuo Terashima
(The University of Tokyo)
- [PO18PM-049]** EUV - induced microplasmas created in gases of near-atmospheric densities
Andrzej Bartnik, Przemyslaw Wachulak, Henryk Fiedorowicz, Wojciech Skrzeczanowski, Tomasz Fok
(Military University of Technology, Institute of Optoelectronics)
- [PO18PM-050]** Fabrication of graphene-based materials using microwave-excited non-equilibrium atmospheric pressure plasma
Mineo Hiramatsu¹, Koki Miyashita¹, Taishu Oyama¹, Keigo Takeda¹, Hiroki Kondo², Masaru Hori³
(¹Department of Electrical and Electronic Engineering, Meijo University, ²Department of Electrical Engineering and Computer Science, Nagoya University, ³Institute of Innovation for Future Society, Nagoya University)
- [PO18PM-051]** Atmospheric plasma-assisted modification of nanosized TiO₂/Y₂O₃:Er³⁺/Yb³⁺ double composite film and its application to dye-sensitized solar cells
Fadzai Lesley Chawarambwa, H. Chou, Masaharu Shiratani, Kazunori Koga
(Kyushu University)
- [PO18PM-052]** Deposition of SiOx thin films by atmospheric pressure plasma jet
Yerbolat Ussenov^{1,2}, L. Hansen³, T. Krüger³, T.S. Ramazanov¹, H. Kersten³
(¹Al-Farabi Kazakh National University, NNLOT, ²Institute of applied science and information technologies, ³Institute of Experimental and Applied Physics, Kiel University)
- [PO18PM-053]** Deposition of CuO thin films by coupling APP jet and spark discharge
Yerbolat Ussenov^{1,2}, M.T. Toktamyssova^{1,2}, M.K. Dosbolayev¹, M.T. Gabdullin¹, T.T. Daniyarov², T.S. Ramazanov¹
(¹NNLOT, Al-Farabi Kazakh National University, ²Institute of Applied Sciences and Information Technologies)
- [PO18PM-054]** Effect of Plasma Treatment on Activating Basal Plane of Monolayer MoS₂ Synthesized by CVD
Akihisa Ogino, Masahiro Sugiyama
(Graduate School of Integrated Science and Technology, Shizuoka University)
- [PO18PM-055]** Effect of substrate moving speed during open-air plasma chemical vapor deposition of titanium oxide thin films
Rodolphe Mauchauffé, Jongwoon Kim, Donghyun Kim, Se Youn Moon
(Chonbuk National University)
- [PO18PM-056]** Large area, low temperature VO₂ thin films deposition by microwave plasma-assisted reactive sputtering
Ana Lacoste, Alexandre Bes, Runxiao Yang
(LPSC, Université Grenoble Alpes, CNRS)
- [PO18PM-057]** Plasma-Enhanced Pulsed Laser Deposition: Proof-of-concept for metal-oxide thin films
Sudha Rajendiran¹, David Meehan¹, Andrew Rossall², Erik Wagenaars¹
(¹York Plasma Institute, Department of Physics, University of York, York, ²School of Computing and Engineering, University of Huddersfield)
- [PO18PM-058]** Influence of magnesium content on corrosion resistance of Al-Mg alloy films deposited by PVD method
Beom-Deok Seo¹, Soon-Ho Kim¹, Seul-Gee Lee¹, Jun-Mu Park¹, Yong-Sup Yun¹, Tae-Yeob Kim², Myeong-Hoon Lee¹
(¹Korea Maritime and Ocean University, ²POSCO Technical Research Laboratories)

- [PO18PM-059]** Corrosion resistance of cross section of Mg films on hot dip Zn-55Al plated steel coated by using PVD process
Gi-Dong Park, Jae-Hyeock Park, Jun-Mu Park, Hyo-Jin Kim, Myeong-Hoon Lee
(Korea Maritime & Ocean University)
- [PO18PM-060]** Morphology and crystal orientation of Mg films formed on hot dip galvanized steel by PVD process at various N₂ gas pressures
Gi-Dong Park¹, Gi-Dong Park¹, Yong-Sung Kim¹, Yong-Sup Yun¹, Tae-Yeob Kim², Myeong-Hoon Lee¹
(¹Korea Maritime & Ocean University, ²POSCO Technical Research Laboratories)
- [PO18PM-061]** Preparing of multi-elements two-dimensional thin films by plasma process using metal and metal oxide powder targets
Hiroharu Kawaskai¹, T. Ohshima¹, Y. Yagyu¹, T. Ihara¹, M. Shinohara¹, Y. Suda²
(¹National Institute of Technology, Sasebo College, ²National Institute of Technology, Ishikawa College)
- [PO18PM-062]** Corrosion resistance of heat-treated Mg films deposited by sputtering method on the hot dip aluminized steel
Soon-Ho Kim¹, Gi-Dong Park¹, Beom-Deok Seo¹, Jae-In Jeong², Ji-Hoon Yang², Kyeong-Hwang Lee², Tae-Yeob Kim³, Myeong-Hoon Lee¹
(¹Korea Maritime & Ocean University, ²Research Institute of Industrial Science & Technology (RIST), ³POSCO Technical Research Laboratories)
- [PO18PM-063]** Mg films deposited by sputtering method on the hot dip aluminized steel and their corrosion resistance
Soon-Ho Kim¹, Beom-Deok Seo¹, Jun-Mu Park¹, Seul-Gee Lee¹, Jae-In Jeong², Ji-Hoon Yang², Kyeong-Hwang Lee², Myeong-Hoon Lee¹
(¹Korea Maritime & Ocean University, ²Research Institute of Industrial Science & Technology (RIST))
- [PO18PM-064]** Properties of titanium oxynitride films prepared by reactive high power pulsed magnetron sputtering
Takashi Kimura, Takahiro Tanaka
(Nagoya Institute of Technology)
- [PO18PM-065]** Plasma based surface modifications of tungsten substrates for improved surface hardness
Joseph Vimal Vas¹, Mayank Mishra¹, Rohit Medwal¹, Jiaqi Pan², Ningli Wang², Junhui Xu², Rajdeep Singh Rawat¹
(¹National Institute of Education, NTU, ²Hwa Chong Institute)
- [PO18PM-066]** Plasma modification of the metals surface
Mikael Armenovich Sargsyan, Alexander Semenovich Tyuftyaev, Makhach Khairudinovich Gadzhiev, Maxim Valerievich Ilichev
(Joint Institute for High Temperatures of the Russian Academy of Sciences)
- [PO15PM-077]** Influence of small amount of hydrocarbon gas mixture on properties of DLC films in high power impulse magnetron sputtering system
Takashi Kimura, Kento Sakai
(Nagoya Institute of Technology)
- [PO18PM-068]** Study of surface contact pressure on tribological behaviour of ta-C:H film coated by reactive cathodic vacuum arc plasma deposition method
Muhammad Aminurul Helmy Mohamad¹, Shinsuke Kunitsugu², Tadayuki Okano³, Masahide Kuroiwa³, Tatsuyuki Nakatani⁴
(¹Graduate School of Engineering, Okayama University of Science, ²Industrial Technology Center of Okayama Prefecture, ³Tokyo Electronics Co, Ltd., ⁴Research Institute of Technology, Okayama University of Science)

- [PO18PM-069]** Low-temperature plasma nitriding for austenitic stainless steel coatings fabricated by a direct laser metal deposition
Shinichiro Adachi, Motoo Egawa, Takuto Yamaguchi, Hideki Hagino, Nobuhiro Ueda
(Osaka Research Institute of Industrial Science and Technology)
- [PO18PM-070]** Selective surface functionalization of membranes by atmospheric pressure plasma for oil-water separation
Dong-hyun Kim, Rodolphe Mauchauffé, Jong-woon Kim, Se Youn Moon
(Chonbuk National University)
- [PO18PM-071]** Improvement of Adhesion between Carbon Fiber Reinforced Polymers by Atmospheric Pressure Plasma Surface Treatment
Jongwoon Kim¹, Rodolphe Mauchauffé¹, Donghyun Kim¹, Jaewon Kim², Se Youn Moon¹
(¹Chonbuk National University, ²ANH structure Co., Ltd)
- [PO18PM-072]** Electrical characterisation of atmospheric plasma jet during treatments of RPMI 1640 cell medium
Nevena Puač¹, Andjelija Petrović¹, Nikola Škoro¹, Gordana Malović¹, Zoran Lj. Petrović^{1,2}
(¹Institute of Physics Belgrade, University of Belgrade, ²Serbian Academy Of Sciences and Arts)
- [PO18PM-073]** Influence of electric field distribution on molecular introduction into SUMA fish eggs by surface discharge
Yoshihisa Ikeda¹, Kenta Funakoshi¹, Keitaroh Wada¹, Taiju Saito², Masafumi Jinno¹
(¹Faculty of Engineering, Ehime University, ²Sourth Ehime Fisheries Research Center, Ehime University)
- [PO18PM-074]** In-Solution Type Plasma Device for Highly-Efficient Drug Transfer
Ryosuke Honda¹, Shota Sasaki¹, Keisuke Takashima¹, Makoto Kanzaki², Takehiko Sato³, Toshiro Kaneko¹
(¹Graduate School of Engineering, Tohoku University, ²Graduate School of Biomedical Engineering, Tohoku University, ³Institute of Fluid Science, Tohoku University)
- [PO18PM-075]** Clinical Feasibility of Plasma-activated Medium as Adjuvant Therapy on Malignant Pleural Effusion
Yun Chien Cheng¹, C. Lin^{1,2}, C. Chen¹, Y. Cheng¹
(¹National Chiao Tung University, ²National Taiwan University Hospital)
- [PO18PM-076]** Reactive plasmas to enhance bioactivity of small molecules
Rusen Zhou, R.W. Zhou, K. Ostrikov, K. Bazaka
(School of Chemistry, Physics, Mechanical Engineering, Queensland University of Technology)
- [PO18PM-077]** If atmospheric plasma jet is effective at killing wound related bacteria, is it also effective at accelerating wound healing?
S. Darmawati^{1,13}, Nasruddin Nasruddin^{1,12,13}, A. Rohmani², L.H. Nurani^{3,13}, E.S. Wahyuningtyas^{4,12,13}, F. Murdiya⁵, I.M. Sikumbang^{6,12}, R.N. Rohmah⁷, Y.A. Fatimah⁸, T. Ishijima⁹, J. Sugama^{10,11}, T. Nakatani¹⁰
(¹Department of Medical Laboratory Science, Universitas Muhammadiyah Semarang, ²Faculty of Medicine, Universitas Muhammadiyah Semarang, ³Department of Pharmacy, Faculty of Pharmacy, Universitas Ahmad Dahlan, ⁴Department of Nursing, Universitas Muhammadiyah Magelang, ⁵Department of Electrical Engineering, Faculty of Engineering, Universitas Riau, ⁶Department of Pharmacy, Universitas Muhammadiyah Magelang, ⁷Department of Electrical Engineering, Universitas Muhammadiyah Surakarta, ⁸Faculty of Engineering, Universitas Muhammadiyah Magelang, ⁹Research Center for Sustainable Energy and Technology, Kanazawa University, ¹⁰Division of Nursing, Kanazawa University, ¹¹Advanced Health Care Science Research Unit, Institute for Frontier Science Initiative (InFiniti), Kanazawa University, ¹²Research Center for Experimental Wound Healing, Universitas Muhammadiyah Magelang, ¹³Muhammadiyah Research Network for Plasma Medicine (M-Plasmed))

- [PO18PM-078]** High-Performance Plasma-Enabled Biorefinery of Microalgae into Value-Added Products
Renwu Zhou¹, R.S. Zhou¹, X. Zhang², Z. Fang³, K. Ostrikov¹, K. Bazaka¹
(¹School of Chemistry, Physics, Mechanical Engineering, Queensland University of Technology,
²College of Physical Science and Technology, Fujian Provincial Key Laboratory of Plasma and Magnetic Resonance, Institute of Electromagnetics and Acoustics, Xiamen University, ³College of Electrical Engineering and Control Science, Nanjing Tech University)
- [PO18PM-079]** Application of nano-sized low-temperature plasma produced from heavy ion irradiation to heavy ion cancer therapy
Kengo Moribayashi
(National Institutes for Quantum and Radiological Science and Technology)
- [PO18PM-080]** Clinical trial using cold atmospheric plasma to treat diabetic foot ulcers
Shahriar Mirpour¹, Sara Fathollah², Mohammadreza Amini³
(¹Eindhoven university of Technology, ²Amirkabir university of Technology, ³Tehran university of Medical Science)
- [PO18PM-081]** Plasma characteristics of the extended plume from an atmospheric pressure plasma jet with attached silicone tube
Jang-Hsing Hsieh^{1,2}, Y.J. Wei¹, J.S. Chen²
(¹Dept. of Materials Engineering, Ming Chi University of Technology, ²Center for Plasma & Thin Film Technologies, Ming Chi University of Technology)
- [PO18PM-082]** Effect of Atmospheric Plasma Jet on biomedical applications
Norhayati Mohd Nasir¹, Seong Ling Yap¹, Teow Sin Yeang², Kwai Lin Thong¹
(¹University of Malaya, ²Sunway University)
- [PO18PM-083]** Cell response in treatment of plasma-activated Ringer's acetate
Yuki Suda¹, Kenji Ishikawa^{1,2}, Hiromasa Tanaka^{2,3}, Hiroshi Hashizume³, Shinya Toyokuni^{2,4}, Fumitaka Kikkawa^{2,4}, Masaaki Mizuno^{2,5}, Masaru Hori^{1,2,3}
(¹Department of Electronics, Nagoya University, ²Plasma Medical Science Global Innovation Center, Nagoya University, ³Institute of Innovation for Future Society, Nagoya University, ⁴Graduate School of Medicine, Nagoya University, ⁵Center for Advanced Medicine and Clinical Research, Nagoya University)
- [PO18PM-084]** Surface Modification of PP Non-Woven by Acetic Acid Plasma/UV Photo-grafting of p(HEMA/chitosan) hydrogel and Immobilization of Magnolol
Chia-Feng Hsieh¹, Ko-Shao Chen², Shu Chuan Liao¹
(¹Da-Yeh University, ²Tatung University)
- [PO18PM-085]** Application of Acetic Acid Plasma Treatment of PP nonwoven and grafted NIPAAm-g-PVA Hydrogel for Drug Delivery Biocarrier
Chih-Ying Chen¹, Ko-Shao Chen², Shu-Chuan Liao¹
(¹Da-Yeh University, ²Tatung University)
- [PO18PM-086]** Parameter survey to induce protein aggregation by low energy ionized gas haemostasis equipment
Hajime Sakakita¹, Hiromasa Yamada², Tetsuji Shimizu¹, Masanori Fujiwara¹, Susumu Kato¹, Satoru Kiyama¹, Jaeho Kim¹, Sanae Ikehara¹, Nobuyuki Shimizu³, Hayao Nakanishi⁴, Yuzuru Ikehara¹
(¹National Institute of Advanced Industrial Science and Technology, ²National Institute of Technology, Nagano College, ³SANNO Hospital (International University of Health and Welfare), ⁴Aichi Cancer Center Research Institute)
- [PO18PM-087]** Antitumor effect of Plasma Activated Medium on human colorectal cancer
Nofel Merbahi¹, J. Chauvin^{1,2}, L. Gibot², P. Vicendo², M.P. Rols³, M. Golzio³, M. Yousfi¹
(¹LAPLACE, Université de Toulouse, CNRS, INPT, UPS, ²IMRCP, Université de Toulouse, CNRS, UPS, ³IPBS, CNRS)

[PO18PM-088] Analysis of Amino Group Bonds in Plasma Polymerization using Molecular Dynamics Simulation

Anjar Anggraini Harumningtyas^{1,2}, Michiro Isobe¹, Tomoko Ito¹, Satoshi Sugimoto¹, Satoshi Hamaguchi¹
(¹Osaka University, ²National Nuclear Energy Agency of Indonesia)

Friday, July 19, 2019

Registration (8:30–11:00)

A: Hall-L

Topical Invited Lecture (09:00–09:30)

Chair: Prof. Toshiyuki Kawasaki

- [TL-45] A Laser-Induced Breakdown Spectroscopy Perspective in the Earth environment
Giorgio S. Senesi
(CNR-NANOTEC, PLasMI Lab)

Oral Session (09:30–10:00)

- [OR19AM-A01] Adsorption-plasma catalysis for removal of toluene from dry air using 13X-zeolite packed bed DBD reactor
Savita K.P. Veerapandian¹, Nathalie De Geyter¹, Jean-Marc Giraudon², Guy De Weireld³, Iuliia Onyshchenko¹, Chidharth Krishnaraj⁴, Karen Leus⁴, Pascal Van Der Voort⁴, Jean-Francois Lamonier², Rino Morent¹
(¹Ghent University, Faculty of Engineering and Architecture, Department of Applied Physics, Research Unit Plasma Technology, ²Univ. Lille, CNRS, Centrale Lille, ENSCL, Univ. Artois, ³Universite de Mons, Faculte Polytechnique, Service de thermodynamique et de physique mathematique, ⁴Ghent University, Department of Chemistry, COMOC-Center for Ordered Materials, Organometallics and Catalysis)
- [OR19AM-A02] Mechanism of reaction enhancement of unexcited molecules in plasma catalytic dry methane reforming
Seigo Kameshima^{1,2}, Zunrong Sheng¹, Tomohiro Nozaki¹
(¹Department of Mechanical Engineering, Tokyo Institute of Technology, ²Japan Society for the Promotion of Science Research Fellow, DC1)

General Invited Lecture (10:15–11:00)

Chair: Dr. Tetsuya Tatsumi

- [GL-06] Plasma etching technologies for semiconductor device manufacturing and future prospects
Hisataka Hayashi
(Toshiba Memory)

ICPIG2019/ICRP2019 Oral/Poster & ICRP Paper Awards Ceremony (11:00–11:15)

ICPIG von Engel & Franklin Prize Lecture (11:15–12:15)

Chair: Prof. Holger Kersten

Plasma Processing for Microelectronics Fabrication: Will Modelling and Simulation Help Maintain Moore's Law?
Mark J. Kushner, Shuo Huang, Chenhui Qu, Xifeng Wang, Steven Lanham, Jordyn Polito
(University of Michigan)

————— B: Hall-S —————

Topical Invited Lecture (09:00–09:30)

Chair: Prof. Hiroshi Akatsuka

- [TL-46] Challenges in Design of Very Low Power Plasma Sources for Space Propulsion
Igal Kronhaus
(Technion-Israel Institute of Technology)

Oral Session (09:30–10:00)

- [OR19AM-B01] Gas temperature measurements in a pulsed, low-pressure Inductively Coupled Plasma in oxygen
Erik Wagenaars, David Meehan
(York Plasma Institute, Department of Physics, University of York)
- [OR19AM-B02] Copper lines prepared from a plasma-based etch process and electromigration failure phenomenon
Yue Kuo¹, Jia Quan Su¹, Mingqian Li¹, Tao Yuan²
(¹Texas A&M University, ²Ohio University)

————— C: Hall-K —————

Topical Invited Lecture (09:00–09:30)

Chair: Prof. Sander Nijdam

- [TL-47] High-voltage nanosecond discharges under non-uniform gas density conditions
Nickolay L. Aleksandrov¹, Ilya N. Kosarev¹, Andrey Yu. Starikovskiy²
(¹Moscow Institute of Physics and Technology, ²Princeton University)

Oral Session (09:30–10:00)

- [OR19AM-C01] Development of Nitrogen Vibrational Excitation Plasma Source with Non-Self-Sustaining DC Discharge
Yuki Kunishima, Keisuke Takashima, Toshiro Kaneko
(Tohoku University)
- [OR19AM-C02] Numerical investigation of initial pressure influence on energy deposition in spark discharge in nitrogen
K. Korytchenko, R. Tomashevskiy, I. Varshamova, D. Meshkov
(Institute of Education and Science in Power Engineering, Electronics and Electromechanics, National Technical University “KhPI”)

————— **D: Room 403** —————

Topical Invited Lecture (09:00–09:30)

Chair: Dr. Kinga Kutasi

[TL-48]

Low Temperature Plasma Instabilities and Turbulence

E. Son^{1,2}, O. Gorshkov², T. Chernyshov¹, K. Son², Yu. Kulikov¹

(¹Joint Institute for High Temperature, Russian Academy of Sciences, ²Moscow Institute of Physics and Technology)

Oral Session (09:30–10:00)

[OR19AM-D01] Experimental observation of negative ion beam oscillation with a filament-arc-type negative ion source

Yasuaki Haba¹, Kenichi Nagaoka^{1,2}, Katsuyoshi Tsumori^{2,3}, Masashi Kasaki², Haruhisa Nakano^{2,3}, Katsunori Ikeda², Shinji Yoshimura², Masaki Osakabe^{2,3}

(¹Nagoya University, ²National Institute for Fusion Science, ³SOKENDAI)

[OR19AM-D02] Entropy production during the fireball formation in discharge plasma

Dan G. Dimitriu, Sebastian Popescu

(Alexandru Ioan Cuza University, Faculty of Physics)

————— **A: Hall-L** —————

Closure (12:15–12:45)

Satellite Workshops

International workshop on nanoparticles and nanostructures synthesized by plasmas for energy applications

14 July 2019

**Sapporo Education and Culture Hall,
Sapporo, Hokkaido in Japan**



<http://www.kyobun.org/foreign/english.html>

Joint Workshop of Conference of XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG) and 10th International
Conference on Reactive Plasmas (ICRP-10)

Registration:	included in XXXIV ICPIG/ICRP-10
Language:	English
Contact Details:	Vladimir Svrcek National Institute of Advanced Industrial Science and Technology (AIST), Japan e-mail: vladimir.svrcek@aist.go.jp , tel: +81-29-861-5429
Presentation:	Invitation-only

Coffee Reception (13:30-14:00)

13:50 - 14:00 Welcome Address **Vladimir Svrcek**, AIST, Japan

Session Chair: Prof. Uros Cvelbar,

- 14:00 - 14:30 **Davide Mariotti**, Ulster University, UK
“Tailoring materials properties by atmospheric pressure plasma for energy applications”
- 14:30 - 15:00 **Alexandre Nomine**, Institut Jean Lamour, Nancy, France and Faculty of Physics and Engineering - ITMO University, St Petersburg, Russia
“Alloying nanoparticles by plasma discharges and laser treatment”
- 15:00 - 15:30 **Vincenzo Amendola**, Università di Padova, padova, Italy
“Ex-situ investigation of nanoalloy formation by laser ablation in liquid”
- 15:30 - 16:00 **Jan Benedikt**, University of Christian-Albrechts-Universität zu Kiel, Kiel, Germany „Atmospheric plasmas for generation of nanostructured materials or nanoparticles”

Coffee Break (15 min)

Session Chair: Prof. D. Mariotti

- 16:15 - 16:45 **Yevgeny Raitses**, Princeton University, Princeton, USA
“Towards Understanding of Synthesis of Carbon and Boron Nitride Nanotubes in Arc Discharges”
- 16:45 - 17:15 **Uros Cvelbar**, Jožef Stefan Institute, Ljubljana, Slovenia
“Plasma-assisted design of nanomaterials for improved catalysis”
- 17:15 - 17:45 **Christophe Vallée**, Université Grenoble Alpes, Grenoble, France and Tsukuba University, Japan
“Cold plasma for Atomic Layer Processing: from ALD and ALE to Area Selective Deposition ”
- 17:45 - 18:15 **Dan Sun**, Queen's University Belfast, UK
“Microplasma synthesized nanocomposites : potential applications in energy and beyond.”
- 18:15 - 18:20 Concluding Remarks **V. Svrcek**, AIST-Japan

18:30 Reception (details will be provided)

**Satellite Workshop of XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG) &
10th International Conference on Reactive Plasmas (ICRP-10)**

International Workshop on Diagnostics of Atmospheric- Pressure Plasmas



**Sapporo Education and Culture Hall, Sapporo,
Hokkaido, Japan**

July 14, 2019

International workshop on diagnostics of atmospheric-pressure plasmas

13:40 - 13:45 Welcome Address, **Ryo Ono**, The University of Tokyo, Japan

Chair: Stephan Reuter

13:45 - 14:15 **Joao Santos Sousa**, University of Paris-Saclay, Orsay, France
“Measurement on atmospheric-pressure plasmas of electron properties by Thomson scattering and of reactive species by optical emission and absorption spectroscopy”

14:15 - 14:45 **Timo Gans**, University of York, York, UK
“Plasma dynamics and chemical kinetics in atmospheric pressure plasmas – a diagnostics challenge”

14:45 - 15:15 **Ana Sobota**, Eindhoven University of Technology, Eindhoven, Netherlands
“Plasma-surface interaction: Pockels-based Mueller polarimetry”

15:15 - 15:45 **Christophe Laux**, CentraleSupélec, Gif-sur-Yvette, France
“Optical diagnostics for the characterization of atmospheric pressure air plasmas”

15:45 - 16:15 **Nader Sadeghi**, University of Grenoble & CNRS, France
“The study of helium and argon metastable atoms and molecules in atmospheric pressure plasmas, monitored by broadband absorption spectroscopy”

Coffee Break (15 min)

Chair: Timo Gans

16:30 - 17:00 **Eric Robert**, University of Orleans, Orleans, France
“On the use of complementary diagnostics for plasma jet delivery on targets relevant for biomedical applications”

17:00 - 17:30 **Giorgio Dilecce**, CNR-Institute of Nanotechnology, Lecce, Italy (TBD)

17:30 - 18:00 **Stephan Reuter**, Lublin Technical University, Lublin, Poland
“Ultrafast laser diagnostics on atmospheric pressure plasma jets”

18:00 - 18:30 **Yuki Inada**, Saitama University, Saitama, Japan
“Two-dimensional electron density measurement of streamer discharge in atmospheric-pressure air”

18:30 - 18:35 Concluding Remarks, **Ryo Ono**, The University of Tokyo, Japan

19:00 **Reception at the same building (details will be provided)**

Satellite Workshop of XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG) & 10th
International Conference on Reactive Plasmas (ICRP-10)

International Workshop on Atomic and Molecular Data for Plasma Applications

14 July 2019

Sapporo Education and Culture Hall, Sapporo, Hokkaido, Japan

Program

- 13:50 - 13:55 Welcome Address, **Izumi Murakami**, National Institute for Fusion Science
- Chair:* **N. Nakamura**, Univ. of Electro-Communications
- 13:55 – 14:25 **Laurence Campbell**, Flinder University, Australia
“Cross sections for electron impact excitation of OH and their application in atmospheric simulations”
- 14:25 – 14:50 **Masamitsu Hoshino**, Sophia University, Japan
“Absolute cross section measurements in collisions of low- and intermediate-energy electrons with polyatomic molecules”
- 14:50 – 15:15 **Masashi. Kitajima**, Tokyo Institute of Technology, Japan
“Low-energy and Very-low-energy total cross sections for electron collisions with small molecules”
- 15:15 – 15:40 **Kohki Sato**, Muroran Institute of Technology, Japan
“Electron transport at high E/N region”
- 15:40 – 16:05 **Hajime Tanuma**, Tokyo Metropolitan University, Japan
“Mobility measurements for small molecular ions in cooled helium gas”
- 16:05 – 16:20 **Coffee break**

Chair: **H. Tanuma**, Tokyo Metropolitan Univ.

16:20 – 16:50 **Emile A. D. Carbone**, Max Planck Institute for Plasma Physics,
Germany,

“Data needs for modelling non-equilibrium discharges: the LXCat
project”

16:50 – 17:15 **Mi-Young Song**, National Fusion Research Institute, Korea

“Study on Electron Impact Scattering Cross Section of Processing
Gas for Plasma Applications”

17:15 – 17:40 **Maria Tudorovskaya**, Quantemol Ltd., UK

“Reaction data for tokamak divertor and near-wall regions”

17:40 – 18:05 **Nobuyuki Nakamura**, University of Electro-Communication,
Japan

“Tungsten spectra observed with an electron beam ion trap”

18:05 – 18:30 **Kengo Moribayashi**, National Institute for Quantum and
Radiological Science and Technology, Japan

“Application of atomic and molecular data to heavy ion beam
plasma production and further, heavy ion beam cancer therapy”

18:30 – 18:35 Concluding Remarks, **I. Murakami**

19:00 - Reception (details will be provided)

Information

Registration: Included in ICPIG/ICRP registration fee

Presentation: Invitation only

Venue: Sapporo Education and Culture Hall, Sapporo, Hokkaido, Japan

<http://www.kyobun.org/foreign/english.html>

Access: <http://icpig2019.qe.eng.hokudai.ac.jp/venue.html>

Contact: I. Murakami (National Institute for Fusion Science)

murakami.izumi@nifs.ac.jp

**Satellite Workshop of XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG) &
10th International Conference on Reactive Plasmas (ICRP-10)**

Challenges in simulation of low-temperature plasma and its applications



**Sapporo Education and Culture Hall, Sapporo,
Hokkaido, Japan**

July 14, 2019

Challenges in simulation of low-temperature plasma and its applications

13:55 - 14:00 Welcome Address, **Fumiyoshi Tochikubo**, Tokyo Metropolitan University, Japan

Chair: Satoshi Hamaguchi

14:00 - 14:30 **Kallol Bera**, Applied Materials, USA
“Simulation of Plasma Sources for Semiconductor Industry”

14:30 - 15:00 **Peter L. G. Ventzek**, Tokyo Electron America, Inc., USA
“Atomic Precision Modeling and Simulation for Atomic Precision Semiconductor Device Fabrication”

15:00 - 15:30 **Atsushi M. Ito**, National Institute for Fusion Research, Japan
“Multi-hybrid simulation for tungsten nanostructure formation induced by helium plasma”

15:30 - 16:00 **Kristof Bal**, University of Antwerp, Belgium
“New physicochemistry at the plasma–catalyst interface: Insights from atomistic modeling”

Coffee Break (15 min)

Chair: Fumiyoshi Tochikubo

16:15 - 16:45 **WooSeok Kang**, Korea Institute of Machinery and Materials, Korea
“Understanding the packed-bed discharges: a simulation perspective”

16:45 - 17:15 **Natalia Babaeva**, Joint Institute for High Temperatures, Russian Academy of Sciences, Russia
“Challenges in modelling and simulation of plasma-surface interaction: fluid vs hybrid approach”

17:15 - 17:45 **Dingxin Liu**, Xi'an Jiaotong University, China
“Modeling study on the interaction between low-temperature plasmas and water solutions”

17:45 - 18:15 **Hiroyuki Nishida**, Tokyo University of Agriculture and Technology, Japan
“Numerical simulation of plasma actuator aiming for understanding of body force generation”

18:15 - 18:25 Concluding Remarks, **Satoshi Hamaguchi**, Osaka University, Japan

19:00 **Reception at the same building (details will be provided)**

Satellite Workshop of XXXIV International Conference on
Phenomena in Ionized Gases (XXXIV ICPIG) &
10th International Conference on Reactive Plasmas (ICRP-10)

**New trends of plasma processes
for thin films and related materials
For the deep discussion on new trends
of plasma processes**

20 July, 2019



Seminar Room 1 on the 1st floor
Frontier Research in Applied Sciences Building
Hokkaido University, Sapporo, Hokkaido in Japan
<https://www.eng.hokudai.ac.jp/building/detail.php?area=2>
Sapporo Campus map
<https://www.global.hokudai.ac.jp/maps/?p=sappor>

**New trends of plasma processes for thin films and related materials for the deep
discussion on new trends of plasma processes**

8:30	Seminar Room 1 Open
8:50 - 9:00	Opening Remark
9:00 - 9:30	Seiji Samukawa , Tohoku University, Japan “State of the art of nano-processing of semiconductors”
9:30 - 10:00	Naho Itagaki , Kyushu University, Japan “Inverse Stranski-Krastanov growth: a method for growth of single crystalline films beyond lattice-matching condition”
10:00 - 10:30	Jón Tómas Guðmundsson , University of Iceland, Iceland “On the ionized flux fraction and ion recycling in high power impulse magnetron sputtering”
10:30 - 11:00	Break
11:30 - 12:00	Holger Kersten , University of Kiel, Germany “Novel diagnostics of sputtering phenomena”
12:00 - 12:30	Giichiro Uchida , Meijyo Univeristy, Japan “A search for novel materials for next-generation battery”
12:30 - 13:00	Masaharu Shiratani , Kyushu University, Japan “Nanoparticle inclusion: an old and new parameter for tuning film properties”
13:00 - 15:00	Break
15:00 - 18:00	Discussion on new trends of plasm processes

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Erik V Johnson	OR16PM-A02	Masaki Kataoka	PO16PM-041
Olivier Joubert	TL-41	Daiji Kato	PO15PM-002
Olivera Jovanovic	TL-22	Susumu Kato	PO18PM-086
Choi Jun	PO16PM-085	Taiki Kato	PO16PM-013
Young-Dae Jung	PO15PM-001	Toshiaki Kato	OR15PM-A01, PO15PM-067
Jana Jurmanova	PO16PM-043	Ryo Katou	PO15PM-079
K		Yuko Katsumata	OR18PM-B02
Savita K P Veerapandian	OR19AM-A01	Hirokazu Kawabata	PO18AM-080
Y Kabe	TL-33, PO18AM-033	Hideki Kawaguchi	PO15PM-022
Kazumasa Kadowaki	OR15PM-C03	Makoto Kawaguchi	OR15PM-C01, PO16PM-078
Marat Kaikanov	PO16PM-015	Satoru Kawaguchi	PO15PM-015, PO15PM-022
Shin Kajita	OR18PM-A03, PO18PM-003	Yasuyuki Kawaguchi	PO16PM-063
Hiroaki Kajiyama	OR18PM-B02	Kazuma Kawahara	PO16PM-004
Kunihiro Kamataki	TL-09, OR15PM-A02, PO15PM-068,	Takuya Kawakita	PO15PM-032
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Seigo Kameshima	OR19AM-A02	Masayoshi Kawase	PO18AM-067
S. Kamio	TL-12, OR17AM-C04, PO18AM-025	Rei Kawashima	PO18AM-083, PO18PM-013
Masao Kamiya	PO15PM-061	Hiroharu Kawaskai	PO18PM-061
Seiji Kanazawa	PO15PM-084	Hiroshi Kawaura	PO15PM-082
Yuka Kanbara	PO15PM-084	Yoko Kebukawa	OR15PM-D05
H. Kanda	PO15PM-029, PO18AM-044	Panagiotis N Kechagiopoulos	OR16AM-D01
Satoru Kaneko	PO15PM-061	Jakub Kelar	PO18AM-062
		Efe H Kemaneci	OR15PM-D06
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		Akmaral Kenzhebekova	PO18AM-001, PO18PM-019

Holger Kersten	TL-18, OR15AM-B02, OR15PM-B04, OR16AM-C01	Atsushi Kina	OR15PM-B02, PO16PM-025
Manfred Kettlitz	TL-43, PO16PM-005, PO18PM-034	Keizo Kinoshita	AS2-I1
M. A Khan	PO16PM-048	M. Kisaki	TL-12, OR17AM-C04, OR19AM-D01, PO18AM-025
Konstantin V. Khishchenko	PO18PM-006	H. Kishimoto	PO16PM-066
Sergey Khrapak	OR15PM-D02	Takeshi Kitajima	PO15PM-079, PO16PM-073
Se Hoon Ki	PO15PM-035	Masato Kiuchi	OR15PM-D04
Fumitaka Kikkawa	OR18PM-B02, PO18PM-083	Satoru Kiyama	PO18PM-086
Ryo Kikuchi	PO16PM-034	Tsuyoshi Kiyan	PO15PM-056
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Takashi Kikuchi	PO16PM-052, PO18AM-015	B. Klarenaar	TL-37
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Dae-Woong Kim	PO16PM-030	Pavel Kocan	PO16PM-070
Donghyun Kim	PO18PM-055, PO18PM-070, PO18PM-071	Igor V. Kochetov	PO15PM-007
Dongsik Kim	PO15PM-086	Naoto Kodama	OR15PM-C04
Gon-Ho Kim	OR15PM-B01	Sandugash Kodanova	PO15PM-003, PO18AM-001, PO18PM-019
Hojin Kim	AS2-I4	Sandugash Kulmagambetovna Kodanova	PO18PM-043, PO18PM-044
Hwa Suk Kim	OR17AM-B01	Peter Koelman	OR15AM-B01
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Jongsik Kim	PO15PM-047, PO15PM-050	Vladimir I Kolobov	OR17AM-D03, PO18AM-010
Jongwoon Kim	PO18PM-055, PO18PM-070, PO18PM-071	Ali Ihsan Komur	PO15PM-078
June Young Kim	PO18AM-024, PO18AM-038	Kimiya Komurasaki	PO18AM-083, PO18PM-013
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Si-Jun Kim	PO16PM-030	Hiroki Kondo	OR15PM-A05, OR15PM-D03, OR17AM-B02, OR18PM-B02, PO18PM-038, PO18PM-050, PO15PM-029, PO15PM-065
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Veronika Lyushkevich	TL-26	Masaaki Matsukuma	PO16PM-013
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Takuya Meijo	PO15PM-070	Antonio Molina-Diaz	PO16PM-049
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Nofel Merbahi	PO18PM-087	Se Youn Moon	PO15PM-039, PO15PM-040,
Denis V. Meshkov	OR19AM-C02		PO18PM-055, PO18PM-070, PO18PM-071
Bartosz Michalczuk	PO18AM-069	Christopher H. Moore	OR18PM-C01,
Armelle Michau	PO16PM-019		PO15PM-012, PO18AM-019
Matthieu Michiels	TL-29	Ivan Moralev	PO16PM-055, PO18AM-081
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Thomas Danny Michl	OR17AM-B04	Rino Morent	OR16AM-C02, OR19AM-A01
Miroslav Michlicek	TL-13	Koichi Mori	PO18AM-084
Tetsu Mieno	OR15PM-D05	Tadashi Mori	PO15PM-057
Ilarion Mihaila	PO16PM-049	Yuki Mori	PO15PM-085
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Richard B. Miles	OR15PM-B05, OR16AM-C01	A. S. Morillo-Candas	TL-07, TL-37
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Kiyoshi Minegishi	PO18AM-080	Makoto Moriyama	PO15PM-046
Shahriar Mirpour	OR18PM-D01, PO18PM-080	Paul Moroz	PO16PM-013
Fuminori Misaizu	PO16PM-026	Aelan Mosden	AS2-I4
Mayank Mishra	PO18PM-065	Miran Mozetic	TL-21
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Felix Mitschker	OR15PM-D06	Steve Muhl	PO18AM-037
Fumiaki Mitsugi	OR15PM-C01,	Seiji Mukaigawa	PO15PM-071, PO16PM-075
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Kohei Mitsuhashi	PO18AM-082	Tomoyuki Murakami	TL-24
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S. Miyagi	TL-33, PO18AM-006, PO18AM-033	S. Murakami	PO16PM-066
Nanoka Miyahara	PO18AM-049,	Soichiro Muraoka	PO18AM-050
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Machiko Miyake	PO15PM-079, PO16PM-073	Mukhit Muratov	PO15PM-013,
Naoki Miyamoto	PO16PM-060,		PO16PM-067, PO18PM-041
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Masaaki Mizuno	OR18PM-B02, PO18PM-083		
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Sebastian Mohr	OR15AM-D02		
Young Sun Mok	PO18AM-052		
M. Mokhtar Hefny	GL-04		
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		Hiroyuki Nagai	PO16PM-034
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Yusuke Nakagawa	PO15PM-016, PO15PM-023, PO15PM-032, PO18AM-070, PO18AM-079, PO18PM-036	Anton Nikiforov	OR18PM-D01, PO15PM-037 PO16PM-028
Yuki Nakagomi	PO16PM-026	A. Nikiforov	PO16PM-049
Naoya Nakahara	PO15PM-046	Maiko Nishi	PO16PM-080
Kumi Nakai	PO18PM-030	Hiroshi Nishida	PO16PM-026
Toshiyuki Nakamiya	PO18PM-029	Hiroyuki Nishida	PO18PM-030
Hiroaki Nakamura	PO16PM-016	Keisuke Nishida	OR15PM-C01, PO16PM-078
Kae Nakamura	OR18PM-B02	Daisuke Nishijima	OR18PM-A03
Keiji Nakamura	PO15PM-059, PO15PM-060	Nobuo Nishimiya	PO16PM-026
Keitaro Nakamura	PO15PM-054, PO15PM-080	Mineyuki Nishio	PO15PM-090
Koya Nakamura	OR15PM-C04	Shusuke Nishiyama	OR15AM-C02
Masayuki Nakamura	PO15PM-075	Kaishu Nitta	TL-17
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Haruhisa Nakano	TL-12, OR17AM-C04, OR19AM-D01, PO18AM-025	Tomohiro Nojima	PO18PM-003
Shizuka Nakano	PO16PM-075	Taku Nonomura	PO18AM-082
Toshiki Nakano	PO15PM-079, PO16PM-073	Poul Norby	OR17AM-A03
Yusuke Nakano	PO15PM-053, PO15PM-054, PO15PM-081, PO15PM-082, PO18PM-005	Kion Norrman	OR17AM-A03
Makoto Nakasone	PO18AM-054	Leontiy Aleksandrovich Novikov	PO18PM-047
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Takao Namihira	PO16PM-080	Shota Nunomura	OR17AM-A04
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Nicolas Naude	TL-43	M. Odani	PO16PM-066
nafarizal nayan	PO18AM-048	Atsushi Ogata	OR18PM-C03
Chen Hon Nee	PO15PM-088, PO15PM-089, PO18AM-043	Daisuke Ogawa	PO15PM-059, PO15PM-060
Sudhir K. Nema	PO16PM-042	Sato Ogawa	PO15PM-057
Renata Nemkayeva	PO16PM-067	Akihisa Ogino	PO18PM-054
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Kari Niemi	OR18PM-A02	Jun-Seok Oh	TL-34, OR16PM-B01, PO15PM-028, PO15PM-068, PO16PM-090
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		Takeshi Ohmori	AS2-I3
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Tadayuki Okano	PO15PM-072, PO18PM-068
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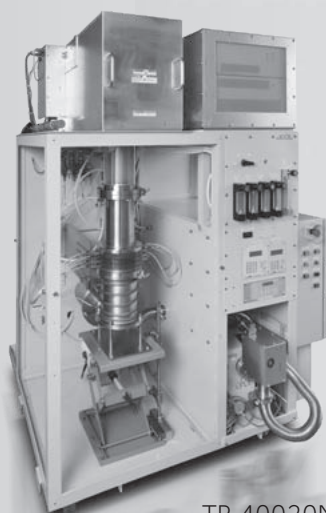
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Yibin Zhang	OR15PM-B05
Xiang Zhang	PO18PM-027, PO18PM-028
Kai Zhao	PO15PM-048
Sergey Zhdanov	OR15PM-D02
Yashuang Zheng	PO16PM-051
Ying Zheng	OR18PM-B03
Yuesheng Zheng	OR15PM-C02, PO18AM-012
Wei Zhong	PO18AM-056
Qianhong Zhou	OR18PM-C02, PO16PM-020
Quan Zhou	PO18AM-036
Ren Zhou	OR15PM-A02
Renwu Zhou	PO18PM-078
Rusen Zhou	PO18PM-076
Xuan Zhou	PO15PM-006
Yifei Zhu	OR15PM-C02
Chi jie Zhuang	PO15PM-006

JEOL Plasma Equipment

超高温・高純度・高反応場

高周波誘導熱プラズマ装置

TP series

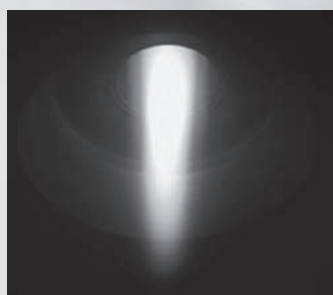


TP-40020NPS

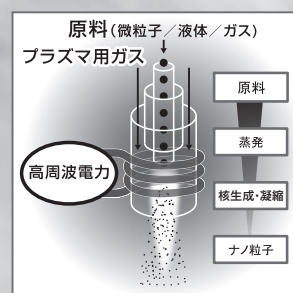
高周波誘導により生成する約10,000度の熱プラズマを利用し、瞬時に蒸発や溶融、反応や改質など、急速加熱から急冷による材料プロセッシングが可能です。

用途例

- ナノ粒子や複合粒子、球状粒子の作製
- 微粉末・ナノ粒子の化学合成や反応、改質
- 厚膜合成、溶射、CVD
- 有害ガス分解
- 溶解



Ar+H₂プラズマ



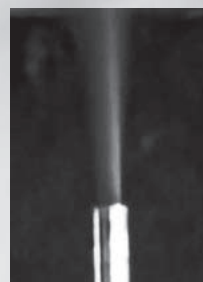
粉末供給装置

Fine Nano Feeder

TP-Z180111VEFDR



サブミクロン～100 μ m程度の微粒子を安定供給可能なテーブル式パウダーフィーダーです。配管を通してキャリアガスと共に微粉末を搬送します。今まで困難であった凝集性の高い、1～数 μ mの微粒子も送ることができます。



アルミナ(0.1 μ m)
約4 g/min



供給原理(イメージ図)

JEOL 日本電子株式会社

産業機器営業部 TEL:03-6262-3570 E-mail:sales-ieg@jeol.co.jp

URL:http://www.jeol.co.jp/products/list_eb.html

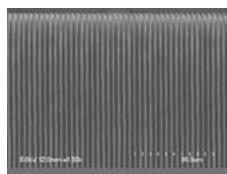
JEOLグループは、「理科学・計測機器」「産業機器」「医用機器」の3つの事業ドメインにより事業を行っております。

「理科学・計測機器事業」電子光学機器・分析機器・計測検査機器 「産業機器事業」半導体関連機器・産業機器 「医用機器事業」医用機器

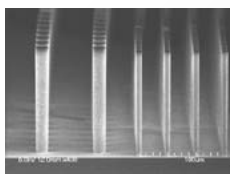


SPP Technologies supplies most of unit process systems for various Semiconductor/MEMS devices and the integrated solutions.

MEMS Devices



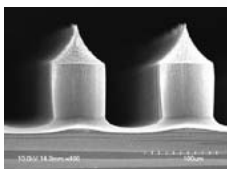
High aspect



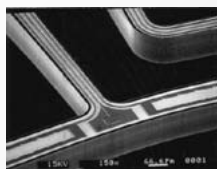
Circular cylinder



Si oscillator
(Courtesy of SiTime)



Micro needle
(Combined etching)

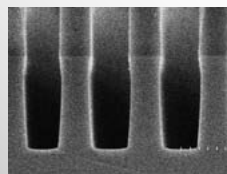


Gyro sensor
(Courtesy of SSP)

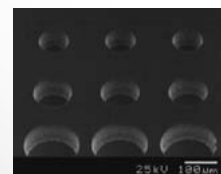


Si microphone
(Courtesy of SensFab)

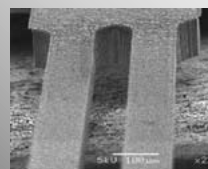
Compound Semi./Hard Materials



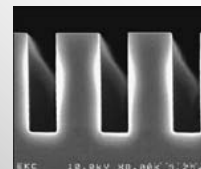
SiC etching



GaAs etching



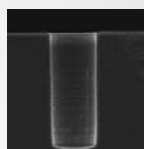
Quartz etching



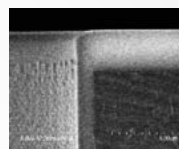
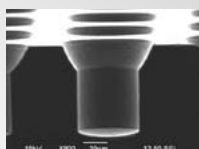
SiO₂ etching

Semiconductor Devices

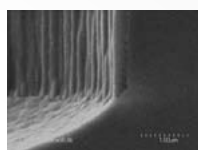
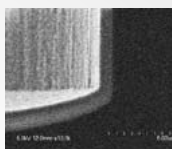
TSV



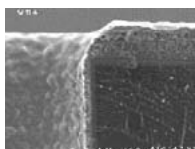
Si via hole etching



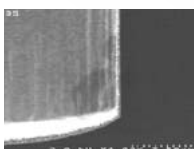
Insulator deposition



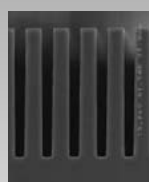
Bottom insulator etching



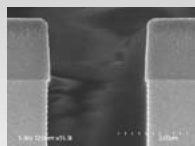
Seed/barrier layer deposition



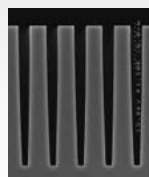
Si Power Devices



Trench etching

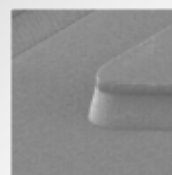


Smooth sidewall etching



Taper etching

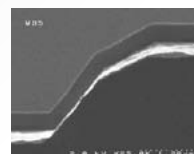
LED



GaN etching



GaP etching



TEOS-SiO₂ deposition

Major Products

- Si DRIE
- SiC Etcher
- Dielectric / Compound Semi. Etcher
- Precious Etcher for Compound Semi.
- Dry-release Etcher (for Si, SiO₂)
- Plasma Dicer
- Plasma Enhanced CVD
- Sputter (PVD)
- Molecular Vapor Deposition (MVD)
- Atmospheric Pressure CVD and Large Batch Vertical Furnace
- Minimal (DRIE, Metal Etch, TEOS PE-CVD, SiN PE-CVD)

SPT

SPP Technologies Co., Ltd.

<http://www.spp-technologies.co.jp/>

Sales Department

East Japan Sales Group

1-3-2, Otemachi, Chiyoda-ku, Tokyo 100-0004, Japan

TEL: +81-(0)3-3217-2816 FAX: +81-(0)3-3217-2829

West Japan Sales Group

1-10, Fuso-cho, Amagasaki, Hyogo 660-0891, Japan

TEL: +81-(0)6-6489-5997 FAX: +81-(0)6-6489-5880

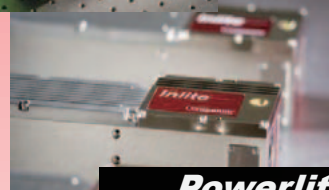
Horizon



Minilite



Inlite



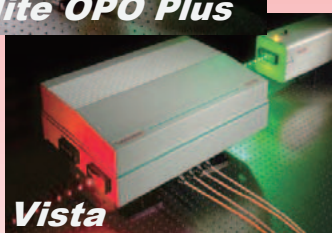
Surelite OPO Plus



Powerlite DLS



Vista



Surelite Seedre



Mesa



Terra



Custom



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AMPLITUDE JAPAN 合同会社

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〒103-0025 東京都中央区日本橋茅場町 1-2-5 日本ビルディング 2 号館 1F
TEL : 03-6661-7921 FAX : 03-6661-7922

