



25th International Symposium on Plasma Chemistry (ISPC25) ISPC25

Venue

Miyako Messe, Kyoto, Japan

Date

May 21st (Sun) - 26th (Fri), 2023

ISPC25



Plasma High Speed & High Resolution Spectrometer

New 4096/2048 CMOS, USB3 multi-channel Spectrometer

High Resolution Plasma Measurement [Resolution: 0.2nm, 0.1nm]

◆ AvaSpec-Plasma-A [4CH, 0.2nm]

AvaSpec-ULS2048CL/4096CL-EVO X 4

Ch1 UC:200-458nm Ch2 VC:455-683nm
Ch3 NC:680-974nm Ch4 NC:870-1030nm

4-furcated fiber-optic cables
FC4-UVIR400-2



◆ AvaSpec-Plasma-B [8CH, 0.1nm]

AvaSpec-ULS2048CL/4096CL-EVO X 8

Ch1 UE:200-320nm Ch2 UE:318-420nm
Ch3 UE:417-505nm Ch4 VE:500-565nm
Ch5 VD:563-670nm Ch6 VD:668-750nm
Ch7 NC:745-930nm Ch8 NC:920-1070nm

8-furcated fiber-optic cables
FC8-UVIR400-2

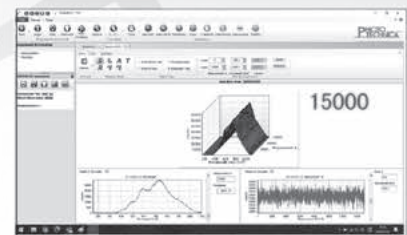


High Speed Trigger Measurement

Store To RAM [Internal Memory Save]
Single Scan External Trigger [1ms, 0.5ms]



AvaSpec Spectrometer	2048CL	4096CL
Data Transfer Speed (ms/scan)	0.38	0.70
Trigger Frequency	2kHz	1kHz
Minimum Integration Time	9 μ s	9 μ s



- ◆ Time resolved fluorescence
- ◆ Laser-induced fluorescence

- ◆ pump-probe spectroscopy
- ◆ Infrared spectroscopy



Picosecond pump laser & OPG integrated

For Thomson scattering applications

Tunable High Resolution Rate Picosecond Lasers



PT403
series

- Tuning range: 210 – 2300 nm
- Output pulse energy: 80 μ J at 1 kHz
- Pulse duration: ~20 ps
- Pulse repetition rate: 1 kHz
- Narrow linewidth: < 9 cm^{-1}

High Power Diode Pumped Nanosecond Amplifier Systems



ANL HP
series

- Output pulse energy: 3.7 J at 1064 nm
- Pulse repetition rate: 1 kHz
- Pulse durations from 2 ns to 500 ns
- Spatial Super-Gaussian beam profile
- * High customizability such as 80 J

25th
International Symposium on
Plasma Chemistry (ISPC25)
ISPC25

Venue: **Miyako Messe, Kyoto, Japan**

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ISPC25



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As President of the International Plasma Chemistry Society (IPCS) and Co-Chairs of the International Organizing Committee, we are pleased to welcome you to the 25th International Symposium on Plasma Chemistry (ISPC25). The Symposium aims to provide an ideal venue for fruitful discussion among those working on plasma chemistry. The ISPC25 is organized by the International Plasma Chemistry Society (IPCS), an international not-for-profit professional society in the field of plasma chemistry, which was established in 1999 as the successor of the “International Union of Pure and Applied Chemistry (IUPAC) Subcommittee on Plasma Chemistry.”

The ISPC has a long history, dating back to well before the establishment of the IPCS. The Symposium was first held at Kiel, Germany, in 1973, and, since then, has been held biennially at various locations around the world, except for the year 2021, when the ISPC25 was postponed to this year due to the COVID-19 pandemic. Following the time-honored tradition of the ISPC, we have also organized the IPCS Summer School in a nearby hotel over the weekend prior to the ISPC25.

The City of Kyoto offers the charm of both traditional and modern Japan to its visitors. We hope the Symposium participants also enjoy the City of Kyoto and its surrounding areas, in addition to reaping the maximum academic benefits of the ISPC25.



A handwritten signature in blue ink that reads "Annemie Bogaerts".

Annemie Bogaerts,
President of IPCS



A handwritten signature in blue ink that reads "Bruce R Lucke".

Bruce Lucke,
Vice President of IPCS



A handwritten signature in black ink that reads "Takayuki Watanabe".

Takayuki Watanabe,
Chair of IOC



A handwritten signature in black ink that reads "Satoshi Hamaguchi".

Satoshi Hamaguchi,
Chair of IOC

Committees

International Organizing Committee

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International Plasma Chemistry Society (IPCS) Board of Directors

(2020, 2021, 2022, 2023)

The board of directors (BoD) is in charge of all aspects regarding the international plasma chemistry society. This is in particular selecting the venues and organizers of bi-annual ISPC conference. At each ISPC conference an election takes place to replace expiring BoD members.

Member	status
Europe and Middle East (5)	
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Annemie BOGAERTS (Belgium)	president
Petr LUKES (Czech Republic)	
Christophe LAUX (France)	
Deborah O'CONNELL (UK)	
Eric ROBERT (France)	at large
Dirk HEGEMANN (Switzerland)	treasurer, co-opted
Natalia BABAEVA (Russia)	at large
Americas (3)	
Sylvain COULOMBE (Canada)	co-opted
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Yuan-Hong SONG (China)	at large
Hyun-Ha KIM (Japan)	at large
Hae June LEE (S. Korea)	at large

	Summer School Kyoto Garden Palace	Summer School Kyoto Garden Palace ISPC25 Registration Miyako Messe	ISPC 25 Day 1 Miyako Messe			ISPC 25 Day 2 Miyako Messe		
	MAY 20, SATURDAY	MAY 21, SUNDAY	MAY 22, MONDAY			MAY 23, TUESDAY		
ROOM TIME	Kyoto Garden Palace	Kyoto Garden Palace/Miyako Messe	ROOM 1	ROOM 2	ROOM 3	ROOM 1	ROOM 2	ROOM 3
8:00		Breakfast	8:00					
			8:15	Opening				
				Chair: Sylvain Coulombe			Chair: Matteo Gherardi	
9:00		Lecture 4 (9:00-10:30) Deborah O'Connell Diagnostics of plasmas	8:45	Plenary-1 Gerard van Rooij		8:45	Plenary-2 Vandana Miller	
			9:30	Break (15min.)		9:30	Break (15min.)	
				6 Plasma in and in contact with liquids	9 Plasma-based gas conversion	8 Plasma deposition of functional coatings	7 Plasma processing of nanomaterials and nanostructures	9 Plasma-based gas conversion
				Chair: Thierry Belmonte Selma Mededovic Thagard	Chair: Konstantin Kostov Hirotaka Toyoda	Chair: Dirk Hegemann Tsuyohito Ito	Chair: Toshiro Kaneo Masaharu Shiratani	Chair: Maria Carreon Pankaj Altri
			9:45	1-A-101 Alexander Fridman	1-03 Maria-L-Gareen	1-A-301 Stefanos Agrotis	2-A-101 Anjar Anggraini Harumningtyas	2-A-201 Peter Bruggeman
		Break (10min.)	10:00	1-A-102 Calum Thomas Ryan	CANCELLED	1-A-302 Laurene Youssef	2-A-102 Motohiro Yamahara	2-A-202 Ana Gómez-Ramírez
			10:15	1-A-103 Antoine Herrmann	1-A-203 Alexander Böldescker	1-05 Richard Clergeraux	2-A-103 Elijah Thimsen	2-A-203 Shinsuke Mori
10:30			10:30	1-A-104 Scott Dubowsky	1-A-204 Dae-Yeong Kim		2-A-104 Pierre Vinchon	2-A-204 Tianqi Zhang
10:40			10:45	Break (30min.)		10:45	Break (30min.)	
				6 Plasma in and in contact with liquids	9 Plasma-based gas conversion	2 Fundamentals of thermal plasma	7 Plasma processing of nanomaterials and nanostructures	9 Plasma-based gas conversion
		Lecture 5 (10:40-12:10) Annie Bogaerts Plasma-based green chemistry		Chair: Ahmad Hamdan Tomoyuki Murakami	Chair: Hyun-Ha Kim Kazuo Takahashi	Chair: Gerard van Rooij Margarita Baeza	Chair: Hitoshi Muneoka Kunihiro Kamataki	Chair: Gervais Soucy Douyan Wang
			11:15	1-01 Nozomi Takeuchi	1-A-205 Callie Ndayirinde	1-A-305 Hisaya Komen	2-A-105 Lynn Hein	2-A-205 Renwu Zhou
			11:30	1-A-206 Eduardo Morales	1-A-306 Yuki Takemoto		2-A-106 Xiaozhong Chen	2-A-206 Ivan Korneev Tsonev
			11:45	1-A-107 Bruce Robert Locke	1-A-207 Seunghwan Bang	1-06 Yuki Inada	2-A-107 Jan Benedikt	1-08 Volker Hessel
			12:00	1-A-108 Hitoshi Muneoka	1-A-208 Xinhua Zhang		2-A-108 Fanny Marie Hanon	2-A-307 Pepijn Heirman
12:10			12:15	Lunch/PCPP Board		12:15	Lunch/IPC5	
12:30		Lunch		3 Fundamentals of atmospheric non-equilibrium plasma	5 Modelling in plasma processing	2 Fundamentals of thermal plasma	11 Plasma medicine and agriculture	9 Plasma-based gas conversion
13:00	Welcome / Registration			Chair: Françoise Massines Erik Wagenaars	Chair: He-Ping Li Juan Pablo Trelles	Chair: Anthony Murphy Yuki Inada	Chair: Jean-Michel Pouvesle Augusto Stancampiano	Chair: Amanda Lietz Yusuke Nakagawa
13:30	Lecture 1 (13:30-15:00) Peter Bruggeman Overview of processing plasma generation		14:00	1-02 Ana Sobota	1-P-201 Nuno Rombert Pinhão	1-P-301 Yasunori Tanaka	1-07 Endre Szili	2-P-201 Tim W. H. Rigthart
			14:15		1-P-202 Kunihiro Kamataki	1-P-302 Chengyuan Duan		2-P-202 Maria Luíza Azevedo
			14:30	1-P-103 Yusuke Nakagawa	1-P-103 Efe Hasan Kemaneci	1-P-303 He-Ping Li	2-P-103 Hiroshi Hashizume	2-P-203 Ashley J. Hughes
			14:45	1-P-104 Raphael Robert	1-P-204 Ramses Snoeckx	1-P-304 Naoto Kodama	2-P-104 Colin O'Modhrain	2-P-204 Robin De Meyer
			15:00	1-P-105 Benjamin Harris	1-P-205 Igor D. Kaganovich	1-P-305 Hunkwan Park	2-P-105 Amaury Rouillard	2-P-205 Dante Anthony Filice
15:00	Break (10min.)		15:15	1-P-106 Antoine Belinger	1-04 Amanda M. Lietz	1-P-306 Masaya Shigeta	Break (30min.)	
15:10	Lecture 2 (15:10-16:40) Naho Itagaki Fundamentals and Applications of low temperature plasmas		15:30	1-P-107 Lars Bröcker		1-P-307 Margarita Baeza	8 Plasma deposition of functional coatings	9 Plasma-based gas conversion
		Registration Open	15:45	Break (15min.)		15:45	Chair: Richard Clergeraux Tamiko Ohshima	Chair: Hiroto Matsuura Shinsuke Mori
16:00			16:00	Poster(1) ROOM 4		16:00	2-P-108 Masaharu Shiratani	2-P-208 Juan Pablo Trelles
16:40	Break/Check-in			1 Fundamentals of low pressure plasma 3-1 Fundamentals of atmospheric non-equilibrium plasma 4 Diagnostics in plasma chemistry 7-1 Plasma processing of nanomaterials and nanostructure 11-1 Plasma medicine and agriculture 12-1 Plasmas for environmental applications		16:15	2-P-109 Oliver S. J. Hagger	2-P-209 Katharina Wiegers
16:50				Welcome Reception World Heritage, Nijo-Jo Castle 19:00-21:00		16:30	2-P-110 Mehmoud Narimisa	2-P-210 Sirui Li
18:20			18:00			16:45	2-P-111 Dirk Hegemann	2-P-211 Edmond Baratte
19:00	School Dinner		19:00			17:00	2-P-112 Lenka Zajíčková	2-P-212 Hamed Mahdikia
20:30						17:15	2-P-113 Matteo Gherardi	2-P-213 Lucas Julius Silberer
21:00			21:00			17:30	Break (15min.)	
							Poster(2) ROOM 4	
							2 Fundamentals of thermal plasma 5 Modelling in plasma processing 6-1 Plasma in and in contact with liquids 7-2 Plasma processing of nanomaterials and nanostructure 8-1 Plasma deposition of functional coatings 9-1 Plasma-based gas conversion 10 Plasma-assisted combustion and aerodynamics	

Topics

1 Fundamentals of low pressure plasma

2 Fundamentals of thermal plasma

3 Fundamentals of atmospheric non-equilibrium plasma

4 Diagnostics in plasma chemistry

5 Modelling in plasma processing

6 Plasma in and in contact with liquids

ISPC 25 Day 3 Miyako Messe			ISPC 25 Day 4 Miyako Messe			ISPC 25 Day 5 Miyako Messe				
MAY 24, WEDNESDAY			MAY 25, THURSDAY			MAY 26, FRIDAY				
	ROOM 1		ROOM 1	ROOM 2	ROOM 3		ROOM 1	ROOM 2	ROOM 3	
8:45						8:45				
	Chair: Jan Benedikt			Chair: Petr Lukes				Chair: Peter Bruggeman		
	Plenary-3 Sedina Tsikata		Plenary-4 Thierry Belmonte				Plenary-5 Toshiro Kaneko			
	Break (15min.)		Break (15min.)				Break (15min.)			
9:30						9:30				
			12 Plasmas for environmental applications	6 Plasma in and in contact with liquids	7 Plasma processing of nanomaterials and nanostructures		11 Plasma medicine and agriculture	7 Plasma processing of nanomaterials and nanostructures	3 Fundamentals of atmospheric non-equilibrium plasma	
	Chair: Annemie Bogaerts		Chair: Lucia Daniela Pietanza Fumiyoshi Tochikubo	Chair: Mark J. Kushner Tatsuru Shirafuji	Chair: Yong-Xin Liu Yasunori Tanaka		Chair: Vandana Miller Cristiane Yumi Koga-Ito	Chair: Lorenzo Mangolini Naoto Kodama	Chair: Ana Sobota Ryo Ono	
	Plasma Chemistry Award Anthony Murphy		4-A-101 Uwe R. Kortshagen	4-A-201 Tomoyuki Murakami	I-17 Makoto Kambara		5-A-101 Jordyn Polito	5-A-201 Mark J. Kushner	I-21 Augusto Stancampiano	
		4-A-102 Haruhiko Yamasaki	4-A-202 Junghyun Lim	5-A-102 Parisa Shali		5-A-202 Pavel Solaf				
		I-13 Peter A. Awakowicz	4-A-203 Tanubhav Kumar Srivastava	4-A-303 Lorenzo Mangolini		5-A-103 Julia Sutter	I-20 Hiroyuki Fukumizu	5-A-303 Gregory James Smith		
10:45						10:45				
	Break (30min.)		Break (30min.)				Break (30min.)			
			12 Plasmas for environmental applications	6 Plasma in and in contact with liquids	7 Plasma processing of nanomaterials and nanostructures		11 Plasma medicine and agriculture	7 Plasma processing of nanomaterials and nanostructures	3 Fundamentals of atmospheric non-equilibrium plasma	
	Chair: Bruce Robert Locke		Chair: Deborah O'Connell Keisuke Takashima	Chair: Scott Dubowsky Katsuhisa Kitano	Chair: Makoto Kambara Masaya Shigeta		Chair: Eric Robert Hiroshi Hashizume	Chair: Luc Stafford Osamu Sakai	Chair: Masaaki Okubo Keiichiro Urabe	
11:15						11:15				
	Plasma Chemistry Award Francoise Massines		4-A-105 Deepchandra Joshi	I-16 Ahmad Hamdan	4-A-305 Jiangqi Niu		I-19 Feng Huang	5-A-205 Andrei Choukourov	5-A-305 Alessandro Patelli	
			4-A-106 George Paskalov		4-A-306 Kwangjae Park			5-A-206 Shih-Nan Hsiao	5-A-306 Hiroto Matsuura	
			I-14 Selma MededovicThagard	4-A-207 Petr Lukes	4-A-307 Roman Zamchii		5-A-107 Katsuhisa Kitano	5-A-207 Simon Chouteau	I-22 Julian Schulze	
		4-A-208 Mary Raphael Lazarte Ramoy	4-A-308 Andjelika Bjelajjac	5-A-108 Amalia Ghaiani Komarudin	5-A-208 SungYoung Yoon					
12:15	Group Photo		Lunch/IPCS			12:15	General assembly Award ceremony Announcement of ISPC-26			
12:30	Wednesday Afternoon Excursion		12 Plasmas for environmental applications	6 Plasma in and in contact with liquids	4 Diagnostics in plasma chemistry	12:45				
		Chair: Peter Awakowicz Masafumi Ito	Chair: Nozomi Takeuchi Junghyun Lim	Chair: Olivier Gualtella Lenka Zajíčková						
		4-P-101 Pankaj Attri	4-P-201 Tatsuru Shirafuji	I-18 Koichi Sasaki						
		4-P-102 Claudia Verheyen	4-P-202 Kazuki Takeda							
		4-P-103 Rani Vertongen	4-P-203 Binbin Xia							
		I-15 Lucia Daniela Pietanza	4-P-204 Audren Dorval	4-P-304 Sebastian Burhenn						
			4-P-205 Steffen Schüttler	4-P-305 Ming Li						
		Break (15min.)								
		Poster(3) ROOM 4								
		3-2 Fundamentals of atmospheric non-equilibrium plasma 6-2 Plasma in and in contact with liquids 8-2 Plasma deposition of functional coatings 9-2 Plasma-based gas conversion 11-2 Plasma medicine and agriculture 12-2 Plasmas for environmental applications								
17:15							17:30			
			Welcome Drink The Kyoto Brighton Hotel							
			Gala Dinner The Kyoto Brighton Hotel 19:00-21:00							
					21:00					

◇Venue◇

Registration

Miyako Messe
Sunday May 21, 16:00-

Welcome Reception

Nijo-Jo Castle
Monday May 22, 19:00-21:00

Welcome Drink

The Kyoto Brighton Hotel
Thursday May 25, 18:30-19:00

Gala Dinner

The Kyoto Brighton Hotel
Thursday May 25, 19:00-21:00

Summer School

Kyoto Garden Palace
Saturday May 20 - Sunday May 21

7 Plasma processing of nanomaterials and nanostructures
8 Plasma deposition of functional coatings

9 Plasma-based gas conversion
10 Plasma-assisted combustion and aerodynamics

11 Plasma medicine and agriculture
12 Plasmas for environmental applications

Registration

Miyako Messe
Sunday May 21, 16:00-

Welcome Reception

Nijo-Jo Castle
Monday May 22, 19:00-21:00

Welcome Drink

The Kyoto Brighton Hotel
Thursday May 25, 18:30-19:00

Gala Dinner

The Kyoto Brighton Hotel
Thursday May 25, 19:00-21:00

Summer School

Kyoto Garden Palace
Saturday May 20 - Sunday May 21

Conference Site

Venue:

Kyoto International Exhibition Hall "Miyako Messe"

9-1, Okazaki Seishojicho, Sakyo-ku Kyoto-shi, Kyoto JAPAN

Phone:81-75-762-2630



Miyako Messe is located in the Okazaki area approx. 27 minutes from Kyoto Station which features one of the greatest concentrations of cultural exchange facilities seen anywhere in Japan. This area is also a symbol of the modernization of Kyoto, and now plays a vital part as the face of an "international city of culture and tourism", receiving as it does 5 million visitors a year from across the city, Japan and the world Located in the culturally rich and significant Okazaki area.

Nearest Station: Subway Tozai Line "Higashiyama station" 8min. on foot

By Train:

Take the Kyoto City Subway Karasuma Line, and get off at Karasuma Oike Station for transfer to Higashiyama Station (Miyako Messe Mae) on the Kyoto City Subway Tozai Line.

It is an approx. 15-minute ride on the train and an 8-minute walk from the station.

By Bus:

Take the Kyoto City Bus Route 5 (from the bus terminal A-1) and get off at Okazaki Koen Bijutsukan/Heian Jingu Mae bus stop;

or else take the Kyoto City Bus Route 206 (from the bus terminal D-2) and get off at Higashiyama Nijo/Okazaki Koen Guchi bus stop.

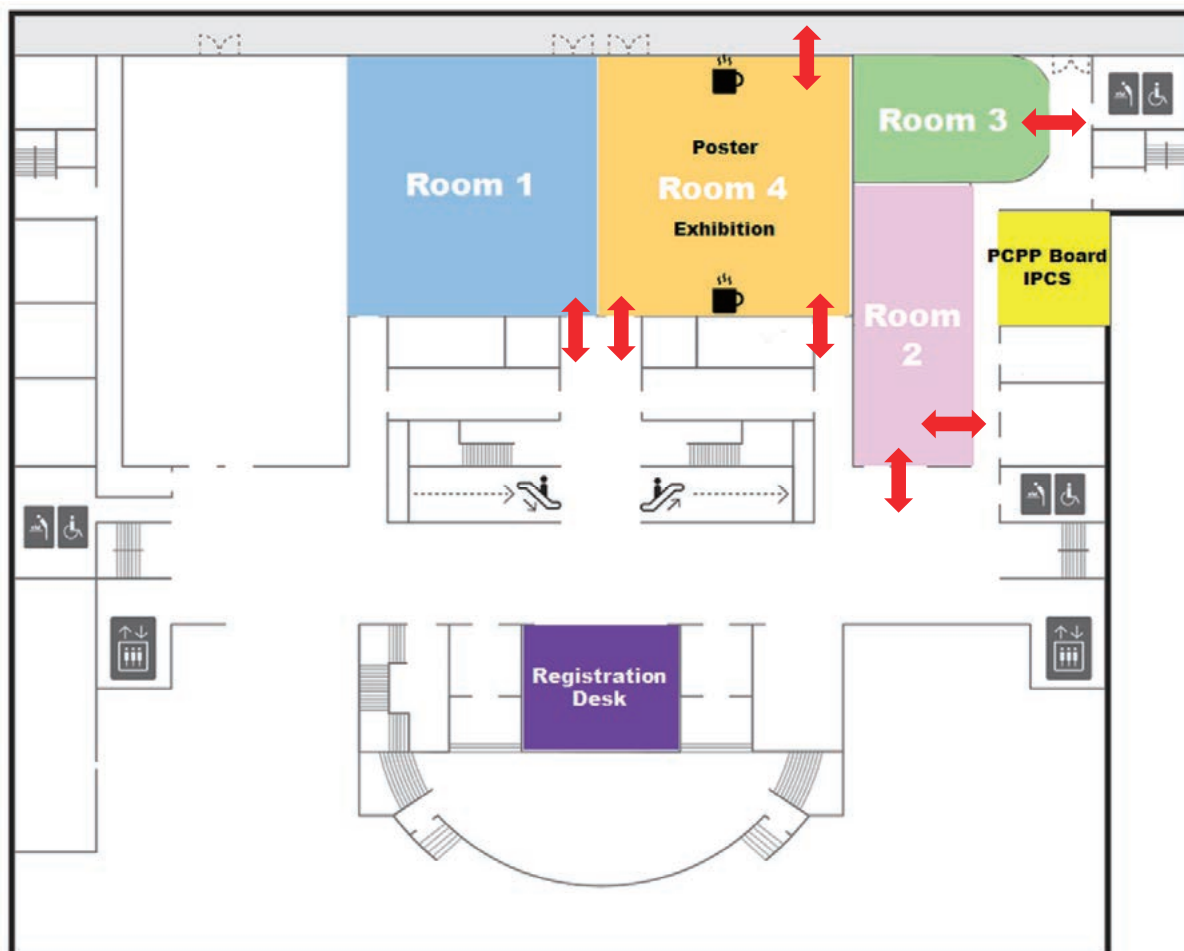
By Taxi:

Approx. 20 minutes



Floor Map

Registration Desk/Session Rooms/Poster Room/Exhibition are all located on the B1 floor of Miyako Messe.



Office equipment area

Located behind the General Information Office on the east side of the 1st floor. A multi-function printer for copy, scan, and fax transmission is available.

Coffee Breaks/ Drink & Snack Service

Drink & Snack Service is available at ROOM 4. Also the water dispensers are set up in the rooms.

Drink vending machines

Located in three locations, on the east and west sides of the 1st floor, and on the 1st basement floor.

Coin lockers

A total of 38 coin lockers are available at two locations on the east and west sides of the 1st floor.

First-aid room

Located behind the General Information Office on the east side of the 1st floor.

General Information

Registration and Information Desks

The locations and office hours of the registration and information desks are as follows.

Hours of Operation:

May 21, Sunday	16:00 - 19:00
May 22, Monday	7:30 - 18:00
May 23, Tuesday	8:30 - 18:00
May 24, Wednesday	8:30 - 12:00
May 25, Thursday	8:30 - 18:00
May 26, Friday	8:30 - 12:00

When you arrive at the venue, you will receive your name tag with your name and affiliation at the registration desk. This is your personal passport to all official activities and events. The name tag indicates that you are a registered participant. Please wear it throughout the symposium and social events.

Coffee Breaks/ Drink & Snack Service

Drink & Snack Service is available at ROOM 4. Also the water dispensers are set up in the rooms, please use your "MY BOTTLE" for drink water.

Lunch

Lunch is not provided. Please refer to the lunch map distributed and take your own lunch.

Internet/ Wi-Fi Area

Internet/ Wi-Fi Area

- ◇Public Area Free Wi-Fi is available . Search for "Miyako Messe Wi-Fi" and simply connect. No password required.
- ◇Room1 - 3 SSID: Miyakomesse-mice PASS: miyakomesse2630

Lost and Found

If you lose or find an item, please stop by the registration desk.

First Aid

If you require medical assistance during the Conference, please contact the secretariat office staff immediately.

Cloak Room

No cloakroom is available. Please note it in advance.

Taxi

If a taxi is required, please contact the Registration Desk.

Social Events

Opening & Introduction

Date: 8:15-8:45, Monday, 22 May
Venue: Room 1, Miyako Messe

Welcome Reception

Date: 19:00-21:00, Monday, 22 May
Venue: World Heritage, Nijo-Jo Castle

Group Photo

Date: 12:15-12:30, Wednesday, 24 May
Venue: Miyako Messe

Excursion (optional) Prior reservation is required.

Date: 12:30- Wednesday, 24 May

Gala Dinner (optional) Prior reservation is required.

Date: 19:00-21:00, Thursday, 25 May
Venue: The Kyoto Brighton Hotel
Fee: 10,000 JPY
• A sit-down buffet dinner
• Welcome Drink will be served from 18:30

IPCS General Assembly

Date: 12:15-12:45, Friday, 26 May
Venue: Room 1

Closing

Date: 12:15-12:45, Friday, 26 May
Venue: Room 1

Regarding the ISPC-25 being held in Kyoto

I am very pleased that the 25th International Symposium on Plasma Chemistry (ISPC-25) will be held in Kyoto. The technical sessions and poster sessions will be held at Miyako Messe in Kyoto, and the Welcome Reception will be held at Nijo Castle, a UNESCO World Heritage Site on May 22. Thanks to the cooperation of Kyoto City and everyone involved, ISPC-25 will be held in Kyoto. I would like to express my sincere gratitude to all those involved.

The ISPC-1 was held in Kiel, Germany, in 1973. It was at this conference that I first heard the term "Plasma Chemistry". At that time, many predecessors worked hard to establish ISPC, and I would like to mention them below.

The first person to be mentioned is Dr. John R. Hollahan, who was then working at NASA Ames Research Center. He served on the ISPC-1 Program Committee with Prof. Dr. Harald Suhr of the Universitat Tubingen and Dr. David E. Jensen of the UK Ministry of Defence. Along with them, Prof. Alexis T. Bell of UC Berkley, who published the book "Techniques and Applications of Plasma Chemistry" with Dr. John R. Hollahan in 1974, must also be remembered. Thanks to their efforts, the term "Plasma Chemistry" has been widely recognized in the scientific community. I also worked with Dr. John R. Hollahan at NASA Ames Research Center for a period of time.

The ISPC-2 was organized by Prof. Alexis T. Bell and held in Rome, Italy in 1975. It was held every two years in France, Switzerland, Scotland, Canada, and the Netherlands, the first ISPC-8 in Japan was held at the University of Tokyo in 1987. The realization of this event was essential to the contributions of Professors Kazuo Akashi, Akira Kinbara, and Toyonobu Yoshida of the University of Tokyo.

After that, ISPC has been held every other year mainly in Europe. In 2007, ISPC-18 was organized for the second time in Japan, here in Kyoto. The conference was chaired by Prof. Kunihide Tachibana of Kyoto University and was held at Yoshida and Katsura campuses of Kyoto University.

I am deeply touched by the decision to hold ISPC-25 for the second time in Kyoto and the third time in Japan. It is a great honor to work with Kyoto City Mayor Daisaku Kadokawa, Prof. Takayuki Watanabe of Kyushu University and Prof. Satoshi Hamaguchi of Osaka University as ISPC-25 co-chairs, and the members of the organizing committee. I look forward to meeting all the attendees.

Osamu Tsuji
ISPC-25 Local Organizing Committee
CEO of Samco Inc.

Welcome Reception

Date: Monday, 22 May 2023
Time: 19:00-21:00
Venue: World Heritage Nijo-jo Castle
Fee: included in the registration fee



<https://www.ispc25.com/reception.html>

All participants and their accompanying persons are invited to attend the ISPC25 welcome reception, which will be held in the front yard of the Karamon gate of Nijo-jo Castle at 19:00 on 22 May (Monday). Drinks and light meals will be served in the historic atmosphere.



Access



Gala Dinner

Date: Thursday, 25 May 2023
 Time: 19:00-21:00
 Venue: The Kyoto Brighton Hotel
 Fee: JPY10,000
 (optional) Prior reservation is required.



https://www.ispc25.com/gala_dinner.html



Access



Summer School

The IPCS Summer School 2023 will take place at Kyoto Garden Palace in Kyoto, May 20 (Sat)-21 (Sun), 2023.

Organizing Committee:

Takayuki Watanabe	(Kyushu University, Japan)	- Chair
Manabu Tanaka	(Kyushu University, Japan)	- Chair
He-Ping Li	(Tsinghua University, China)	
Tomohiro Nozaki	(Tokyo Institute of Technology, Japan)	



Program:

◇ May 20, Saturday

13:30-15:00 Lecture 1

Peter Bruggeman (University of Minnesota, U.S.A.)
"Overview of processing plasma generation"

15:10-16:40 Lecture 2

Naho Itagaki (Kyushu University, Japan)
"Fundamentals and Applications of low temperature plasmas"

16:50-18:20 Lecture 3

Anthony Murphy (CSIRO, Australia)
Fundamentals of thermal plasmas

◇ May 21, Sunday

9:00-10:30 Lecture 4

Deborah O'Connell (Dublin City University, Ireland)
Diagnostics of plasmas

10:40-12:10 Lecture 5

Annemie Bogaerts (University of Antwerp, Belgium)
Green chemistry in plasma processing

Plasma Chemistry Awards

The Plasma Chemistry Award is the highest recognition awarded by the International Plasma Chemistry Society (IPCS) for lifetime achievements in the field of Plasma Chemistry.

We are delighted to announce, on behalf of the Board of Directors of the IPCS, that the recipient of the 2021 Plasma Chemistry Award will be **Dr Anthony Murphy** of CSIRO, Sydney, Australia, and the recipient of the 2023 Plasma Chemistry Award will be **Dr Francoise Massines** of CNRS, Perpignan, France.

Dr Anthony Murphy has been part of our community for some decades. He was Joint Chair of the 21st International Symposium on Plasma Chemistry in 2013 and President of the International Plasma Chemistry Society in 2018-19. He has published over 300 journal papers and is an Editor-in-Chief of Plasma Chemistry and Plasma Processing. Most of his research has concerned thermal plasmas, including optical diagnostics, transport properties, computational modelling and applications such as waste destruction, arc welding and wire-arc additive manufacturing. In recent years, he has also worked on plasma catalysis.

Dr Francoise Massines is a very active member of our community and served on the Board of Directors of the International Plasma Chemistry Society in 2013-2017. She has significantly contributed to the fundamental understanding and the rise of low-temperature atmospheric pressure plasmas and has pioneered their development in the field of materials surface processing and thin film deposition. Her accomplishments have been recognized by numerous awards, including the Medaille d'Argent of the French National Centre for Scientific Research in 2014 and the Ulrich Kogelschatz Lecture Award in 2020.

Link to IPCS website for List of Plasma Chemistry Awardees

<https://www.ispc-conference.org/index.php/ipcs/plasma-chemistry-awardees>



Dr Anthony Murphy (CSIRO, Sydney, Australia)

Plasma Chemistry Award plenary lecture:

Modelling thermal plasmas for industry – from waste destruction to 3D printing



Dr Francoise Massines (CNRS, Perpignan, France)

Plasma Chemistry Award plenary lecture:

From glow and Townsend dielectric barrier discharges to atmospheric pressure PECVD

Awards

Young Investigator Awards

The Young Investigator Award (YIA) recognizes the outstanding career of a young researcher in the field relevant to the International Symposium on Plasma Chemistry (ISPC). Up to two YIAs will be announced during the closing ceremony of the upcoming ISPC-25 on May 26, 2023 (Friday).

Presentation Awards

Decision will be taken evaluating the candidate's proceeding and presentation by the members of the International Organizing Committee for oral presentation and poster presentation.

Up to ten awards will be assigned to the best presentations provided by students. The names of the awardees will be announced during the Closing Ceremony (Friday, May 26, 2023).

Presenters marked with an asterisk (*) in the program are eligible for Presentation Award evaluation.

◇ORAL PRESENTATION AWARDS

Awards will be assigned to the best oral presentations provided by students.

◇POSTER PRESENTATION AWARDS

Awards will be assigned to the best poster presentations provided by students.

IPCS Fellow

The title of Fellow of IPCS recognizes unusual distinction in the profession and shall be conferred by the Board of Directors upon a person with an extraordinary record of accomplishments in the field of Plasma Chemistry. The IPCS aims at awarding the title of Fellow of IPCS to no more than three percent of its active members.

The new IPCS fellows will be announced during the Closing Ceremony (Friday, May 26, 2023).

Link to IPCS website for List of Fellow

<https://www.ispc-conference.org/index.php/ipcs/fellows>

Plenary & Invited Speakers

A special issue in Plasma Chemistry and Plasma Processing is published regularly after every ISPC, highlighting a collection of plenary and invited lectures. It is indeed an important milestone in the activity of ISPC, presenting the most recent progress of plasma chemistry research.

Please refer to the previous special issues on the journal home page (<https://link.springer.com/journal/11090/volumes-and-issues>).

On behalf of all BoD and IOC members, the guest editors of the special issue would like to thank the Plenary and Invited Speakers for their valuable contributions!

Guest editors

Tomohiro Nozaki (Tokyo Institute of Technology)

Takayuki Watanabe (Kyushu University)

Satoshi Hamaguchi (Osaka University)

Plenary Speakers



Thierry Belmonte Institut Jean Lamour (France)

Discharges in liquids for nano-object synthesis: expectations and capabilities



Toshiro Kaneko Tohoku University (Japan)

Innovative technology for controlled synthesis of reactive species using gas-liquid interfacial plasmas and its applications



Vandana Miller Drexel University (USA)

Plasma Dose for Clinical Applications: New Considerations



Gerard van Rooij Eindhoven University of Technology (The Netherlands)

From non-equilibrium to thermal plasma opportunities



Sedina Tsikata Georgia Institute of Technology (USA)

High-performance laser diagnostics for plasma characterization

Invited Speakers



Peter Awakowicz Ruhr-University Bochum (Germany)

Topic 12: Plasmas for environmental applications

Efficient gas treatment for various applications with low temperature plasmas



~~**Maria Carreon** University of Massachusetts Lowell (USA)~~

CANCELLED

~~Topic 9: Plasma based gas conversion~~

~~*Designing catalysts for plasma environment: current knowledge and future challenges*~~



Richard Clergereaux CNRS - LAPLAC (France)

Topic 8: Plasma deposition of functional coatings

Aerosol-assisted plasma processes for (multi)functional thin film deposition



Hiroyuki Fukumizu Kioxia Co. (Japan)

Topic 7: Plasma processing of nanomaterials and nanostructures

Evaluation of the influence of FC gas structure and composition in high-aspect-ratio SiO₂ dry etching



Olivier Guaitella Ecole polytechnique (France)

Topic 4: Diagnostics in plasma chemistry

Experimental validation of the chemical kinetics of CO₂ containing plasmas



Ahmad Hamdan Université de Montréal (Canada)

Topic 6: Plasma in and in contact with liquids

Discharge at / or near the interface of two immiscible liquids and its application in nanomaterial synthesis



Volker Hessel The University of Adelaide (Australia)

Topic 9: Plasma-based gas conversion

Submerged plasma jets in microwells with catalytic flakes - fundamentals and applications



Feng Huang China Agricultural University (China)

Topic 11: Plasma medicine and agriculture

Application of Artificial Intelligence in Plasma Agriculture



Yuki Inada Saitama University (Japan)

Topic 2: Fundamentals of thermal plasma

Spatial-Frequency-Resolved Schlieren Method for Structure Measurement of Plasma-Induced Turbulence



Makoto Kambara Osaka University (Japan)

Topic 7: Plasma processing of nanomaterials and nanostructures

Advances in plasma sprayed silicon nanoparticles for next generation all-solid state Lithium-ion batterie



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

Topic 11: Plasma medicine and agriculture

Cold atmospheric plasma as a therapeutic tool in Medicine and Dentistry



Joseph Lefkowitz Technion - Israel Institute of Technology (Israel)

Topic 10: Plasma-assisted combustion and aerodynamics

Plasma reforming of ammonia for improved combustion performance



Amanda Lietz North Carolina State University (USA)

Topic 5: Modelling in plasma processing

Computational Modeling of Processing Plasmas: Instabilities and Fluorocarbon Chemistry



Yong-Xin Liu Dalian University of Technology (China)

Topic 1: Fundamentals of low pressure plasma

Ignition physics of a capacitively coupled RF discharge



Lucia Daniela Pietanza Istituto per la Scienza e Tecnologia dei Plasmi (Italy)

Topic 12: Plasmas for environmental applications

Self-consistent kinetic modeling of CO₂ cold plasmas



Koichi Sasaki Hokkaido University (Japan)
Topic 4: Diagnostics in plasma chemistry

Redox reactions on surface of water jet injected into low-pressure plasma



Julian Schulze Ruhr-University Bochum (Germany)
Topic 3: Fundamentals of atmospheric non-equilibrium plasma

Control of electron heating and plasma chemistry in atmospheric pressure radio frequency plasma jets



Ana Sobota Eindhoven University of Technology (The Netherlands)
Topic 3: Fundamentals of atmospheric non-equilibrium plasma

The interaction of non-thermal atmospheric pressure plasma with substrates



Augusto Stancampiano GREMI-CNRS (France)
Topic 3: Fundamentals of atmospheric non-equilibrium plasma

Plasma treated water spray: reactors and RONS production



Endre Szili University of South Australia (Australia)
Topic 11: Plasma medicine and agriculture

Strategies to enhance the antimicrobial activity of plasma activated water



Nozomi Takeuchi Tokyo Institute of Technology (Japan)
Topic 6: Plasma in and in contact with liquids

Development and perspective of plasma-based water treatment technologies for the decomposition of persistent organic compounds



Selma Mededovic Thagard Clarkson University (USA)
Topic 12: Plasmas for environmental applications

The importance of transport phenomena in the design of gas-liquid electrical discharge plasma reactors

Instructions for Presenters

◇Poster Presentations

- The board size is 900-mm width & 2100-mm height.
- Please prepare to print it yourselves for your poster.
- Posters can be pinned on the boards. Sticking with tape is strictly prohibited.
- Pins (thumbtacks) are supplied by the organizers.
- Your poster needs to be mounted at the pre-identified location (look for your poster number on the boards) the morning of your assigned poster session, and removed by the end of the day.
- Poster presenters are expected to be present at their poster location during the entire session.

◇Oral Presentations

PCA lecture / 60 min total: 50 min presentation + 10 min for discussion

Plenary talk / 45 min total: 35 min presentation + 10 min for discussion

Invited talk / 30 min total: 25 min presentation + 5 min for discussion

Regular talk / 15 min total: 12 min presentation + 3 min for discussion

- You can use an equipped PC (OS: Windows10, Software: Microsoft PowerPoint). Please bring a USB memory containing the PowerPoint or PDF file for the presentation and upload them during the break time prior to the session. After copying the file to the PC, confirm that the slideshow works well.
Note that your presentation time includes the presenter change time.
- If you use your own laptop computer, please check the connection between your PC and the projector during the break time prior to the assigned session.
- Screen ratio is 16 : 9 (Widescreen) in all Session rooms.
- The presenters must appear in the session room 10 min before the assigned session starts and inform the session chair of their arrival.
- The projector has a VGA (analog RGB or D-sub) and HDMI connectors. The presenters using other connection type needs to bring an appropriate conversion cable.

Topics of ISPC25

- 1 Fundamentals of low pressure plasma
- 2 Fundamentals of thermal plasma
- 3 Fundamentals of atmospheric non-equilibrium plasma
- 4 Diagnostics in plasma chemistry
- 5 Modelling in plasma processing
- 6 Plasma in and in contact with liquids
- 7 Plasma processing of nanomaterials and nanostructures
- 8 Plasma deposition of functional coatings
- 9 Plasma-based gas conversion
- 10 Plasma-assisted combustion and aerodynamics
- 11 Plasma medicine and agriculture
- 12 Plasmas for environmental applications

Presenters marked with an asterisk (*) in the program are eligible for Presentation Award evaluation.

May 22, 2023 MONDAY

Room 1

Oral Presentation

Plenary

Chair: Sylvain Coulombe

8:45	Plenary-1	From non-equilibrium to thermal plasma opportunities	Gerard J. van Rooij
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Topics: 6 Plasma in and in contact with liquids

Chair: Thierry Belmonte, Selma Mededovic Thagard

9:45	1-A-101	Plasma Effect on Physical Properties of Water (Surface Tension, Viscosity and Contact Angle)	M. Shaji, Alexander Rabinovich, M. Surace, C. Sales, <u>Alexander Fridman</u>
10:00	1-A-102	Atmospheric Plasmas Induce Electrolytic-Like Flows in Grounded Solutions	<u>Calum Thomas Ryan</u> *, Nils Dose, Jan Benedikt, Rudie P. J. Kunnen, Anton A. Darhuber, Hanneke Gelderblom, Ana Sobota
10:15	1-A-103	Nanosecond discharge in air in contact with water with various electrical conductivity: electrical characterization and time-resolved imaging	<u>Antoine Herrmann</u> *, Joelle Margot, Ahmad Hamdan
10:30	1-A-104	Integrated Circuit Manufacturing with Plasma-Activated Chemical Treatment (IMPACT): Enhancing the Chemistry of Chip Fabrication	<u>Scott Dubowsky</u> , Christian Williams, Davide Curreli, R. Mohan Sankaran, David Ruzic

Invited 6 Plasma in and in contact with liquids

Chair: Ahmad Hamdan, Tomoyuki Murakami

11:15	I-01	Development and perspective of plasma-based water treatment technologies for the decomposition of persistent organic compounds	<u>Nozomi Takeuchi</u>
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Topics: 6 Plasma in and in contact with liquids

Chair: Ahmad Hamdan, Tomoyuki Murakami

11:45	1-A-107	Gas-Liquid Chemical Reactions with Nanosecond Pulses: Role of Pulse Delivery in Bursts on Hydrogen Peroxide Production	Radha K. M. Bulusu, Christopher Patterson, Jonah Wilson, Robert J. Wandell, <u>Bruce Robert Locke</u>
12:00	1-A-108	Fluid Density Dependence of Electrical Discharges Generated Using Carbon Nanotubes as Electrode in Liquid, Supercritical, and Gaseous Nitrogen and Argon	<u>Hitoshi Muneoka</u> , Tomoki Kuroda, Tsuyohito Ito, Kazuo Terashima

Invited 3 Fundamentals of atmospheric non-equilibrium plasma

Chair: Francoise Massines, Erik Wagenaars

14:00	I-02	The interaction of non-thermal atmospheric pressure plasma with liquid	<u>Ana Sobota</u> , O. J. A. P. Rooij, J. R. Wubs, O. I. M. Ahlborn
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Topics: 3 Fundamentals of atmospheric non-equilibrium plasma

Chair: Francoise Massines, Erik Wagenaars

14:30	1-P-103	Specific Production of Atomic Oxygen near Barrier Surface in Pin-to-sphere Positive Pulsed Discharge in Sub-atmospheric Pressure Pure Oxygen	<u>Yusuke Nakagawa</u> , Jion Ogaki, Fumiyoshi Tochikubo
14:45	1-P-104	Spectroscopic Study of NH ₃ -to-H ₂ Conversion in an Ar-NH ₃ Dielectric Barrier Discharge at Atmospheric Pressure	<u>Raphael Robert</u> , Francoise Massines, Luc Stafford

15:00	1-P-105	Comparison of the H ₂ O ₂ density distribution in the effluent of a COST-Jet and kINPen measured with cavity ring-down spectroscopy	<u>Benjamin Harris</u> , Levin Krös, Andy Nave, Erik Wagenaars, Jean-Pierre H. van Helden
15:15	1-P-106	Impact of the memory effect on the homogeneity of a Townsend Dielectric Barrier Discharge in air	<u>Antoine Belinger</u> , Julie Haton, Baptiste Lina, Erwan Sammier, Simon Dap, Luc Stafford, Nicolas Naudé
15:30	1-P-107	Ionic film deposition from single-filament dielectric-barrier discharges - Comparison of hexamethyldisiloxane and hexamethyldisilane precursors	<u>Lars Bröcker</u> *, Nickolas Steppan, Kevin Hain, Tristan Winzer, Jan Benedikt, Marjan Stankov, Detlef Loffhagen, Claus-Peter Klages

Room 2

Oral Presentation

~~Invited 9 Plasma-based gas conversion CANCELLED~~

~~Chair: Konstantin Kostov, Hirotaka Toyoda~~

9:45	I-03	Designing materials for plasma environment: understanding adsorption as a step towards intensified membrane technology	Fnu Gorky, Jolie M. Lucero, Moises A. Carreon, Maria L. Carreon
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Topics: 9 Plasma-based gas conversion

Chair: Konstantin Kostov, Hirotaka Toyoda

10:15	1-A-203	Analysis of the flow field induced by a surface dielectric barrier discharge designed for air pollution remediation	<u>Alexander Bøddecker</u> , Maximilian Paßmann, Jonas Gieseke, Arisa Bodnar, Lars Schücke, Ihor Korolov, Andrew R. Gibson, Peter Awakowicz
10:30	1-A-204	Plasma-enhanced reverse water gas shift reaction over alloy catalyst: breaking the thermodynamic equilibrium limit	<u>Dae-Yeong Kim</u> , Xiaozhong Chen, Shinya Furukawa, Tomohiro Nozaki

Topics: 9 Plasma-based gas conversion

Chair: Hyun-Ha Kim, Kazuo Takahashi

11:15	1-A-205	CH ₄ conversion into C ₂ H ₂ , C ₂ H ₄ and H ₂ in a rotating gliding arc plasma reactor	<u>Callie Ndayirinde</u> , Annemie Bogaerts
11:30	1-A-206	Plasma conversion of CH ₄ followed by post-plasma catalysis for selective C ₂ H ₄ formation: linking nanosecond pulsed experiments and chemical kinetics models	<u>Eduardo Morais</u> , Marco Scapinello, Gregory Smith, Georgios D. Stefanidis, Annemie Bogaerts
11:45	1-A-207	A combined experimental and modelling study for the development of a plasma-chemical kinetic reaction mechanism for NH ₃ cracking	<u>Seunghwan Bang</u> *, Ramses Snoeckx, Min Suk Cha
12:00	1-A-208	Ammonia Cracking for Hydrogen Production Using Microwave Plasma Jet of Argon	<u>Xinhua Zhang</u> , Min Suk Cha

Topics: 5 Modelling in plasma processing

Chair: He-Ping Li, Juan Pablo Trelles

14:00	1-P-201	Fitting of Electron Collision Cross Sections from Swarm Data using a Genetic Algorithm	<u>Nuno Rombert Pinhão</u>
14:15	1-P-202	Prediction of Plasma CVD Process Data of a-Si:H Films via Machine Learning	<u>Kunihiro Kamataki</u> , F. L. Chawarambwa, D. Yamashita, N. Yamashita, T. Okumura, N. Itagaki, K. Koga, M. Shiratani
14:30	1-P-203	A global plasma and surface model of a hydrogen/methane inductively coupled discharges for the Extreme-Ultra-Violet lithography machines	<u>Efe Hasan Kemaneci</u> , Achim von Keudell, Andrei M. Yakunin, Mark van de Kerkhof
14:45	1-P-204	Development of comprehensive temperature-dependent plasma-chemical kinetic reaction mechanisms for plasma systems at elevated temperatures (300-1200 K)	<u>Ramses Snoeckx</u> , Min Suk Cha
15:00	1-P-205	Towards integrated modeling of methane pyrolysis and carbon material synthesis	Alexander Khrabry, Yury Barsukov, Louis Heoffenberg, <u>Igor D. Kaganovich</u> , David Graves

Invited 5 Modelling in plasma processing

Chair: He-Ping Li, Juan Pablo Trelles

15:15	I-04	Computational Modeling of Processing Plasmas: Instabilities and Fluorocarbon Chemistry	Omar Alsaed, Md. Sazzad Hossain, Benjamin Yee, Chenhui Qu, Meenakshi Mamunuru, Brett Scheiner, Naman Bhatt, Steven C. Shannon, <u>Amanda M. Lietz</u>
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Room 3

Oral Presentation

Topics: 8 Plasma deposition of functional coatings

			Chair: Dirk Hegemann, Tsuyohito Ito
9:45	1-A-301	Atmospheric Pressure Plasma Jet Synthesis and Characterisation of Copper-Silver Bimetallic Materials	<u>Stefanos Agrotis</u> , Mustafa Emre Sener, Albertus Denny Handoko, Daren J. Caruana
10:00	1-A-302	Development of 'smart' metal-matrix or metal-dopant antimicrobial surface coatings by dry deposition techniques	<u>Laurene Youssef</u> , Audrey Prorot, Thibault Maerten, Simon Belvèze, Canet Acikgoz, Noora Manninen, Sophie Akain, Mathis Courant, Camelia Popescu, Geoffroy Rivaud, Vincent Rat, Armelle Vardelle, Alain Denoirjean

Invited 8 Plasma deposition of functional coatings

			Chair: Dirk Hegemann, Tsuyohito Ito
10:15	I-05	Pulsed aerosol-assisted plasma processes for (multi)functional thin film deposition	G. Carnide, L. Cacot, M. Feron, V. Pozsgay, M.L. Kahn, C. Villeneuve, H. Caquineau, N. Naudé, L. Stafford, <u>Richard Clergereaux</u>

Topics: 2 Fundamentals of thermal plasma

			Chair: Gerard van Rooij, Margarita Baeva
11:15	1-A-305	Experimental investigation of droplet ejection phenomena in AC gas tungsten arc welding	<u>Hisaya Komen</u> , Kenta Iida, Masaya Shigeta, Manabu Tanaka
11:30	1-A-306	Effect of Doped Oxides on Cathode Erosion in Nitrogen Free Burning Arc	<u>Yuki Takemoto</u> *, Manabu Tanaka, Takayuki Watanabe

Invited 2 Fundamentals of thermal plasma

			Chair: Gerard van Rooij, Margarita Baeva
11:45	I-06	Spatial-Frequency-Resolved Schlieren Method for Structure Measurement of Plasma-Induced Turbulence	<u>Yuki Inada</u>

Topics: 2 Fundamentals of thermal plasma

			Chair: Anthony Murphy, Yuki Inada
14:00	1-P-301	RBF-ANN Based Sequential Optimization for Modulation Conditions in Nanoparticle Synthesis using Tandem Modulated Induction Thermal Plasmas with Intermittent Synchronized Feeding	<u>Yasunori Tanaka</u> , Yurina Nagase, Rio Okano, Yusuke Nakano, Tatsuo Ishijima, Satoshi Kitayama, Shiori Sueyasu, Shu Watanabe, Keitaro Nakamura
14:15	1-P-302	Decomposition Mechanism of Sulfur- and Nitrogen-containing Liquid Waste in DC Water Plasma	<u>Chengyuan Duan</u> *, Manabu Tanaka, Takayuki Watanabe
14:30	1-P-303	Progress toward Active Control on Non-Equilibrium Features of High-Pressure Thermal Plasmas	<u>He-Ping Li</u> , Chuan Fang, Zi-Ming Zhang, Yao-Ting Wang, Lan-Yue Luo
14:45	1-P-304	Arc Resistance Rise using Powder Mixture of BN Powder and Silica-Sand during DC Interruption Process	<u>Naoto Kodama</u> , Yasunobu Yokomizu, Waku Takenaka, Mikimasa Iwata, Mir Sayed Shah Danish
15:00	1-P-305	Effect of gas mixtures on arc plasma and in-flight MgAl ₂ O ₄ particle behavior in plasma spraying	<u>Hunkwan Park</u> , Hansol Kwon, Yong-jin Kang, Yeon Woo Yoo, Do Hyun Kim, Youngjin Park, Sunghun Lee, Changhyuk Kim
15:15	1-P-306	Two-Dimensional Axisymmetric Simulation of Arc-Plasma-Induced Turbulence of SF ₆ and Air Flows in a Converging-Diverging Cylinder	<u>Masaya Shigeta</u> , Yuki Inada, Yasunori Tanaka
15:30	1-P-307	Simulation and experimental studies for plasma spraying applications	<u>Margarita Baeva</u> , Tao Zhu, Holger Testrich, Rudiger Foest

May 22, 2023 MONDAY

16:00-18:00

Room 4

Poster (1)

Poster Presentation

Topics: 1 Fundamentals of low pressure plasma

POS-1-102	Hybrid simulation of instabilities in a capacitively coupled RF CF ₄ /Ar plasma driven by a dual-frequency source	<u>Wan Dong</u> , Yi-Fan Zhang, Yuan-Hong Song, You-Nian Wang
POS-1-103	Lagrangian Chaotic Mixing in Resistive Drift-Wave Turbulence in Fusion Plasmas	<u>Ana Luiza Piragibe Freire</u> , Rodrigo Andrés Miranda Cerda, Adriane Beatriz Schelin, José Leonardo Ferreira
POS-1-104	Particle-in-cell simulation study about the spatial distribution of DC magnetron sputtering plasmas with various magnetic field configurations	<u>Young Hyun Jo</u> , Geonwoo Park, Sang Ki Nam
POS-1-105	Plasma-assisted non-oxidative coupling of methane: A study on the effects of particle size distribution of glass beads and pressure on the product composition	<u>Toke Skaarup Larsen</u> , J. M. Christensen , A. Fateev , M. Østberg , A. Bogaerts , A. D. Jensen
POS-1-106	Vibrational cross sections of methane: from individual cross sections to polyad groups	<u>Nuno Rombert Pinhão</u> , Tiago Cunha Dias, Vasco Leitao Guerra
POS-1-107	Improved controllability of high frequency inductively coupled plasma generation by series resonant metamaterial structures	<u>Yohei Sanami</u> , Takuya Mizutomi, Kota Hamano, Shigeyuki Miyagi, Osamu Sakai
POS-1-108	The ignition process of a pulse modulated dual-RF capacitively coupled plasma : role of low-frequency voltage amplitude	<u>De-Hua Shi</u> , Yong-Xin Liu, You-Nian wang
POS-1-109	Fluid study on uniformity in capacitively coupled silane mixture discharges	<u>Yi-fan Zhang</u> , Wen-Zhu Jia, Wan Dong, Yuan-Hong Song, You-Nian Wang
POS-1-110	Simulation study of dust particle distribution in dust plasma	<u>Yingying Zhang</u> , Mengyue Duan, Yufeng Huang, Wenzhu Jia, Yuanhong Song

Topics: 3 Fundamentals of atmospheric non-equilibrium plasma

POS-3-101	Collective motion of microdischarges driven by the buoyancy flow	<u>Azamat I. Ashirbek</u> , Yerbolat A. Ussenov, Merlan K. Dosbolayev, Maratbek T. Gabdullin, Tlekkabul S. Ramazanov
POS-3-102	Influence of temperature on the evolution of the capacitance in an atmospheric pressure dielectric barrier discharge	<u>Alex Destrieux</u> , Jacopo Profili, Morgane Laurent, Gaetan Laroche
POS-3-103	Determination of the electron temperature and density of non-equilibrium atmospheric-pressure Ar plasma by OES using two-temperature EEDF	<u>Jun Enomoto</u> , Wataru Kikuchi, Kouhei Yamashita, Atsushi Nezu, Hiroshi Akatsuka
POS-3-104	Comparing the Effects of Different Dielectric Materials on Atmospheric Pressure Plasma Jet by Experiments and Simulations	<u>Po-Chun Huang</u> , Yun-Chien Cheng
POS-3-105	Estimation of atmospheric-pressure non-equilibrium Ar plasma EEDF using optical emission spectroscopy and linear combination of generalized EEDF	<u>Wataru Kikuchi</u> , Jun Enomoto, Kohei Yamashita, Yuya Yamashita, Atsushi Nezu, Hiroshi Akatsuka
POS-3-106	Dynamics of the constricted mode of atmospheric pressure capacitively coupled radio-frequency driven plasma jets	<u>Maximilian Klich *</u> , David Schulenberg, Sebastian Wilczek, Ihor Korolov, Julian Schulze, Ralf Peter Brinkmann
POS-3-107	Characterization of Conical Plasma Jet with a Cloth-Covered Nozzle	<u>Konstantin Georgiev Kostov</u> , Felipe V. P. Kodaira, Ana C. P. L. Almeida

POS-3-108	Optical Emission Spectroscopy Diagnostics of Electron Density and Temperature for Atmospheric-Pressure Helium Plasma Based on a Collisional-Radiative Model	Keren Lin , Atsushi Nezu, Hiroshi Akatsuka
POS-3-109	Observation of the primary streamer in nanosecond pulsed streamer discharge using the quadruple emICCD camera system	Zhengyan Liu , Kazuto Yamamoto, Yoichi Hirakawa, Jie Li, Douyan Wang, Takao Namihira
POS-3-110	Improve the Discharge Efficiency of Atmospheric Pressure Plasma Jet by Changing Electrode Arrangement	Hsin-Yu Lo , Yun-Chien Cheng
POS-3-111	Space charge distribution in dielectric barrier discharge	Jin Park , Min Suk Cha
POS-3-112	kinetics of N ₂ vibrational excitation in a pulsed air discharge	Jun-Jie Qiao *, Qi Yang, Qing Xiong
POS-3-113	Symetrical and simultaneous measurements of electrical potential on a parallel-plate dielectric barrier discharge	Genmou Riku *, Atsushi Komuro, Ryo Ono
POS-3-114	Behaviors of optical emission from a dielectric barrier discharge in a He gas flow with small-fraction H ₂ O impurity	Minami Toyoda *, Yoshinori Matsuoka, Koji Eriguchi, Keiichiro Urabe
POS-3-115	Measurement of Electrical Potential of Repetitive Surface Dielectric Barrier Discharge in N ₂ and O ₂ Mixture Gas	Takuma Uemura *, Atsushi Komuro, Ryo Ono

Topics: 4 Diagnostics in plasma chemistry

POS-4-101	Lifetime of Nitric Oxide Produced by a Surface DBD in Controlled Atmospheres	Sanghoo Park, Jin Hee Bae *, Jinhee Bae, Hyungyu Lee, Seong-Cheol Huh, Sangheum Eom, Seung Min Ryu
POS-4-102	NO and O ground state density dynamics in a pulsed microwave discharge	Omid Samadi Bahnamiri , Abhyuday Chatterjee, Kseniia Leonova, Rony Snyders, Nikolay Britun
POS-4-103	Coherence lifetime imaging of nitrogen during a laser-induced air spark with FRAME-enhanced coherent anti-Stokes Raman spectroscopy	Vassily Kornienko, Yupan Bao , Simon Ek, Ali Hosseinnia, Meena Raveesh, Christopher J. Kliewer, Joakim Bood, Andreas Ehn, Elias Kristensson
POS-4-104	Two-Dimensional Velocity Field Interporation of Plasma Jet From Pictures Sequence captured by High-Speed Camera	Jinwen Cao , Heji Huang, Xian Meng, Qizhi Zhang, Hui Zhang
POS-4-105	Investigation of plasma species, etch products and surface modification during etching of Ge, Sb and Se-based materials in CH ₄ -H ₂ -Ar plasmas	Thibaut Meyer, Aurelie Girard, Marek Bouska, Petr Němec, Virginie Nazabal, Christophe Cardinaud
POS-4-106	Contributions of increased pressure on the above-atmospheric plasma-driven synthesis of ammonia via dual-polarity nanosecond power delivery	Philip N. Cimento , Sylvain Coulombe, Jan Kopyscinski
POS-4-107	2D Raman imaging for rotational and vibrational temperature mapping	Davide Del Cont-Bernard , Martijn D. Ruijzendaal, Tim W. H. Righart, Gerard J. van Rooij, Tom D. Butterworth
POS-4-108	Development and Characterization of a Helicon Plasma System	German Cota-Sanchez , Daniel McDonald, Nathan Lee, Jozef Mouris
POS-4-109	Modeling of an Abnormal Glow Discharge to Characterize the Atmospheric Ion Chemistry of Saturn's Moon Titan	David Dubois , Alexander W. Raymond, Ella Sciamma-O'Brien, Farid Salama
POS-4-110	Laser induced fluorescence and laser absorption measurements for the diagnostics of hydride atomizers	Pavel Dvořák , Martina Mrkvičková, Jan Kratzer, Franklin Vaca Velásquez
POS-4-111	Impact of humidity on the OH distribution in the effluent of an atmospheric pressure plasma jet measured by laser induced fluorescence	Judith Golda , Sebastian Burhenn, Maike Kai, Pia-Victoria Pottkämper, Volker Schulz-von der Gathen, Marc Böke

POS-4-112	Density Measurement of Lithium Vapor in Multiphase AC Arc for Nanoparticle Production of Li-Mn Composite Oxide	Aori Ichini *, Ritu Sogo, Manabu Tanaka, Takayuki Watanabe, Takahumi Okuma, Hisao Nagai, Hiroki Maruyama
POS-4-113	Development of BB-CEAS (broadband cavity-enhanced absorption spectroscopy) measurement for reactive nitrogen species	Shohei Kawano *, Keisuke Takashima, Shota Sasaki, Toshiro Kaneko
POS-4-114	Design of a laser Thomson scattering system for atmospheric plasma sources	Young-Gi Kim , Seungil Park
POS-4-115	Energy distribution function of substrate incident negative ions in DC magnetron sputtering of metal-doped ZnO target measured by magnetized retarding field energy	Yoshinobu Matsuda , Koki Watanabe, Shoma Uzunoe, Yosuke Kanahori, Seiichi Hayakawa
POS-4-116	Estimation of effective area of short-lived reactive oxygen species generated by an atmospheric-pressure helium microplasma jet	Yuta Matsumoto , Shunya Hashimoto, Ryosuke Otsuki, Yamato Torii, Tatsuru Shirafuji, Jun-Seok Oh
POS-4-117	Study of Gaseous Products Generated by Coplanar Barrier Discharge in Air and N ₂ /O ₂ Mixtures by FTIR spectroscopy	Vera Mazankova , David Trunec, Zdenek Navratil, Anna Zahoranova
POS-4-118	Single Shot Fluorescence Lifetime Imaging of Hydroxyl Radical Distributions and 3D Tomographic Reconstruction of Gliding Arc Discharge	Sebastian Nilsson , David Sanned, Adrian Roth, Mattias Richter, Edouard Berrocal, Andreas Ehn
POS-4-119	Experimental investigation of correlation between net charges in plasma jet and decomposition of methylene blue solution	Ryosuke Otsuki , Yamato Torii, Tatsuru Shirafuji, Jun-Seok Oh
POS-4-120	Spatial and Temporal Investigation of Atomic Oxygen Generation from ns-Pulsed Plasma using TAPLIF	Jonas Ravelid , Jinguo Sun, Vassily Kornienko, Yupan Bao, Elias Kristensson, Andreas Ehn
POS-4-121	Electron density and temperature measurements with Thomson scattering in a hydrogen microwave plasma	Martijn Daan Ruijzendaal *, Davide Del Cont-Bernard, Tim Ward Hein Righart, Gerard J. van Rooij, Thomas Butterworth
POS-4-122	Monitoring of plasma parameters in afterglow of surface-wave argon plasma by a floating harmonic probe method	Michiru Sasahara *, Junki Morozumi, Koji Eriguchi, Keiichiro Urabe
POS-4-123	Dynamics of reactive oxygen and nitrogen species in atmospheric-pressure and low-pressure plasmas	Lars Schücke , Youfan He, Alexander Böddecker, Ihor Korolov, Kazumasa Ikuse, Efe Kemaneci, Ralf P. Brinkmann, Peter Awakowicz, Satoshi Hamaguchi, Andrew R. Gibson
POS-4-124	Investigation of soot inception in methane plasma-pyrolysis by laser diagnostics	Dirk C. M. van den Bekerom , Shahriar Mirpour, Yves Creighton, Davide Del Cont-Bernard, Tim W. H. Righart, J. L. Linden, Gerard J. van Rooij, Thomas Butterworth
POS-4-125	Advancing insights of plasma catalysis by <i>operando</i> transmission FTIR spectroscopy in a novel water-cooled DBD cell	Joran Van Turnhout , Emiel J. M. Hensen, Annemie Bogaerts
POS-4-126	A numerical study of plasma-catalytic dry reforming	Shengfei Wang , Vandad Rohani, Paul Dupont, Sylvain Pagnon, Laurent Fulcheri
POS-4-127	<i>In-situ</i> tracking of key species in nitrogen fixation process by a wam air glow discharge through multiple laser spectroscopies	Qing Xiong , Jun Jie Qiao, Zhan Shu

Topics: 7 Plasma processing of nanomaterials and nanostructures

POS-7-101	Boron Nitride Nanotubes from Ammonia Borane by an Inductively Coupled Plasma	Aqeel Alrebh , Dean Ruth, Mark Plunkett, Liliana Gaburici, Martin Couillard, Thomas Lacelle, Christopher T. Kingston, Keun Su Kim
POS-7-102	Plasma synthesis of Indium Nitride Nanoparticles	Sankhadeep Basu , Alexander Ho, Rebecca Anthony
POS-7-103	Nanoparticle Synthesis of Transition Metal Oxynitride by Induction Thermal Plasma	Han Chen *, Kohei Yamashita, Kaiwen Zhang, Manabu Tanaka, Takayuki Watanabe
POS-7-104	Cyclic etching of SiO ₂ contact holes using heptafluoropropyl methyl ether plasmas	Dongjun Jeon , Sanghyun You, Chang-Koo Kim
POS-7-105	Nanoparticle Formation Mechanism of Li-Ni-Ti Composite Oxide by Induction Thermal Plasmas	Motonori Hirose *, Kohei Yamashita, Manabu Tanaka, Takayuki Watanabe
POS-7-106	Subsequent functionalization of hexagonal boron nitride after plasma processing in solution for preparation of polymer composite materials	Kenichi Inoue , Naoto Takagi, Tsuyohito Ito, Yoshiki Shimizu, Kenji Ishikawa, Kohzo Ito, Masaru Hori, Kazuo Terashima
POS-7-107	Synthesis of carbon black as an anode material of lithium-ion battery using thermal plasma-based methane pyrolysis	Hyeokjun Kang *, Jeonghwan Oh, Yonghee Lee, Sooseok Choi
POS-7-108	Nanostructured Polyaniline Films Functionalized by Auxiliary Gas Addition during Atmospheric Pressure Plasma Polymerization	Jae Young Kim , Hyo Jun Jang, Eun Young Jung, Gyu Tae Bae, Kangmin Kim, Heung-Sik Tae
POS-7-109	Influence of pulse-off time on time-varying ion composition in a pulse-operated Ar/C ₄ F ₈ /O ₂ dual-frequency capacitively coupled plasma	Shuichi Kuboi , Haruhito Kato, Yuto Seki, Yudai Akatsuka, Haruka Suzuki, Hirotaka Toyoda
POS-7-110	Compensating for Aspect Ratio Dependent Etch	Stefan R. Lundgaard , Akimi Uchida, Tomoyuki Nonaka, Osamu Tsuji
POS-7-111	Characterization of spherical tin nanoparticles with melted inner layer synthesized using dc magnetron sputtering plasma	Munaswamy Murugesu , Koichi Sasaki
POS-7-112	Synthesis of Transition Metal Nitride Nanoparticles by Nitrogen DC Arc with Thermodynamic Consideration	Haruna Nogami *, Kohei Yamashita, Yuki Takemoto, Manabu Tanaka, Takayuki Watanabe
POS-7-113	Chemical composition of C ₄ F ₈ plasma polymerized film in the Bosch process	Tomoyuki Nonaka , Akimi Uchida, Stefan R. Lundgaard, Kazuo Takahashi, Osamu Tsuji
POS-7-114	Synthesis of N-doping carbon nanomaterials using thermal plasma-based methane pyrolysis	Jeong-Hwan Oh , Yonghee Lee, Sooseok Choi
POS-7-115	Plasma with carbon nanoparticles and their application	Sagi A. Orazbayev , Sultan S. Ussenkan, Askar T. Zhunisbekov, Almasbek U. Utegenov, Maratbek T. Gabdullin, Tlekkabul S. Ramazanov
POS-7-116	Modification of composites by Dielectric Barrier Discharge (DBD) at atmospheric pressure for electrochemical applications	Jacopo Profili , Steeve Rousselot, Luc Stafford, Mickael Dollé
POS-7-118	Numerical Study of Collective Formation Process of Fe-Al Alloy Nanoparticles in Thermal Plasma Tail Using Two-Component Co-condensation Model	Shunsuke Tsurumi *, Makoto Sugimoto, Masaya Shigeta, Jian Wang, Yusuke Hirayama
POS-7-119	Hydrogen plasma induced by extreme ultra-violet radiation and its interaction with optical components in nanolithography research	Andrey Ushakov , Jacqueline van Veldhoven, Chien-Ching Wu, Michel van Putten
POS-7-120	D ₀₃ -ordered Fe ₃ Al nanopowders synthesised by low oxygen induction thermal plasma	Jian Wang , Yusuke Hirayama, Zheng Liu, Shoichi Kumon, Kimitaka Sato

POS-7-121	Nanoparticles Synthesis of Ternary Titanium Niobium Nitrides by Induction Thermal Plasmas	<u>Yirong Wang</u> , Kohei Yamashita, Kaiwen Zhang, Manabu Tanaka, Takayuki Watanabe
POS-7-122	Synthesis of carbon nanowalls by the ICP-PECVD method and study of electron and proton irradiation for their properties	<u>Yerassyl Yerlanuly</u> , Rakhymzhan Ye. Zhumadilov, Renata R. Nemkayeva, Gulnur Akhtanova, Tlekkabul S. Ramazanov, Askhat N. Jumabekov, Viktor V. Brus, Maratbek T. Gabdullin
POS-7-123	Generation of binary and multicomponent metal nanoparticles and carbon-coated nanoparticles by electrical explosion of wires	<u>Zekun Yin</u> , Jian Wu, Liwen Liang, Chuncai Kong, Huantong Shi, Xingwen Li
POS-7-124	Control of SiO ₂ contact-hole etch profiles using low-GWP heptafluoropropyl methyl ether	<u>Sanghyun You</u> , Chang-Koo Kim
POS-7-125	Plasma-based atom-selective etching of sapphire to obtain a damage-free and atomically smooth surface	<u>Yongjie Zhang</u> *, Hui Deng

Topics: 11 Plasma medicine and agriculture

POS-11-101	Designing cold plasma cleavable RGD peptide bioconjugates for targeted tumor therapy	<u>Fahd Afzal</u> , Friederike Kogelheide, Niklas Nawrath, Felix Matthias Fuchs, Peter Awakowicz, Andrew Robert Gibson, Nils Metzler-Nolte
POS-11-102	Investigation of cold plasma treatment on antimicrobial peptides as strategy for selective bacterial targeting	<u>Dennis Doll</u> , Niklas Nawrath, Felix M. Fuchs, Peter Awakowicz, Andrew R. Gibson, Nils Metzler-Nolte
POS-11-103	Automatic Image Analysis of the Effects of Non-Thermal Plasma on Mold Growth	<u>Jan Hrudka</u> , Vladimir Scholtz, Jana Jiresová, Zuzana Rácová, Josef Khun, Miron Klenivskyi, Anna Machková
POS-11-104	Inhibition of Cancer Regional Recurrence in Mice Using Pulsed Streamer Discharge	<u>Ryuichiro Ito</u> , Atsushi Komuro, Hideyuki Yanai, Ryo Ono
POS-11-105	Oxidative modification of DNA bases in human lung cancer cells treated with non-thermal atmospheric-pressure plasma	<u>Hirofumi Kurita</u> , Khulan Bidbayasakh, Sumire Arai
POS-11-106	Enhancement of Ca ²⁺ influx through transient receptor potential channels by flexible plasma patch therapy: psoriasis curing	<u>Seunghun Lee</u> , Namkyung Kim, Snag-Hyun Kim, Sunghoon Jung, Joo Young Park, Do-Geun Kim
POS-11-108	Effect of nitric oxide in promoting proliferation of radical-irradiated fibroblasts	<u>Yasumasa Mori</u> , Kazane Oguri, Naoyuki Iwata, Tomiyasu Murata, Masaru Hori, Masafumi Ito
POS-11-109	Chemical reaction of amino acids with plasma-generated dinitrogen pentoxide	<u>Yuto Oba</u> *, Shota Sasaki, Keisuke Takashima, Toshiro Kaneko
POS-11-110	Characterization of a high voltage nanosecond-pulsed atmospheric pressure He plasma jet and its treatment on deionized water and different cell media	Min Jeong Seong, Y. J. Ha, H. S. Kwon, Sun Ja Kim, H. M. Joh, <u>Tae Hun Chung</u>
POS-11-111	Albumin aggregation by atmospheric pressure plasma discharge using needle electrode	<u>Tetsuji Shimizu</u> , Yuukei Ishihara, Hajime Sakakita
POS-11-112	Roles of electric field and current in composite gene transfection with plasma and pulsed electric field	<u>Yoshiyuki Takashima</u> *, Shota Sasaki, Ryosuke Honda, Keisuke Takashima, Makoto Kanzaki, Toshiro Kaneko
POS-11-113	Nitrogen Fertilization with Plasma Generated Dinitrogen Pentoxide	<u>Shouki Takeshi</u> *, Keisuke Takashima, Shota Sasaki, Atsushi Higashitani, Toshiro Kaneko
POS-11-114	Control discharge environment to customize plasma composition and identify HepG2 cell line sensitivity toward RONS	<u>Fang Wang</u> , Hui Deng, Ho Cheung Shum

POS-11-115	Bactericidal Mechanism of <i>E. coli</i> in Water Irradiated with Electrically-Neutral Oxygen Radicals	<u>Hiromi Alwi Yamamoto</u> , Naoyuki Iwata, Masaru Hori, Masafumi Ito
POS-11-116	Cold Atmospheric Plasma: A Novel Solution for Promoting Diabetic Wound Healing	<u>Luxiang Zhao</u> , Jing Li, Na Zhang, Tao He, Yue Yuan, Yu Zhang, Heping Li
Topics: 12 Plasmas for environmental applications		
POS-12-101	Sterilization of water soluble cutting fluid by compact air cooled coaxial dielectric barrier discharge reactor with bubbler	<u>Semin Chun</u> , Geum Ran Ahn, Geon Woo Yang, Yong Cheol Hong
POS-12-102	Hydrogen Production by Hydrocarbon Pyrolysis with Long DC Arc	<u>Koichiro Fujii</u> *, Hirokazu Akamatsu, Manabu Tanaka, Takayuki Watanabe
POS-12-103	Biodegradability of LDPE film by <i>Bacillus</i> bacteria Activated by Plasma Treatment	<u>Sang Hye Ji</u> , Seungil Park, Seungryul Yoo
POS-12-105	Degradation of EDTA Complex by Underwater Dielectric Barrier Discharge	<u>Heejae Lee</u> , Kangil Kim, Minwoo Kim, Seonkyung Jung, Yong Cheol Hong
POS-12-106	Electrical Discharge Based Non Catalytic Technique for controlling Total Hydrocarbon Emission in Diesel Exhaust	<u>Apeksha Madhukar</u> , Bangalore Suryanarayanaiah Rajanikanth
POS-12-107	Development of PFCs Scrubber using a High Density Enlarged Plasma Source	<u>Dong Hun Shin</u> , Se Min Chun, Geonwoo Yang, Yong Cheol Hong, Sehee Lee, Seongsik Yun, Kyeun Suk Kim, Nak-Jin Choi
POS-12-108	Decomposition Mechanism of Insoluble Organics by DC Water Plasma at Atmospheric Pressure	<u>Qiran Sun</u> , Manabu Tanaka, Takayuki Watanabe
POS-12-109	Decomposition of Cu-EDTA in wastewater using pulsed streamer discharge	<u>Most. Tauhida Tabassum</u> , Yusuke Nakagawa, Fumiyoshi Tochikubo
POS-12-110	Non-thermal plasma brush used for degradation of antibiotics - fundamental studies on high-throughput four-cone plasma system	<u>Dominik Terefinko</u> , Piotr Jamroz, Magda Caban, Agata Motyka-Pomagruk, Weronika Babińska, Wojciech Sledz, Pawel Pohl, Anna Dzimitrowicz

May 23, 2023 TUESDAY

Room 1

Oral Presentation

Plenary			Chair: Matteo Gherardi
8:45	Plenary-2	Plasma Dose for Clinical Applications: New Considerations	Vandana Miller

Topics: 7 Plasma processing of nanomaterials and nanostructures

Chair: Toshiro Kaneko, Masaharu Shiratani

9:45	2-A-101	Low-temperature atomic layer deposition (ALD) of strontium oxide on poly(ether-ether-ketone) (PEEK) for lumbar cage implants	<u>Anjar Anggraini Harumningtyas *</u> , Lenka Zajíčková, M. Eliáš, Tomoko Ito, David Nečas, Lucie Janů, Eva Dvořáková, Masato Ikuta, Takashi Kaito, Pierre Vinchon, Satoshi Hamaguchi
10:00	2-A-102	Technology for Long-term Retention of Surface Modification Properties by Plasma	<u>Motohiro Yamahara</u> , Mina Tomikawa, Kazuyuki Noborio, Kohshi Taguchi
10:15	2-A-103	Polynitrogen Compounds Synthesized by Nonequilibrium Plasma	<u>Elijah Thimsen</u> , Xiaoshuang Chen
10:30	2-A-104	Monolayer Graphene, a perfect hub for the study of out-of-equilibrium phenomena in plasma-surface interactions	<u>Pierre Vinchon</u> , Satoshi Hamaguchi, Luc Stafford

Topics: 7 Plasma processing of nanomaterials and nanostructures

Chair: Hitoshi Muneoka, Kunihiro Kamataki

11:15	2-A-105	Non-Thermal Plasmas in the Development of a MWCNT-Based Drug-Eluting Coating for Cardiovascular Metallic Implants	<u>Lynn Hein *</u> , Sylvain Coulombe, Rosaire Mongrain
11:30	2-A-106	Mass Carbon Nanofiber Production from CO ₂ using Fluidized-bed Looping DBD: Application to Energy Storage Devices	<u>Xiaozhong Chen *</u> , Yuta Nishina, Wenjun Zhang, Tomohiro Nozaki
11:45	2-A-107	Controlled synthesis of core-shell nanoparticles for functional applications	Oguz Han Asnaz, Jonas Drewes, Marie Elis, Franko Greiner, Franz Faupel, Lorenz Kienle, Alexander Vahl, <u>Jan Benedikt</u>
12:00	2-A-108	The glidarc plasma: an innovative method for the synthesis of heterogeneous catalysts	<u>Fanny Marie Hanon *</u> , Eric Michel Gaigneaux

Invited 11 Plasma medicine and agriculture

Chair: Jean-Michel Pouvesle, Augusto Stancampiano

14:00	I-07	Strategies to enhance the antimicrobial activity of plasma activated water	<u>Endre Szili</u> , Bhagirath Ghimire, Bethany Patenall, A. T. A. Jenkins, Adrian Fellows, Rob Short
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Topics: 11 Plasma medicine and agriculture**Chair: Jean-Michel Pouvesle, Augusto Stancampiano**

14:30	2-P-103	Efficacy of cold plasma for strawberry cultivation on fruit ripening process	<u>Hiroshi Hashizume</u> , Shogo Matsumoto, Hitoshi Sakakibara, Kaoru Sanda, Akiko Abe, Hiroko Mizuno, Kenki Tsubota, Mikiko Kojima, Yumiko Takebayashi, Genki Yuasa, Satoe Tohno, Hiromasa Tanaka, Kenji Ishikawa, Masafumi Ito, Hidemi Kitano, Takayuki Okuma, Yuji Hirose, Masayoshi Maeshima, Masaaki Mizuno, Masaru Hori
14:45	2-P-104	Nitrogen fixation by an arc plasma at elevated pressure to increase the energy efficiency and production rate of NO _x : Mechanistic insights from an equilibrium model	<u>Colin O'Modhrain</u> , Ivan Tsonev, Annemie Bogaerts, Yury Gorbanev
15:00	2-P-105	Potentiality of a Fractionated Cold Atmospheric Pressure Plasma Treatment for Bacterial Decontamination	<u>Amaury Rouillard</u> , Augusto Stancampiano, Sebastien Dozias, Julien Lemaire, Jean-Michel Pouvesle, Fabienne Brulé Morabito, Pablo Escot Bocanegra, Eric Robert

Topics: 8 Plasma deposition of functional coatings**Chair: Richard Clergereauz, Tamiko Ohshima**

15:45	2-P-108	Effects of sputtering of a-C:H films on the chemical composition	<u>Masaharu Shiratani</u> , Kizuku Ikeda, Michihiro Otaka, Shinjiro Ono, Takamasa Okumura, Kazunori Koga, Kunihiro Kamataki
16:00	2-P-109	Rapid Single Step Atmospheric Pressure Plasma Jet deposition of a SERS active surface	<u>Oliver S. J. Hagger</u> , M. Emre Sener, Imran Khan, Ivan P. Parkin, Daren J. Caruana
16:15	2-P-110	Thin film deposition with enhanced physiochemical properties using a novel RF atmospheric pressure plasma jet	<u>Mehrnoush Narimisa</u> , Yuliia Onyshchenko, Rino Morent, Nathalie De Geyter
16:30	2-P-111	Plasma-Chemical Reactions Governed by the Specific Energy Input - Plasma Polymerization and Beyond	<u>Dirk Hegemann</u> , Paula Navascués
16:45	2-P-112	Significance of free radicals in amine plasma polymers deposited under mild ion bombardment	<u>Lenka Zajíčková</u> , Lucie Janů, Vinicius Tadeu, Martina Buchtelová, Beata Beliančí nová, Eva Dvořáková, David Nečas, Matus Šedivý, Petr Neugebauer
17:00	2-P-113	Control strategies for polymerization processes assisted by atmospheric pressure plasma jets and aerosolized precursors	Giulia Laghi, Romolo Laurita, <u>Matteo Gherardi</u>

Room 2

Oral Presentation

Topics: 9 Plasma-based gas conversion

Chair: Maria Carreon, Pankaj Attri

9:45	2-A-201	The role of radical and vibrationally excited species for NH ₃ formation by plasma catalysis	Brian Bayer, Sai Raskar, Igor Adamovich, Aditya Bhan, <u>Peter Bruggeman</u>
10:00	2-A-202	Ammonia synthesis: On the effect of adding a metal catalyst in a ferroelectric packed-bed plasma reactor	<u>Ana Gómez-Ramírez</u> , P. Navascués, J. Garrido-García, M. Oliva-Ramírez, J. Cotrino, A. R. González-Elípe
10:15	2-A-203	Ammonia synthesis by synchronizing the pressure swing of N ₂ -H ₂ plasma with the discharge timing and gas intake/exhaust cycles	<u>Shinsuke Mori</u> , Yuya Fujimoto, Shoma Sato
10:30	2-A-204	Sustainable Ammonia Synthesis from Nitrogen and Water by One-Step Plasma Catalysis	<u>Tianqi Zhang</u> , Renwu Zhou, Jungmi Hong, Rusen Zhou, Patrick Cullen

Topics: 9 Plasma-based gas conversion

Chair: Gervais Soucy, Douyan Wang

11:15	2-A-205	Plasma Catalytic Bubbles for Nitrogen Fixation: A Route to Green Chemistry	<u>Renwu Zhou</u> , Jing Sun, Dingxin Liu
11:30	2-A-206	Non-equilibrium high flow rate plasma reactor for nitrogen fixation	<u>Ivan Korneev Tsonev</u> , Hamid A. Eshtehardi, Yury Gorbanev, Annemie Bogaerts

Invited 9 Plasma-based gas conversion

Chair: Gervais Soucy, Douyan Wang

11:45	I-08	Submerged Microplasma Jet in Microwells with Particle Beds - Synthesis of N-doped Carbon Quantum Dots	<u>Volker Hessel</u> , Q. H. Pho, E. V. Rebrov
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Topics: 9 Plasma-based gas conversion

Chair: Amanda Lietz, Yusuke Nakagawa

14:00	2-P-201	Residence times and Raman composition measurements for reactor design	<u>Tim W. H. Righart</u> , Alex W. van de Steeg, Davide Del Cont-Bernard, Tom D. Butterworth, Floran J. J. Peeters, G. J. van Rooij
14:15	2-P-202	Forward and reverse vortex compared in microwave plasma for methane coupling	<u>Maria Luiza Azevedo</u> , Davide Del Cont-Bernard, Tim W. H. Righart, Gerard J. J. Van Rooij, Thomas D. Butterworth
14:30	2-P-203	The impact of pressure on NO _x formation in a microwave air plasma reactor	<u>Ashley J. Hughes</u> , Omar Biondo, Alex Van de Steeg, X. Tu, Gerard Van Rooij
14:45	2-P-204	Importance of plasma discharge characteristics in plasma-catalytic dry reforming of methane and NH ₃ synthesis	<u>Robin De Meyer</u> *, Yury Gorbanev, Radu-George Ciocarlan, Senne Van Doorslaer, Pegie Cool, Sara Bals, Annemie Bogaerts
15:00	2-P-205	Electrical Characterization of CO ₂ -Ar Atmospheric Pressure Discharges Sustained by High-Voltage Nanosecond Pulse-Radiofrequency Excitation	<u>Dante Anthony Filice</u> *, Sylvain Coulombe

Topics: 9 Plasma-based gas conversion

Chair: Hiroto Matsuura, Shinsuke Mori

15:45	2-P-208	Modelling of CO ₂ conversion by atmospheric pressure microwave plasma enhanced by concentrated solar radiation	Ephraim Simasiku, Rasool Elahi, <u>Juan Pablo Trelles</u>
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16:00	2-P-209	Enhancing CO ₂ Decomposition and Oxygen Removal via Ceramic hollow Fibers in a Microwave Plasma Torch	<u>Katharina Wiegers</u> , Andreas Schulz, Matthias Walker, Frederic Buck, Thomas Schiestel, Gunter Tovar
16:15	2-P-210	Direct Air Capture and CO ₂ Conversion by Non-Thermal Plasma Process	<u>Sirui Li</u> , Giovanni Palma, Simona Eichkorn, Thijs van Raak, Fausto Gallucci
16:30	2-P-211	Comparison of experimental and numerical results for the understanding of fundamental mechanisms in a low-pressure CO ₂ -CH ₄ RF plasma	<u>Edmond Baratte</u> , Tiago Silva, Vasco Guerra, Olivier Guaitella
16:45	2-P-212	CO ₂ Splitting by Barrier Corona Discharge at Elevated Pressure to Optimize the Energy Efficiency and Production Rate of CO	<u>Hamed Mahdikia *</u> , Volker Brüser, Milko Schiorlin, Ronny Brandenburg
17:00	2-P-213	CO ₂ conversion in a pulsed surfaguide microwave plasma at atmospheric pressure	Sergey Soldatov, <u>Lucas Julius Silberer</u> , Guido Link, Alexander Navarrete, Roland Dittmeyer, John Jelonnek

Invited 1 Fundamentals of low pressure plasma**Chair: Yuan-Hong Song, Kenji Ishikawa**

9:45	I-09	Ignition physics of a capacitively coupled RF discharge	<u>Yong-Xin Liu</u> , Xiang-Yu Wang, Quan-Zhi Zhang, You-Nian Wang
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Topics: 1 Fundamentals of low pressure plasma**Chair: Yuan-Hong Song, Kenji Ishikawa**

10:15	2-A-303	Spatially resolved characterisation of plasma parameters in a double inductively coupled plasma: experiment and simulation	<u>Jonathan Jenderny</u> *, Henrik Hylla, Katharina Nösches, Dominik Filla, Ihor Korolov, Thomas Mussenbrock, Peter Awakowicz, Andrew R. Gibson
10:30	2-A-304	Comparison of Argon/CO ₂ and Helium/CO ₂ plasma jets for carbon monoxide (CO) production in plasma medicine	<u>Eloïse Mestre</u> , Titaina Gibert, Sebastien Dozias, Herve Rabat, Claire Douat

Invited 11 Plasma medicine and agriculture**Chair: Endre Szili, Feng Huang**

11:15	I-10	Cold atmospheric plasma as a therapeutic tool in Medicine and Dentistry	<u>Cristiane Yumi Koga-Ito</u> , Rodrigo Savio Pessoa, Konstantin Georgiev Kostov
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Topics: 11 Plasma medicine and agriculture**Chair: Endre Szili, Feng Huang**

11:45	2-A-307	Plasma-induced oxidation of the cancer - natural killer cell inhibitory axis: a computational-experimental approach	<u>Pepijn Heirman</u> *, Hanne Verswyvel, Maksudbek Yusupov, Evelien Smits, Annemie Bogaerts
12:00	2-A-308	COMBINATION OF COLD PLASMA AND BIOMIMETIC LIPOSOMES AND MEMBRANES AS A VERSATILE TOOLBOX IN REDOX MEDICINE	<u>Kristian Wende</u> , Mehdi Ravandeh, Johanna Striesow, Zahra Nasri, Maria Fedorova, Heike Kahlert, Thomas von Woedtke, Sander Bekeschus

Topics: 4 Diagnostics in plasma chemistry**Chair: Sedina Tsikata, Koichi Sasaki**

14:00	2-P-301	Magnetic field topology for altering ion density in bipolar sputtering	<u>Matthieu Michiels</u> , Kseniia Leonova, Thomas Godfroid, Rony Snyders, Nikolay Britun
14:15	2-P-302	Time and space resolved measurement of electric field and electron density in an atmospheric pressure helium/nitrogen dielectric barrier discharge	<u>Niklas Nawrath</u> , Nikita Bibinov, Ihor Korolov, Peter Awakowicz, Andrew R. Gibson
14:30	2-P-303	Atomic oxygen density distributions in micro cavity plasma arrays measured by helium state enhanced actinometry (SEA)	<u>David Steuer</u> , Henrik van Impel, Marc Böke, Volker Schulz-von der Gathen, Judith Golda

Invited 4 Diagnostics in plasma chemistry**Chair: Sedina Tsikata, Koichi Sasaki**

14:45	I-11	Experimental validation of the chemical kinetics of CO ₂ containing plasmas	<u>Olivier Guaitella</u> , Edmond Baratte, Vasco Guerra, Dihya Sadi, Carolina Alejandra Garcia Soto, Tiago Silva
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Invited 10 Plasma-assisted combustion and aerodynamics**Chair: Julian Schulze, Manabu Tanaka**

15:45 I-12 Plasma reforming of ammonia for improved combustion performance

Joseph K. Lefkowitz

Topics: 10 Plasma-assisted combustion and aerodynamics**Chair: Julian Schulze, Manabu Tanaka**

16:15 2-P-310 Emission Spectroscopy of Nanosecond Pulsed Plasma Discharges in Ammonia/Air Flames

Jinguo Sun, Yupan Bao, Jonas Ravelid, Andreas Ehn

16:30 2-P-311 Numerical simulation of spacecraft re-entry non-equilibrium plasma flow based on collision-radiation model

Yao-Wen Du, Su-Rong Sun, Xian Meng, He-Ji Huang, Jin-Wen Cao, Hai-Xing Wang

16:45 2-P-312 Parametric study of the kinetic and thermal effects of NRP discharges on the flame acceleration process for hydrogen-air deflagration-to-detonation transition

Mhedine Alicherif, Deanna A. Lacoste

17:00 2-P-313 Pulsed helium-based multijets as a new approach for flame control

Fathia Manseur, Augusto Stancampiano, Sebastien Dozias, Maxime Wartel, Jean-Michel Pouvesle, Toufik Boushaki, Fabien Halter, Pablo Escot Bocanegra, Eric Robert

May 23, 2023 TUESDAY

17:30-19:30

Room 4

Poster (2)

Poster Presentation

Topics: 2 Fundamentals of thermal plasma

POS-2-201	Experimental study of oxygen absorption behavior in gas tungsten arc using carbon dioxide	<u>Yuki Asai</u> *, Hisaya Komen, Manabu Tanaka, Masashi Nomoto, Kotaro Watanabe, Takahiro Kamo
POS-2-202	Numerical Simulation on Ar/CH ₄ /H ₂ Induction Thermal Plasma Field with Triangular Power Modulation at Reduced Pressures for Diamond Film Growth	<u>Yamato Hosoi</u> , Taizo Higashi, Yasunori Tanaka, Yusuke Nakano, Tatsuo Ishijima
POS-2-203	Experimental study on the dynamic behaviour of nitrogen arc root on the anode in the presence of laterally-blown gas	<u>Ya-hao Hu</u> , Su-rong Sun, Xian Meng, He-ji Huang, Jin-wen Cao, Hai-xing Wang
POS-2-204	Synthesis of carbon nanotubes by DC thermal plasma system	<u>Seong-Pyo Kang</u> , Han Jun Lee, Tae-Hee Kim
POS-2-205	Time-Dependent Numerical Simulation of Heat and Mass Transports in Water Plasma Jet with Air Entrainment	<u>Yosuke Kishimoto</u> *, Makoto Sugimoto, Masaya Shigeta, Manabu Tanaka, Takayuki Watanabe
POS-2-206	Optical diagnostics of the triple plasma jets merged point according to variation of process conditions	<u>Hyeyoung Ko</u> , Yong Hee Lee, Jung-Hwan Oh, Sooseok Choi
POS-2-207	Three-dimensional numerical simulation of TIG welding with external magnetic field	<u>Yuki Kobayashi</u> *, Hisaya Komen, Shoichi Matsuda, Manabu Tanaka
POS-2-208	Numerical analysis of ammonia decomposition and hydrogen conversion system using DC thermal plasma	<u>Han Jun Lee</u> , Seong-Pyo Kang, Tae-Hee Kim
POS-2-209	Experimental study of DC arc plasma jet impinging on material surface in a rarefied gas wind tunnel	<u>Xian Meng</u> , Jinwen Cao, Hongwei Liu, Hanyu Chen, Ying Zhang, Yu Sun, HuiLiang Niu, Heji Huang
POS-2-210	Effect of Oxygen Gas Inclusion in Ar Carrier Gas in Si/SiO _x Nanomaterial Synthesis using Tandem Modulated Induction Thermal Plasmas	<u>Rio Okano</u> , Yurina Nagase, Yasunori Tanaka, Yusuke Nakano, Tatsuo Ishijima, Shiori Sueyasu, Syu Watanabe, Keitaro Nakamura
POS-2-211	High-Speed Two-Directional Analysis of Temperature Characteristics in Multiphase AC Arc	<u>Ritsu Sogo</u> *, Aoi Ichini, Manabu Tanaka, Takayuki Watanabe, Takahumi Okuma, Hisao Nagai, Hiroki Maruyama
POS-2-212	Fluctuation Analysis of Diode-rectified AC Arc by High-speed Visualization	<u>Yuta Sogo</u> *, Ryo Takenaka, Manabu Tanaka, Takayuki Watanabe, Masaya Shigeta, Tsugio Matsuura
POS-2-213	Characteristics of Planar Thermal Plasma Jet by Diode-rectified AC Arc	<u>Ryo Takenaka</u> *, Yuta Sogo, Manabu Tanaka, Takayuki Watanabe, Masaya Shigeta, Tuguo Matsuura
POS-2-214	Decomposition of Pharmaceuticals and Personal Care Products by Water Plasma with Mist Generation	Soon-Ho Kim, <u>Manabu Tanaka</u> , Takayuki Watanabe

Topics: 5 Modelling in plasma processing

POS-5-201	First-principles simulation of optical emission spectra for low-pressure argon plasmas and its experimental validation	<u>Fatima Jenina Tolentino Arellano</u> *, Marton Gyulai, Zoltan Donkó, Peter Hartmann, Tsanko Vaskov Tsankov, Uwe Czarnetzki, Satoshi Hamaguchi
POS-5-202	Simulation analysis of the processes in plasma spray applications	Tao Zhu, <u>Margarita Baevea</u> , Holger Testrich, Ruediger Foest

POS-5-203	3D MHD Modelling of a Hydrogen Three-Phase AC Plasma Torch	Jad Diab , Vandad Rohani, Elliott Wyse, Enoch Dames, Laurent Fulcheri
POS-5-204	Network visualization and entropy estimation of complex silane plasma chemistry using numerical calculation of rate equation set	Kota Hamano , Yohei Sanami, Shigeyuki Miyagi, Tomoyuki Murakami, Tsuyohito Ito, Osamu Sakai
POS-5-205	Comparison of node net-influences on targeted species in bipartite graph-theoretical representaion of plasma chemical reaction networks	Thomas David Holmes
POS-5-206	Computational modeling of an atmospheric pressure plasma containing CF ₄ : Unveiling the mechanism of fluorocarbon plasma-based depyrogeneration	Md. Sazzad Hossain , Naman Bhatt, Steven C. Shannon, Amanda M. Lietz
POS-5-207	Composition and Material Properties of an MnO/H ₂ Based Thermal Plasma	Sverre Gullikstad Johnsen , Stefan Andersson
POS-5-208	Modeling of 2D Corona Discharge in Dry and Humid Air: Ionic Wind and Ozone Production	Toufik Khattara * , Jean-Maxime Orlac'h, Pierre Guitton, Christophe O. Laux
POS-5-209	Characterization of OH species in atmospheric-pressure air dielectric-barrier discharges	Tzu-Yi Liao , Kun-Mo Lin, Jyun-Yu Lin
POS-5-210	MD simulation analysis of synergetic effects on surface reaction in Si and SiO ₂ etching by Cl plasmas	Nicolas Mauchamp , Satoshi Hamaguchi
POS-5-211	Effect of flow regime on electrical characteristics of coaxial cylindrical dielectric barrier discharge: Experimental and Simulation Study	Ram Mohan Pathak , Ananthanarasimhan Jayanarasimhan, Sounak Nandi, Lakshminarayan Rao
POS-5-212	Plasma-chemical kinetics in an atmospheric pressure parallel plate capillary jet operated in argon-water vapour mixtures	Anna Lena Schöne , Steffen Schüttler, Judith Golda, Andrew Robert Gibson
POS-5-214	Molecular dynamics simulations of silicon dioxide atomic layer etching using fluorocarbon and oxygen plasmas	Jomar Unico Tercero , Yuki Okada, Michiro Isobe, Satoshi Hamaguchi
POS-5-215	Hybrid simulation of dual-frequency biased inductively coupled Cl ₂ plasma	Lei Tong , Yu-Ru Zhang, De-Qi Wen, Yuan-Hong Song, You-Nian Wang
POS-5-216	Atomic-Level Insight into Si-Cl ₂ -Ar Atomic Layer Etching from Molecular Dynamics Simulations	Joseph Renaldo Vella , David Barry Graves
POS-5-217	Radical effect in a surface kinetic model of fluorocarbon plasma etching process	Haesung You * , Jaehyeong Park, Jeongsu Chae, Hyeongjun Mun, Donghun Yu, Sungsik Shin, Kookhyun Yoon, Yeonho Im

Topics: 6 Plasma in and in contact with liquids

POS-6-201	The efficacy of a gas shield in eliminating the effects of ambient conditions on the treatment of a liquid sample with a plasma jet	Pepijn Heirman , Ruben Verloy, Annemie Bogaerts
POS-6-202	Development of a collisional-radiative model for microdischarges in gas bubbles	Andrew R. Gibson , Florens Grimm, Vera Bracht, Jan-Luca Gembus, Peter Awakowicz
POS-6-203	Light olefin production with high and flexible selectivity by plasma process	You-na Kim , CM. Jung, DH. Lee
POS-6-204	Effect of Ethanol Concentration in Reforming of Liquid Ethanol-Water Mixtures for Hydrogen Production Using a Plasma Bubble Reactor	Lasse Svingholm Ladefoged , Jakob Munkholt Christensen, Alexander Fateev, Martin Østberg, Annemie Bogaerts, Anker Degn Jensen
POS-6-205	Determination of Dissolved Total Phosphorus in Water by a Pin-Liquid Dielectric Barrier Discharge Treatment	Ye Rin Lee , Da Hye Lee, Gyu Tae Bae, Jae Young Kim, Do Yeob Kim, Hyung-Kun Lee, Heung-Sik Tae

POS-6-206	Control of self-organized luminous pattern formation in atmospheric-pressure dc glow discharge by using external electric field	Toshiaki Miyazaki , Naoki Shirai, Koichi Sasaki
POS-6-207	Diagnostic methods for fast estimation of NO _x concentrations in plasma treated water	Jovana Petković , Robin van de Wege, Ana Sobota
POS-6-208	Influence of nanosecond pulsed plasmas in water on copper surfaces and on nanoparticle formation	Pia-Victoria Pottkämper , Katharina Laake, Oliver Krettek, Elia Jüngling, Paolo Cignoni, Achim von Keudell
POS-6-209	Effect of subsurface gas supply on PFOS decomposition by plasma	Shanshan Qing , D. Wang, T. Namihira, N. Takeuchi
POS-6-210	Stark broadening of hydrogen lines of a pulsed discharge in contact with a water surface	Olivier van Rooij , Olivia Ahlborn, Ana Sobota
POS-6-211	Bayesian method in optical emission spectroscopy: evaluation of $n_e(t)$ from time-integrated H α and validation with time-resolved measurements	Audren Dorval, Rida Boumris, Ahmad Hamdan, Luc Stafford
POS-6-212	Characterization of radial plasma discharge in contact with water by Optical Emission Spectroscopy and correlation with organic contaminants degradation results	Giulia Tomei , Goran Sretenovic, Mubbshir Saleem, Anna Pinton, Ester Marotta
POS-6-213	Experimental and Numerical Investigation of Nanosecond Pulsed Discharge in Venturi Tube with Oxygen Injection	Qiong Wu , Hao Wang, Haiyun Luo, Zhigang Liu, Liyang Zhang, Yutai Li, Xiaobing Zou, Xinxin Wang
POS-6-214	modular two-phase plasma catalyst reactor for the functionalization of liquids	Alexander Alfred Zyla *

Topics: 7 Plasma processing of nanomaterials and nanostructures

POS-7-201	BCNNS synthesis using inductively coupled plasma: Band Gap control of graphene nanoflakes and boron nitride nanosheets	Aqeel A. Alrebh , Jean-Luc Meunier
POS-7-202	A novel approach to conformal functionalization of carbon nanowalls by cyclic operation of PECVD and plasma treatment	Fatemeh Bohlooli , Abdessadk Anagri, Nasrin Hossein Nedjad, Shinsuke Mori, Jerome Pulpytel, Farzaneh Arefi-Khonsari
POS-7-203	Wafer Bonding Process using Atmospheric Plasma	Wonyoung Choi , Kyeongbin Lim, Seung ho Hahn, Wooyoung Kim, Nungpyo Hong, Bumki Moon, Minwoo Rhee
POS-7-204	Self-organisation of sub- μm surface structures stimulated by microplasma generated reactive species and short-pulsed laser irradiation	Sascha Frederik Chur , Lennart Kulik, Robin Labenski, Volker Schulz-von der Gathen, Marc Böke, Judith Golda
POS-7-205	Production of tungsten pseudo-alloy powders in DC Arc Thermal Plasma Reactor	Andrey A. Fadeev , Andrey V. Samokhin, Nikolay V. Alekseev, Aleksey A. Dorofeev, Mikhail A. Sinayskiy
POS-7-206	Capture of compositional distribution for binary alloy during induction thermal plasma process	Yusuke Hirayama , Masaya Shigeta, Kenta Takagi, Kimihiro Ozaki
POS-7-207	Biomolecular modification of carbon nanowalls	Jumma Kagami , Keigo Takeda, Mineo Hiramatsu
POS-7-208	Evaluation of Thermal Plasma Synthesized Catalysts for Methane Pyrolysis	Hyunjun Kang , Yong Hee Lee, Jeong-Hwan Oh, Sooseok Choi
POS-7-210	Parallelization of carbon nanowalls synthesized by MPECVD: application for anisotropic conductive films	Abdessadk Anagri, Ryo Suzuki, Shinsuke Mori , Jerome Pulpytel, Farzaneh Arefi-Khonsari
POS-7-211	Fabrication and Electrochemical Investigation of Sandwich-like Si/V ₂ O ₅ /Si on Copper Substrate by Layer-by-Layer Approach	Elif Muslu , Esin Eren, Satoshi Hamaguchi, Aysegul Uygun Oksuz

POS-7-212	Plasma Enhanced Atomic Layer Deposition for Conformal Coating of Manganese Oxide on Carbon Nanowalls	Nasrin Hossein Nedjad , DongHoon Shin, Abdessadk Anagri, Fatemeh Bohlooli, Shinsuke Mori, Jerome Pulpytel, Farzaneh Arefi-Khonsari
POS-7-213	Study of substrate cooling mechanism of ICP dry etching system in non-silicon field	Hiromichi Ogiya , Hirohiko Nakano, Kiyoshi Hasegawa, Osamu Tsuji
POS-7-215	Effect of Biasing Voltage on Growth of Fiber-Form Nanostructures on Tungsten Surfaces by Collisional Helium Arc Plasma Irradiation	Mitsuo Tajima , Yusuke Kikuchi, Tatsuya Aota, Shiro Maenaka, Kazunori Fujita, Shuichi Takamura
POS-7-216	Application of Technology for Long-Term Retention of Plasma Treatment : Hydrophobic Treatment	Mina Tomikawa , Motohiro Yamahara, Kazuyuki Noborio, Kohshi Taguchi
POS-7-217	The Method of Vacuum Plasma Reduction without Gas	Shinya Ueno , Motohiro Yamahara, Kazuyuki Noborio, Koshi Taguchi
POS-7-218	Sputtering of tungsten coatings in hydrogen plasma to prototype First Mirror cleaning in ITER optical diagnostics	Andrey Ushakov , Cederik Meekes, Corne Rijnsent, Michel van Putten, A. d. Verlaan, Eiichi Yatsuka, Masahito Yokoyama, Lucas Moser, Michele Bassan, Matthew Maniscalco, Erik van Beekum, Takaki Hatae
POS-7-219	Tailoring Magnesium Nanoparticles In-Flight via Nonthermal Plasma for Enhanced Ignition	Brandon Wagner , Pankaj Ghildiyal, Mahbub Chowdhury, Minseok Kim, Michael Zachariah, Lorenzo Mangolini
POS-7-221	SiC etching using heptafluoroisopropyl methyl ether plasmas	Hyun Seok Yang , Sanghyun You, Chang-Koo Kim
POS-7-223	Formation Mechanism of Metal-doped ZrN by Induction Thermal Plasma	Kaiwen Zhang , Kohei Yamashita, Manabu Tanaka, Takayuki Watanabe

Topics: 8 Plasma deposition of functional coatings

POS-8-201	Stable surface modification of fluoropolymers by nitrogen discharge at atmospheric pressure	Williams Marcel Caceres Ferreira , Jacopo Profili, Élodie Brassard, Andrée-Anne Guay-Bégin, Sethumadhavan Ravichandran, Morgane Laurent, Gaétan Laroche
POS-8-202	Atmospheric pressure plasma deposition of poly(ethylene oxide)-like antifouling coatings from methacrylate precursors	Tijs Dekoster , Karolien Jans, Rita Vos, Willem Van Roy, Bernard Nisol, Annelies Delabie
POS-8-203	Synergistic Effects of Oxygen Radicals and Ozone on Surface Treatment of Polypropylene Measured by Newly Developed VUV Photodissociation Method	Hao Du , Atsushi Komuro, Ryo Ono
POS-8-204	Development of Yttrium Oxide Film Deposition using Microwave Excited Atmospheric Pressure Plasma Jet with a Mist Addition	Bat-Orgil Erdenezaya , Hirochika Uratani, Ruka Yazawa, Yusuke Nakano, Yasunori Tanaka, Md Shahiduzzaman, Tetsuya Taima, Tatsuo Ishijima
POS-8-205	Single-step Conductive Track Printing Process via Plasma Breakdown of Metallic Salts	Francis Lockwood Estrin , M. Emre Sener, Oliver Hagger, Daren J. Caruana
POS-8-206	Evaluation parameter in HiPIMS method: proposal of tail time	Hiroyuki Fukue , Tatsuyuki Nakatani, Tadayuki Okano, Masahide Kuroiwa, Shinsuke Kunitsugu, Susumu Takabayashi, Hiroki Oota, Ken Yonezawa
POS-8-207	Comparison of Hexamethyldisilazane and Hexamethyldisilazane/Nitrogen Gas Mixture Plasma Deposited SiO_x films by Atmospheric-pressure Plasma Cyclone	Li-Yu Wu, Jiun-Rung Chiou, Yu-Liang Hong, Chun Huang

POS-8-208	The study of Low Pressure Fluorocarbon Plasma Polymerization with Tetrafluoromethane, Hexafluoroethane and Octafluorocyclobutane	Jia-Cih Jhuang , Chun Huang
POS-8-209	Structure and Dielectric Properties of Plasma Polymerized P(VDF-TrFE) Film for Piezoelectric Nanogenerator	Eun Young Jung , Choon-Sang Park, Heung-Sik Tae
POS-8-210	Diamond-like carbon film preparation using a high-repetition nanosecond pulsed Ar/CH ₄ glow discharge plasma	Mizuki Kawaguchi *, Junnya Tamakoshi, Yusuke Kikuchi
POS-8-211	Low stress TEOS-SiO ₂ films deposited by PECVD using a low frequency	Yutaka Kusuda , Yuki Asai, Hiroyuki Nishinaka, Osamu Tsuji
POS-8-212	Plasma Enhanced Atomic Layer Deposition for AlOx	Masayuki Nakamura , Takayuki Kobayashi, Tsukasa Kawabe, Osamu Tsuji
POS-8-213	Glucose detection based on CN _x /Co ₃ O ₄ composite electrode fabricated by a hybrid non-thermal plasma/sol-gel deposition technique	Maryam Nilkar , Saed Jafari, Carla Bittencourt, Marie Georges Olivier, Rony Snyders, Damien Thiry, Rino Morent
POS-8-214	Swellable plasma polymer films for use in hydrogel-based biomedical devices	Bishakh Rout *, Pierre-Luc Girard-Lauriault
POS-8-215	The Investigation of Cyclonic Atmospheric Pressure Plasma Surface Treatment of Fluorine-based Polymers	Shu-Mei Wang , Chun Huang
POS-8-216	Synthesis and Characterization of Atmospheric Pressure Plasma Treated Nafion-Organosilica Composite Membrane for Vanadium Redox Flow Battery	Pin-Ying Wu , Chun Huang
POS-8-217	Highly-efficient and Ultra-smooth Polishing of Diamond via Atmospheric Pressure Inductively Coupled Plasma	Yuxi Xiao *, Yongjie Zhang, Hui Deng

Topics: 9 Plasma-based gas conversion

POS-9-201	Life Cycle Assessment of Thermal Plasma Methane Pyrolysis	Jad Diab *, Vandad Rohani, Laurent Fulcheri
POS-9-202	Energy study of a pulsed DC powered CO ₂ /CH ₄ plasma	Paul Dupont , Vandad Rohani, Shengfei Wang, Laurent Fulcheri
POS-9-203	Burst and nanopulsed discharges for non-oxidative methane reforming : a comparison	Thomas Fontaine , Linus Nyssen, Rony Snyders, Nathalie De Geyter, Francois Reniers
POS-9-204	Zero-dimensional simulations of RF and ns-pulsed He/CO ₂ atmospheric pressure plasma jets	Youfan He , Fabian Verdaguer, Ralf Peter Brinkmann, Andrew R. Gibson, Efe Kemaneci
POS-9-205	RF plasma pulsing: an effective approach for the reduction of the energy cost of ammonia synthesis	Minseok Kim *, Giorgio Nava, Lorenzo Mangolini
POS-9-206	Heat Recovery for improving Energy Efficiency of Hydrogen Production by Liquid Hydrocarbon Plasma Decomposition	Takumi Kojima *, Ryoya Shiraishi, Hiromichi Toyota, Shinfuku Nomura
POS-9-207	The effect on hydrogen selectivity of quenching gas in the methane pyrolysis process using triple thermal plasma	Yonghee Lee , Jeong-Hwan Oh, Sooseok Choi
POS-9-208	Characterization of an atmospheric N ₂ -O ₂ Gliding Arc Discharge by FTIR and LIF	Filippo Manaigo *, Abhyuday Chatterjee, Annemie Bogaerts, Rony Snyders
POS-9-209	Carbon dioxide: A Study into Temperature-dependent Carbon-based Plasma Chemistry	Aswath Mohanan *, Seunghwan Bang, Ramses Snoeckx, Min Suk Cha
POS-9-210	Scale-up of a coaxial DBD reactor for the oxygen removal from coke oven gas with non-thermal plasma	Tim Nitsche , Kyunghwan Oh, Marcus Budt
POS-9-211	Electrical characterisation of an atmospheric plasma DBD reactor for non-oxidative methane to hydrogen	Linus Nyssen , Thomas Fontaine, Nathalie De Geyter, Rony Snyders, Francois Reniers
POS-9-213	NH ₃ synthesis in a catalytic atmospheric RF discharge	Steijn C. L. Vervloedt , Christoph Stewig, Achim von Keudell

POS-9-214	Enhanced conversion of CO ₂ by atmospheric pressure dielectric barrier discharge with different electrode configurations	<u>Chao Wang</u> , Hai-Xing Wang, Xian Meng, He-Ji Huang, Jin-Wen Cao, Su-Rong Sun
POS-9-215	Shielding protection by mesoporous catalysts for improving plasma-catalytic ammonia synthesis	<u>Yaolin Wang</u> , Xin Tu
POS-9-216	Nitrogen Oxidation by Atmospheric Plasmas	<u>Siqi Yu</u> , S. C. L. Vervloedt, Christoph Stewig, Achim von Keudell

Topics: 10 Plasma-assisted combustion and aerodynamics

POS-10-202	Ground test research of an air-breathing electric propulsion system in a rarefied gas wind tunnel	<u>Xian Meng</u> , Hongwei Liu, Jianwu He, Jinwen Cao, Yabin Xiao, Chao Yang, Ying Zhang, Yu Sun, Jun Luo, Yong Zhang, Hanyu Chen, Renqiu Zou, Heji Huang
POS-10-203	A computational study of ammonia combustion enhancement under non-thermal plasma	<u>Xiao Shao</u> , Deanna A. Lacoste, Hong G. Im
POS-10-204	Plasma-enabled CO ₂ methanation at ambient temperature: a trial inspired by plasma-assisted	<u>Chunyuan Zhan</u> , Shuya Xu, Hyun-Ha Kim, Tomohiro Nozaki

May 24, 2023 WEDNESDAY

Room 1

Oral Presentation

Plenary

Chair: Jan Benedikt

8:45	Plenary-3	High-performance laser diagnostics for plasma characterization	Sedina Tsikata
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Plasma Chemistry Award plenary lecture

Chair: Annemie Bogaerts

9:45		Modelling thermal plasmas for industry – from waste destruction to 3D printing	Anthony Murphy
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Chair: Bruce Robert Locke

11:15		From glow and Townsend dielectric barrier discharges to atmospheric pressure PECVD	Francoise Massines
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May 25, 2023 THURSDAY

Room 1

Oral Presentation

Plenary

Chair: Petr Lukes

8:45	Plenary-4	Nanosecond-pulsed discharges in liquids for nanoobject synthesis: expectations and capabilities	Thierry Belmonte
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Topics: 12 Plasmas for environmental applications

Chair: Lucia Daniela Pietanza, Fumiyoshi Tochikubo

9:45	4-A-101	Rapid Iron Ore Reduction via Atmospheric Pressure Microwave Hydrogen Plasma	<u>Uwe R. Kortshagen</u> , Sachin Kumar, Zichang Xiong, Julian Held, Peter J. Bruggeman
10:00	4-A-102	Energy-Saving Emission Control for Glass Melting Furnace by Plasma-Chemical Hybrid Processing	<u>Haruhiko Yamasaki</u> , Ryosuke Kinoshita, Hashira Yamamoto, Tomoyuki Kuroki, Masaaki Okubo

Invited 12 Plasmas for environmental applications

Chair: Lucia Daniela Pietanza, Fumiyoshi Tochikubo

10:15	I-13	Efficient gas treatment for various applications with atmospheric non equilibrium plasmas	<u>Peter A. Awakowicz</u> , A. Bøddecker, L. Schücke, R. T. Nguyen-Smith, Ph. Wirth
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Topics: 12 Plasmas for environmental applications

Chair: Deborah O'Connell, Keisuke Takashima

11:15	4-A-105	Degradation of emerging contaminants in a bubble column plasma reactor	<u>Deepchandra Joshi</u> *, Mikhail Vasilev, T. R. Sreekrishnan, Selma Mededovic Thagard
11:30	4-A-106	Plasma methods for processing of toxic industrial waste	Vladimir E. Messerle, Alfred L. Mosse, <u>George Paskalov</u> , Alexandr B. Ustimenko

Invited 12 Plasmas for environmental applications

Chair: Deborah O'Connell, Keisuke Takashima

11:45	I-14	The Importance of Transport Phenomena in the Design of Gas-Liquid Electrical Discharge Plasma Reactors	<u>Selma Mededovic Thagard</u> , Mikhail Vasilev, Deepchandra Joshi, Foluke Jennifer Ganzallo
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Topics: 12 Plasmas for environmental applications

Chair: Peter Awakowics, Masafumi Ito

14:00	4-P-101	Plasma-induced CO ₂ conversion: Experimental and Computational study	<u>Pankaj Attri</u> , Takamasa Okumura, Kazunori Koga, Nozomi Takeuchi, Kunihiro Kamataki, Masaharu Shiratani
14:15	4-P-102	Atomic Oxygen Assisted CO ₂ and N ₂ Conversion: a Theoretical Analysis	<u>Claudia Verheyen</u> , Kevin Van't Veer, Rony Snyders, Annemie Bogaerts
14:30	4-P-103	Critical view on CO ₂ conversion in warm plasmas: reactor design and life cycle assessment	<u>Rani Vertongen</u> *, Marc Escribà-Gelonch, Jose Osorio-Tejada, Robbe Bryssinck, Volker Hessel, Annemie Bogaerts

Invited 12 Plasmas for environmental applications

Chair: Peter Awakowics, Masafumi Ito

14:45	I-15	Self-consistent kinetic modeling of CO ₂ cold plasmas	<u>Lucia Daniela Pietanza</u> , Gianpiero Colonna, Mario Capitelli
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Topics: 6 Plasma in and in contact with liquids**Chair: Mark J. Kushner, Tatsuru Shirafuji**

9:45	4-A-201	Complexity visualization and numerical simulation of plasma-activated liquid chemistry	<u>Tomoyuki Murakami</u>
10:00	4-A-202	The Inactivation of Planktonic <i>Staphylococcus aureus</i> by Nano-pulsed Argon Plasma Jet Discharge and Its Underlying Mechanism	<u>Junghyun Lim</u> , Eun Jeong Hong, Sangheum Eom, Sanghoo Park, Seungmin Ryu, Seungil Park
10:15	4-A-203	Falling liquid film plasma reactor to study plasma-liquid interactions with highly controlled convective transport: comparison of model and experiment	<u>Tanubhav Kumar Srivastava</u> , Christopher C. Rich, Renee Frontiera, Peter J. Bruggeman
10:30	4-A-204	Relative quantum yield in laser-induced desolvation of hydrated electrons observed in a water jet immersed in a low-pressure plasma	<u>Yoshinobu Inagaki</u> , Koichi Sasaki

Invited 6 Plasma in and in contact with liquids**Chair: Scott Dubowsky, Katsuhisa Kitano**

11:15	I-16	Discharge at / near the interface of two immiscible liquids and its application in nanomaterial synthesis	<u>Ahmad Hamdan</u>
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Topics: 6 Plasma in and in contact with liquids**Chair: Scott Dubowsky, Katsuhisa Kitano**

11:45	4-A-207	Role of Amino Acids in the Biocidal Activity of Plasma Treated Cell Culture Media	<u>Petr Lukes</u> , Barbora Tarabova, Zuzana Kovalova, Vit Jirasek
12:00	4-A-208	Catalyst-free ammonia synthesis using DC-driven atmospheric-pressure plasma in contact with liquid	<u>Mary Raphael Lazarte Ramoy</u> , Naoki Shirai, Koichi Sasaki

Topics: 6 Plasma in and in contact with liquids**Chair: Nozomi Takeuchi, Junghyun Lim**

14:00	4-P-201	A DBD-embedded Gas-Liquid Micro Contactor and Its Application to Efficient Depolymerization of Polysaccharides	<u>Tatsuru Shirafuji</u> , Haruki Kato, Sayaka Yamamoto, Jun-Seok Oh, Motoko Takaoka
14:15	4-P-202	Evaluation of interfacial OH radical transport using plasma exposed high-speed water jet	<u>Kazuki Takeda</u> , Shota Sasaki, Keisuke Takashima, Toshiro Kaneko
14:30	4-P-203	The importance of superoxide anion for Escherichia coli biofilm removal using plasma-activated water	<u>Binbin Xia *</u> , Heema Kumari Nilesh Vyas, Renwu Zhou, Tianqi Zhang, Jungmi Hong, Joanna G. Rothwell, Scott A. Rice, Dee Carter, Kostya (Ken) Ostrikov, Patrick J. Cullen, Anne Mai-Prochnow
14:45	4-P-204	Discharges near water-heptane interfaces: application to emulsion production	<u>Audren Dorval</u> , Luc Stafford, Ahamd Hamdan
15:00	4-P-205	Transport of hydrogen peroxide and hydroxyl from a humid atmospheric pressure plasma jet into a liquid for plasma-driven biocatalysis	<u>Steffen Schüttler *</u> , Anna Lena Schöne, Emanuel Jeß, Andrew Robert Gibson, Judith Golda

Invited 7 Plasma processing of nanomaterials and nanostructures**Chair: Yong-Xin Liu, Yasunori Tanaka**

9:45	I-17	Advances in plasma sprayed silicon nanoparticles for next generation lithium-ion batteries	<u>Makoto Kambara</u> , Ritaro Miki, Takeo Hiraoka, Ryoshi Ohta, Toshimi Tanaka, Akira Takeuchi, Masashi Dougakiuchi, Kenichi Fukuda
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Topics: 7 Plasma processing of nanomaterials and nanostructures**Chair: Yong-Xin Liu, Yasunori Tanaka**

10:15	4-A-303	Plasma-produced silicon particles enable highly stable lithium-ion battery anodes	<u>Lorenzo Mangolini</u> , B. Wagner, P. Ghildiyal
10:30	4-A-304	Nanoparticles Formation Mechanism of Li-Mn Composite Oxides by Multiphase AC arc	<u>Manabu Tanaka</u> , Aika Tamae, Aori Ichini, Takayuki Watanabe, Takafumi Okuma, Hisao Nagai, Hiroki Maruyama

Topics: 7 Plasma processing of nanomaterials and nanostructures**Chair: Makoto Kambara, Masaya Shigeta**

11:15	4-A-305	Multicomponent Nanoparticles Synthesis in Solution Plasma	<u>Jiangqi Niu</u> , C. Chokradjaroen, C. Hussakan, N. Saito
11:30	4-A-306	Rare-earth Sm-Co nanopowder prepared by low oxygen-induction thermal plasma process	<u>Kwangjae Park</u> , Yusuke Hirayama, Masaya Shigeta, Zheng Liu, Makoto Kobashi, Kenta Takagi
11:45	4-A-307	Silicon based nanoparticles synthesis in atmospheric pressure microwave plasma	<u>Roman Zamchii</u> , Deanna A. Lacoste
12:00	4-A-308	In-situ synthesis of gold nanoparticles using an aerosol-assisted atmospheric pressure cold plasma	<u>Andjelika Bjelajac</u> , Adrian-Marie Phillipe, Jerome Guillot, Jean-Baptiste Chemin, Patrick Choquet, Simon Bulou

Invited 4 Diagnostics in plasma chemistry**Chair: Olivier Guaitella, Lenka Zajíčková**

14:00	I-18	Redox reactions on surface of water jet injected into low-pressure plasma	<u>Koichi Sasaki</u>
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Topics: 4 Diagnostics in plasma chemistry**Chair: Olivier Guaitella, Lenka Zajíčková**

14:30	4-P-303	Space resolved temperature measurements in an argon methane microwave plasma used for hydrogen production	<u>Simon Kreuznacht</u> *, Marc Böke, Achim von Keudell
14:45	4-P-304	Optical characterization of a co-planar dielectric barrier discharge as plasma source for element detection in analytical chemistry	<u>Sebastian Burhenn</u> , Julian Held, Sebastian Brandt, Jan Kratzer, Judith Golda
15:00	4-P-305	Screening of Ni-alloyed catalysts (NiM/Al ₂ O ₃ :M=Zn, In, Ga ₃ , Cu) by <i>in situ</i> IR spectroscopy: DBD-induced CO ₂ reduction	<u>Ming Li</u> , Dae-Yeong Kim, Chunyuan Zhan, Shuya Xu, Tomohiro Nozaki

May 25, 2023 THURSDAY

15:30-17:30

Room 4

Poster (3)

Poster Presentation

Topics: 3 Fundamentals of atmospheric non-equilibrium plasma

POS-3-301	Time-resolved poly-diagnostics of atmospheric ns He jet discharge	Nikolay Britun , Vladislav Gamaleev, Dennis Christy, Shih-Nan Hsiao, Masaru Hori
POS-3-302	Production of reactive oxygen and nitrogen species in photoemission-induced atmospheric pressure DC air discharge	Sukma Wahyu Fitriani , Hideki Yajima, Akimitsu Hatta
POS-3-303	Discharges in ceramic honeycomb monoliths and glass capillary tubes	Karol Hensel , Samuel Kukura, Richard Cimerman, Mario Janda
POS-3-304	The plasma candle: A promising device for a wider treatment area	Ayman A. Abdelaziz, Hyun-Ha Kim
POS-3-305	Particle image velocimetry analysis of dielectric barrier discharge plasma actuators	Jae Wan Kim , Sang Un Jeon, Hae June Lee
POS-3-306	Characteristics of Atmospheric Helium Dielectric Barrier Discharges Depending on Electric conditions of Nanosecond Pulsed Power	Yuyeon Kim , Sanguk Lee, Dong-Wook Kim, Jaiyoung Chung, Joonseon Jeong, Wonwook Lee, Kyoung-Jae Chung
POS-3-307	Measurement of Gas Temperature of Nano-pulse Helium Dielectric Barrier Discharge Plasma by Identification of OH Spectrum	Sang-Uk Lee , Yuyeon Kim, Dong-Wook Kim, Jaiyoung Chung, Joonseon Jeong, Wonwook Lee, Kyoung-Jae Chung
POS-3-308	Self-consistent modelling study on discharge poisoning	Santu Luo , Dingxin Liu, Wang Xi, Mingzhe Rong
POS-3-309	Control of the gas flow by a surface barrier discharge	Soad Mohsenimehr , Achim Von Keudell
POS-3-310	Atmospheric Pressure Townsend Discharges (APTD) in various molecular gases: pre-ionisation mechanisms?	Nicolas Naudé , Simon Dap, Antoine Belinger, Clemence Tyl, Xi Lin, Corentin Bajon, Olivier Guaitella, Tomas Hoder, Hans Höft, Ronny Brandenburg
POS-3-311	Electrical calibration for measuring average power of a ns timescale HV pulsed discharge	Ryan Thomas Nguyen-Smith , Ahmed Al Hamdan, Ihor Korolov, Peter Awakowicz, Thomas Mussenbrock
POS-3-312	Filamentation of 2.45-GHz microwave discharge plasmas in sub-atmospheric pressure	Zentarou Sasaki , Tsubasa Saito, Takaharu Kamada, Katsuyuki Takahashi, Koichi Takaki, Seiji Mukaigawa
POS-3-313	Surface Modification and Characterization Studies of PMMA Sheets by Atmospheric Pressure Plasmas Treatment	Jia-Jhih Shen , Chi-Hung Liu, Ching-Chiun Wang, Meng-Chi Huang
POS-3-314	Surface Modified of Silicone rubber by Atmospheric pressure plasma jets and UV Induced-Graft Polymerization of Anti-Bacterial Hydrogels	Jhong-Kun Siao , Shu-Chuan Liao
POS-3-315	Production of O and H radicals in an atmospheric-pressure nanosecond pulsed discharge in helium with water vapour admixtures	Alexandra Brisset, Matthew Bieniek, Laurent Invernizzi, James Walsh, Mohammad Hasan, Erik Wagenaars
POS-3-316	Investigation on the green aurora emission of atmospheric pressure argon discharge based on a single DBD plasma jet	Shuai Zhao , Ana Sobota

Topics: 6 Plasma in and in contact with liquids

POS-6-302	Characterisation of plasma- and electrical parameters during plasma electrolytic oxidation of Al and Ti	Jan-Luca Gembus , Vera Bracht, Peter Awakowicz, Andrew Robert Gibson
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POS-6-303	Production of nitrogen containing organic species by non-thermal plasma over liquid butylamine	Avishek Banerjee , Owen Armstrong, Pierre-Luc Girard-Lauriault
POS-6-304	Simulation of plasma-chemical kinetics of microdischarges formed in bubbles during plasma electrolytic oxidation	Florens Grimm , Jan-Luca Gembus, Vera Bracht, Peter Awakowicz, Andrew Robert Gibson
POS-6-305	Simplifying the modeling of the arc in the Electric Arc Furnace	Abdellah Kharicha , M. Al-Nasser, Menghuai Wu, Andreas Ludwig
POS-6-306	Characteristics of low-temperature atmospheric pressure plasma for the treatment of natural products	Se Hoon Ki , Seungil Park, Sunghoon Jee, Seong Bong Kim
POS-6-307	Plasma-driven biocatalysis with the unspecific peroxygenase from <i>Collariella virescens</i>	Sabrina Klopsch , Tim Dirks, Steffen Schüttler, Judith Golda, Julia Elisabeth Bandow
POS-6-309	The effects of multiple surface treatments with functional surfaces on titanium for enhancing osseointegration and antibacterial	Yun-Jun Lin , Shu-Chuan Liao
POS-6-311	Plasma assisted oxygen functionalization of olefins	Prashant Prashant , Wilfred F. L. M. Hoebe, Tom Huiskamp, A. J. M. Pemen
POS-6-312	Decomposition of Dibutyl Phosphate by Discharge inside Bubble in Water	Tetsu Sakakibara , Hirotoshi Takayama, Katsuyuki Takahashi, Koichi Takaki, Tatsuya Horimai, Kiyoshi Anzai, Takeshi Tsukada
POS-6-313	Scaling down the reaction system for low-temperature plasma chemistry	Arisa Shinke , Tomoki Minami, Motohiro Tomita, Tomoyuki Murakami
POS-6-314	Observation of Two Consecutive Pulsed Discharge Over Water Surface in Argon	Katsuyuki Takahashi , Genta Ichii, Tetsu Sakakibara, Koichi Takaki, N. Takeuchi, Terumasa Ryu, Kazuto Yamamoto, Douyan Wang, Takao Namihira
POS-6-315	Development of Atmospheric Pressure Plasma Source with Liquid Column Interface for Plasma-Liquid Interfacial Reactions in Spatio-Temporal Dynamics	Keisuke Takashima , Ritsuki Fujita, Kosuke Muratomi, Shota Sasaki, Toshiro Kaneko

Topics: 8 Plasma deposition of functional coatings

POS-8-301	One-Step Method to Fabricate Transparent Super-Repellent Coatings Using Plasma Polymerization	Aissam Airoudj , Jamerson Carneiro de Oliveira, Florence Bally - le Gall, Vincent Roucoules
POS-8-302	The impact of plasma enhancement during deposition of carbon containing zirconia films by chemical vapor deposition	Marc Böke , Philipp Maaß, Vitali Bedarev, Marina Prenzel, Sebastian M. J. Beer, Jean-Pierre Glauber, Anjana Devi, Achim von Keudell
POS-8-303	Atmospheric Pressure DBD plasma torch for area-selective coating – investigations of the deposition mechanisms through experimental and CFD simulation	Kishor Acharya, Simon Bulou , Thomas Gaulain, Patrick Choquet
POS-8-304	Chromium aluminium nitrides thin films prepared with an atmospheric pressure plasma processing	Hong-Ying Chen , Zong-Yu Xia
POS-8-305	Insight in the mechanisms responsible for anatase thin film growth in low pressure O ₂ /TTiP plasmas	William Ravisy, Agnes Granier , Mireille Richard-Plouet, Antoine Goullet, Benjamin Dey, Simon Bulou, Patrick Choquet
POS-8-306	Polypyrrole Film Synthesis using In-liquid Plasma Assisted-Electrochemical Deposition	Hyo Jun Jang , E. Y. Jung, J. Y. Kim, H.-S. Tae
POS-8-307	Profile Control of Patterned Plasma Deposition and Etching	Junkang Wang, Pavel Bulkin, Pere Roca i Cabarrocas, Karim Ouaras, Sergej Filonovich, Erik V. Johnson

POS-8-308	Degradable plasma polymerized poly (ethylene glycol)-like coatings as a matrix for controlled-release of components in food related applications	Maryam Zabihzadeh Khajavi , Anton Nikiforov, Maryam Nilkar, Frank Devlieghere, Peter Ragaert, Nathalie De Geyter
POS-8-309	Tunable classical-plasma polymer hybrid thin films prepared using plasma-assisted vapour thermal deposition	Jaroslav Kousal , Zdeněk Krtouš, Pavel Solař, Ivo Křivka, Ivan Krakovský, Suren Ali-Ogly, Lenka Hanyková
POS-8-310	Plasma-assisted LIB Graphite Anode Coating for Cyclability Improvement for EV Application	Jin Young Lee , Gun-Wong Uhm, Min Hur, Woo Seok Kang, Kwang-sub Kim, Hyun-Don Kim, Mikyung Im, Min-Woo Kwon, Seungmin Hyun
POS-8-311	Deposition of functional thin films for corrosion resistance applications and adhesion promotion using Atmospheric plasma processes	Hisanori Miyoshi , Dhia Ben Salem, Magnus Buske
POS-8-312	Formation of Ga-based amorphous oxide thin film transistors using plasma-assisted reactive processes	Kosuke Takenaka , Hibiki Komatsu, Susumu Toko, Akinori Ebe, Yuichi Setsuhara
POS-8-314	Plasma-assisted deposition of thiol-rich coatings on nanofibrous scaffolds for tissue engineering applications	Pegah Zahedifar , Rouba Ghobeira, Sheida Aliakbarshirazi, Rino Morent, Nathalie De Geyter

Topics: 9 Plasma-based gas conversion

POS-9-301	High-frequency spark discharge enabled efficient NO _x synthesis	Ayman A. Abdelaziz , Hyun-Ha Kim
POS-9-302	Influence of liquid water and hydrogen on CO ₂ conversion for a nanosecond-pulsed DBD	Sepideh Mousazadeh Borghei , Volker Brüser, Juergen F. Kolb
POS-9-303	Oxidation of n-butane in a RF discharge at atmospheric pressure	Laura Chauvet , Christoph Stewig, Achim von Keudell
POS-9-304	Numerical study on reactor design of methane pyrolysis process using thermal plasma for hydrogen production	Daeun Choi , Yong Hee Lee, Jung-Hwan Oh, Sooseok Choi
POS-9-307	Exploring Regimes of Plasma Synthesis of Ammonia with Porous Silica Catalysts	Sophia Gershman , Fnu Gorky, Hoang Nguyen, Maria Lourdes Carreon
POS-9-309	Local measurements of CO ₂ decomposition degree in the microwave discharge system with swirling flow	Kumpyo Kwak , Abdessadk Anagri, Shinsuke Mori
POS-9-310	In-flight gasification of livestock manure fuel by using three phase AC arc plasma system	Dong-Hyun Lee , Darian Figuera-Michal, Nam-Ki Lee, Hyo-Jeong Kim, Shi-Young Yang, Jun-Ho Seo
POS-9-312	Novel reaction concepts for synthesis of chemicals in modular plants using ultrafast pulsation of microwave plasmas	Alexander Navarrete , Sergey Soldatov, Mery Sheryll Hernandez, Guido Link, John Jelonnek, Roland Dittmeyer
POS-9-315	Carbon dioxide splitting with a plane parallel dielectric barrier discharge arrangements - Effects on chemistry	Milko Schiorlin , Volker Brueser, Ronny Brandenburg
POS-9-316	Catalyst-free one-step plasma reforming of CH ₄ and CO ₂ to higher value oxygenates under ambient conditions	Yaolin Wang , Annemie Bogaerts, Xin Tu
POS-9-317	Plasma-catalytic CO ₂ hydrogenation over a Pd/ZnO catalyst: <i>In situ</i> probing of gas-phase and surface reactions	Yuhai Sun, Yaolin Wang, Daiqi Ye, Xin Tu

Topics: 11 Plasma medicine and agriculture

POS-11-301	Study on changes in surface condition of plant seeds irradiated by atmospheric pressure gliding arc discharge plasma	Shin-ichi Aoqui , Olena V. Prysiashna, Koji Yamauchi, Fumiaki Mitsugi, Masaharu Shiratani
POS-11-303	Cold plasma for clinical safety applications	Zhitong Chen

POS-11-304	Low-Cost High-Frequency Power Supply for Cold Atmospheric Plasma Sterilization	<u>Helbert de Oliveira Coelho Júnior</u> , Rodrigo Andrés Miranda, José Leonardo Ferreira, Alexandre M. Martins
POS-11-305	Unraveling surface effects for improving the germination of barley seeds: from drying to air plasma treatments	Alvaro Perea-Brenes, <u>Ana Gómez-Ramírez</u> , Carmen López-Santos, Manuel Oliva-Ramírez, Ricardo Molina, Jose Cotrino, Jose Luis García, Manuel Cantos, Agustin R. González-Elípe
POS-11-306	Effects of Reactive Oxygen Species on Plasma Molecular Introduction into Plant Cells by Plasma Treatment	<u>Yoshihisa Ikeda</u> , Yuki Hamada, Ryosuke Ueshima, Yugo Kido, Hidetaka Kaya, Takashi Yaeno, Masafumi Jinno
POS-11-308	Characterisation of a cold atmospheric pressure plasma source for the treatment of cervical intraepithelial neoplasia	<u>Bastian Kogelheide</u> , Laura Awakowicz, Martin Weiss, Andrew R. Gibson, Peter Awakowicz
POS-11-309	How can plasma processes be implemented in food processing?	<u>Romolo Laurita</u> , Alina Bisag, Filippo Capelli, Caterina Maccaferri, Giorgia Gozzi, Silvia Tappi, Beatrice Cellini, Doaa Abouelenein, Sauro Vittori, Pietro Rocculi, Marco Dalla Rosa, Lucia Vannini, Junior Bernardo Molina-Hernandez, Jessica Laika, Lilia Neri, Clemencia Chaves-López, Antonella Ricci, Massimo Mozzon, Lama Ismaiel, Ancuta Nartea, Cinzia Mannozi, Luca Belleggia, Cristiana Cesaro, Roberta Foligni, Matteo Gherardi, Vittorio Colombo
POS-11-311	Effect of plasma activated water on reducing ammonia emission from agriculture and livestock	<u>Mengqi Li</u> , Zilan Xiong
POS-11-312	Simultaneous irradiation device of low-temperature plasma and ultraviolet light for surface treatment and sterilization	<u>Zhizhi Liu</u> , Taiki Osawa, Mao Xu, Yuriko Matsumura, Atsuo Iwasawa, Akitoshi Okino
POS-11-313	Comparison of a kHz Helium/CO ₂ plasma jet and a MHz Helium/CO ₂ plasma jet for carbon monoxide (CO) production and bacterial disinfection in plasma medicine	<u>Eloïse Mestre</u> , Daniel Henze, Inna Orel, Laura Chauvet, Sebastian Burhenn, Judith Golda, Sebastien Dozias, Fabienne Brulé-Morabito, Titaina Gibert, Claire Douat
POS-11-314	Low-temperature plasma-induced regulated dimerization of (-)-epigallocatechin gallate (EGCG) in methanolic solution	<u>Seungil Park</u> , Se Hoon Ki, Gyeong Han Jeong, Sung Hoon Jee, Tae Hoon Kim, Seong Bong Kim
POS-11-316	Plasma activated water bubbles: Characterization and assessment of desiccated <i>Salmonella</i> inactivation efficacy	Harleen Kaur Dhaliwal, Barun Yadav, <u>M. S. Roopesh</u>
POS-11-317	Inactivation effect of plasma-generated reactive oxygen and nitrogen species on human coronavirus	<u>Shota Sasaki</u> , Shion Osana, Mutsuo Yamaya, Hidekazu Nishimura, Ryoichi Nagatomi, Toshiro Kaneko
POS-11-318	Investigation for the Mechanism of Plasma Gene Transfection by the Equivalent Circuit Network Analysis Considering Cell Density	<u>Sota Tanaka</u> , Hideki Motomura, Yoshihisa Ikeda, Yugo Kido, Susumu Satoh, Masafumi Jinno
POS-11-319	<u>Non-invasive physical plasma (NIPP)</u> to treat women with histologically confirmed low- and high-grade cervical intraepithelial neoplasia: a prospective, controlled, monocentric clinical trial	Marcel Arnholdt, Anna Hißnauer, Sara Y. Brucker, Melanie Henes, <u>Martin Weiss</u>
POS-11-320	Positive and negative effects of ROS in micro-discharge plasma gene transfer method	<u>Masaki Yamashita</u> , Yoshihisa Ikeda, Susumu Satoh, Masafumi Jinno

Topics: 12 Plasmas for environmental applications

POS-12-301	Manganese production from MnO by use of hydrogen plasma	<u>Halvor Dalaker</u> , Trygve Storm Aarnæs, Roar Jensen, Sverre Gullikstad Johnsen
POS-12-302	Plasma-assisted absorption of CO ₂ in AMP solution and chemical regeneration of AMP using calcium hydroxide	<u>Xing Fan</u> , Xiaozhong Chen, Wenjun Zhang, Tomohiro Nozaki
POS-12-303	Concept of induction-heating and DBD plasma hybrid reactor	<u>Hongjae Kang</u> , Donghyun Cho, Dae Hoon Lee
POS-12-304	The potential application of plasma-activated water for growth of <i>Chlorella</i> sp.	<u>Chiu-Mei Kuo</u> , Jia-Xun Wu, Chen-Ni Yu, Jia-Jhih Shen, Chih-Hung Liu, Chih-Sheng Lin
POS-12-305	NO _x abatement using in-situ fuel-based reductant under rotating arc plasma condition	<u>Heesoo Lee</u> , Narankhuu Jamsran, Hongjae Kang, Dae Hoon Lee
POS-12-306	Plasma-enhanced Degradation of Chlorinated Compounds	<u>Siwei Liu</u> , Tomoki Nakajima, Takehiko Sato
POS-12-307	Ozone Generation Characteristics of Xenon Excimer Lamp	<u>Yoshinori Mizuno</u> , Abubakar Hamza Sadiq, Ahmad Guji Yahaya, Jaroslav Kristof, Eizo Murakami, Kazuo Shimizu
POS-12-308	Plasma Filter Development for Bioaerosol Disinfection in Air Circulating System	<u>Joo Young Park</u> , Ki Ho Baek, Joon-Hwan Choi, Seunghun Lee
POS-12-309	Plasma Technology and equipment for medical waste processing	<u>George Paskalov</u> , Alfred Mosse

May 26, 2023 FRIDAY

Room 1

Oral Presentation

Plenary

Chair: Peter Bruggeman

8:45	Plenary-5	Innovative technology for controlled synthesis of reactive species using gas-liquid interfacial plasmas and its applications	Toshiro Kaneko
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Topics: 11 Plasma medicine and agriculture

Chair: Vandana Miller, Cristiane Yumi Koga-Ito

9:45	5-A-101	Computational Investigation of Mechanisms Leading to Planktonic Cell Death using Touching and Non-touching Atmospheric Pressure Plasma Jets	<u>Jordyn Polito</u> , Mark J. Kushner
10:00	5-A-102	In-plasma activated PBS solution for the treatment of oral squamous cell carcinoma	<u>Parisa Shali</u> , R. Ghobeira, S. Aliakbarshirazi, N. Caz, R. Morent, E. Wolfs, N. De Geyter
10:15	5-A-103	The antiviral effect of non-thermal plasma against herpes simplex virus type 1	<u>Julia Sutter</u> , Rachel Bennett, Jascha Brettschneider, Peter Bruggeman, Brian Wigdahl, Fred C. Krebs, Vandana Miller
10:30	5-A-104	Study of the behavior of the Slime Mold <i>Physarum polycephalum</i> , so called Blob, under Cold Atmospheric Pressure Plasma Jet treatment	<u>Jean-Michel Pouvesle</u> , E. Robert, A. Dussutour

Invited 11 Plasma medicine and agriculture

Chair: Eric Robert, Hiroshi Hashizume

11:15	I-19	Application of Plasma in Rice Crops with AI approaches	<u>Feng Huang</u> , X. Tang, Y. Wang, W. Chen, W. Zhao, J. Guo
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Topics: 11 Plasma medicine and agriculture

Chair: Eric Robert, Hiroshi Hashizume

11:45	5-A-107	Studies on plasma induced bio-chemical reaction inside liquid for biological application	<u>Katsuhisa Kitano</u> , Satoshi Ikawa
12:00	5-A-108	Non-thermal plasma-bubbling system for food decontamination: Identification of reactive species and its bactericidal effect on iceberg lettuce	<u>Amalia Ghaisani Komarudin</u> , Itaru Sotome, Tetsuya Araki

Room 2

Oral Presentation

Topics: 7 Plasma processing of nanomaterials and nanostructures

Chair: Lorenzo Mangolini, Naoto Kodama

9:45	5-A-201	Profile Control in High Aspect Ratio Plasma Etching: Low Frequency and Passivation	Evan Litch, Florian Kruger, <u>Mark J. Kushner</u>
10:00	5-A-202	Interaction of gas aggregation source produced plasma polymer nanoparticles with the substrate upon impact	<u>Pavel Solář</u> , Katerina Škorvánková, Anna Kuzminova, Ondrej Kylián

Invited 7 Plasma processing of nanomaterials and nanostructures

Chair: Lorenzo Mangolini, Naoto Kodama

10:15	I-20	Evaluation of the influence of FC gas structure and composition in high-aspect-ratio SiO ₂ dry etching	<u>Hiroyuki Fukumizu</u> , Noboru Hiwasa, Mitsuhiro Omura, Kazuaki Kurihara
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Topics: 7 Plasma processing of nanomaterials and nanostructures

Chair: Luc Stafford, Osamu Sakai

11:15	5-A-205	Reactive Sputter-Based Synthesis of HfN Nanofluids	Mariia Protsak, Kateryna Biliak, Daniil Nikitin, Pavel Pleskunov, Suren Ali-Ogly, Marco Tosca, Tereza Košutová, Miroslav Cieslar, <u>Andrei Choukourov</u>
11:30	5-A-206	A comparative study on the CF ₄ /H ₂ and HF/H ₂ plasmas for etching of highly hydrogenated SiN films	<u>Shih-Nan Hsiao</u> , Nikolay Britun, Thi-Thuy-Nga Nguyen, Takayoshi Tsutsumi, Kenji Ishikawa, Makoto Sekine, Masaru Hori
11:45	5-A-207	Analysis of misty plasma processes using a new multisource reactor allowing for <i>in plasma</i> surface characterization	<u>Simon Chouteau</u> , Agnes Granier, Mireille Richard-Plouet, Luc Stafford
12:00	5-A-208	Active Plasma Uniformity Control Method: A Novel Meta Material with Photo-reactive Capacitance	<u>SungYoung Yoon</u> , Meehyun Lim, Taekjin Kim, Sunghwi Cho, Jinyeong Yun, Sungyong Lim, Minyeul Lee, Jonghwa Shin, Sungyeol Kim

Invited 3 Fundamentals of atmospheric non-equilibrium plasma**Chair: Ana Sobota, Ryo Ono**

9:45	I-21	Plasma treated water spray: reactors and RONS production	<u>Augusto Stancampiano</u> , Amaury Rouillard, Enrico Tondelli, Sebastien Dozias, Julien Lemaire, Filippo Capelli, Alina Bisag, Pablo Escot Bocanegra, Romolo Laurita, Jean-Michel Pouvesle, Eric Robert
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Topics: 3 Fundamentals of atmospheric non-equilibrium plasma**Chair: Ana Sobota, Ryo Ono**

10:15	5-A-303	Non-oxidative methane conversion using nanosecond pulsed discharges: 2D CFD modelling	<u>Gregory James Smith</u> , Eduardo Morais, Mikhail Gromov, Anton Nikiforov, Annemie Bogaerts
10:30	5-A-304	Aluminum oxidation in Ar-O ₂ dielectric-barrier discharges and -post-discharges - the roles of atomic oxygen and 9.8-eV photons	<u>Meret Leonie Betz</u> , Lars Bröcker, Antje Jung, Vitaly Raev, Ralf Bandorf, Holger Gerdes, Claus-Peter Klages

Topics: 3 Fundamentals of atmospheric non-equilibrium plasma**Chair: Masaaki Okubo, Keiichiro Urabe**

11:15	5-A-305	Plasma-substrate interaction in a dual frequency APPJ	<u>Alessandro Patelli</u> , Silvia Scaltriti, Arturo Popoli, Emilio Martines, Andrea Cristofolini
11:30	5-A-306	Consideration on heat generation by catalytic reaction of platinum plate	<u>Hiroto Matsuura</u> , Takumi Nakano

Invited 3 Fundamentals of atmospheric non-equilibrium plasma**Chair: Masaaki Okubo, Keiichiro Urabe**

11:45	I-22	Control of electron heating and plasma chemistry in atmospheric pressure radio frequency plasma jets	<u>Julian Schulze</u> , Mate Vass, David Schulenberg, Ihor Korolov, Zoltan Donko, Thomas Mussenbrock
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Yue Yuan	POS-11-116		
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Seongsik Yun	POS-12-107		
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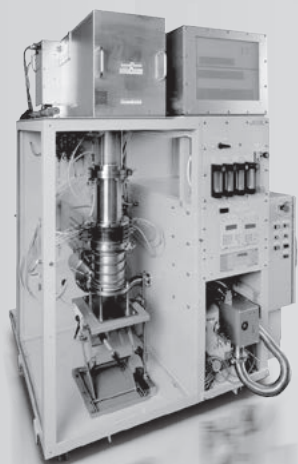
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Michael Zachariah	POS-7-219
Pegah Zahedifar	POS-8-314
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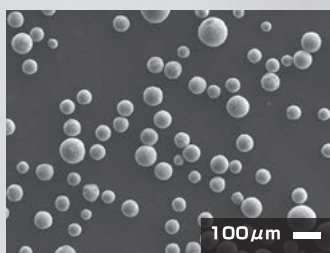


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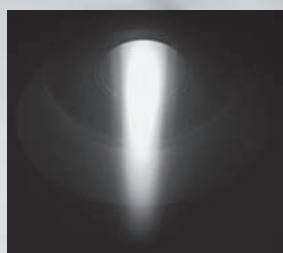
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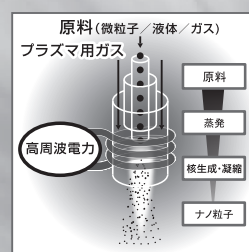
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- 微粒子の球状化や表面改質
- 厚膜合成、減圧溶射、CVD



金属粉末の球状化例

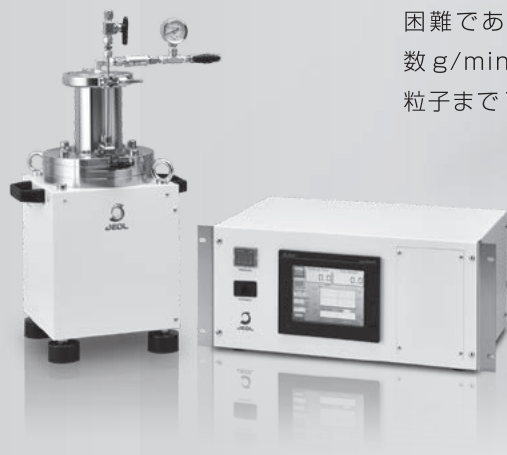


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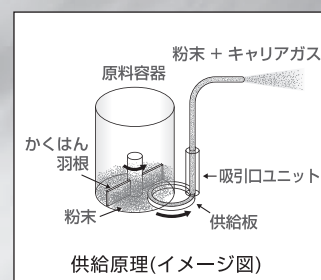
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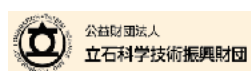
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This program is supported by a subsidy from
Kyoto City and the Kyoto Convention & Visitors Bureau.



ISBN 978-4-900986-25-1

25th
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