6th international conference on plasma medicine

Bratislava, Slovakia
September 4–9, 2016

icpm6

CONFERENCE PROGRAM

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Title: 6th International Conference on Plasma Medicine (ICPM-6), Bratislava, Slovakia
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Editors: K. Hensel, B. Tarabová, K. Kučerová, Z. Kovaľová, M. Janda, and Z. Machala
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WELCOME

Dear colleagues and members of the ISPM,

On behalf of the International Society for Plasma Medicine (ISPM), and the local organizing committee of the Faculty of Mathematics, Physics and Informatics of the Comenius University in Bratislava, we are delighted to welcome you at the **6th International Conference on Plasma Medicine (ICPM-6)**, held in **Bratislava**, **Slovakia**, from **September 4 to 9, 2016**.

Plasma Medicine is a new, rapidly growing field that faces many technological challenges and brings to the forefront fundamental questions on the mechanisms of interaction between living organisms and gas plasmas. The conference creates a multidisciplinary forum bringing together professionals from the fields of plasma physics, medicine, biology, biochemistry, pharmacy, agriculture, and food science and industry, in order to develop a common language, to better define key challenges and open questions, to further development of international collaborations, and to move toward effective solutions.

The ISPM board and international scientific committee invited key experts to introduce this multidisciplinary field and present their recent progress and show the exciting new developments. Besides plenary, we will have two parallel sessions with invited lectures and short oral presentations and three big poster sessions in the afternoons. Plasma Medicine Award (PMA) for lifetime achievements in the field of the plasma medicine will be traditionally handed over during the conference dinner. Also, traditional Young Researcher Presentation Awards (YRPA) will be awarded to young researchers for the most outstanding oral or poster presentation at ICPM-6. Starting this ICPM edition, the ISPM established the new Early Career Award in Plasma Medicine (ECAPM) that will be awarded to early-career researchers who made a significant contribution to the advancement in the field of Plasma Medicine. For the first time, the ICPM is preceded by the Summer School on Plasma Medicine, organized by the previous president of ISPM, Dr. Jean-Michel Pouvesle, and held in Bratislava on September 1-3, 2016.

The following pages will guide you through the detailed rich program of ICPM-6, both scientific and social, including a great selection of conference trips and trips for accompanying persons. This booklet will also provide valuable information on the conference venue and travel information. The abstracts of all contributions can be found in the printed Book of Abstracts, as well as on the USB stick.

Let us thank the ISPM board and all LOC members for helping us in the organization of this conference, the sponsors for their support, and of course all of you, for your active participation. Be very welcome to Bratislava, one of the pearls on the Danube river and quickly developing metropoles in the Central Europe. Please enjoy the ICPM-6 with all the multidisciplinary-scientific, as well as social-collaborative aspects and have a good late-summer time in Bratislava!

Zdenko MACHALA and Karol HENSEL
Chairmen of ICPM-6
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GENERAL INFORMATION

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ICPM-6 Office - Registration Hours

All sessions will be held in FIIT STU building in *Mlynská dolina*. At the venue, please first register at the registration desk situated in the foyer of the FIIT STU building. At the registration, you will receive your conference materials, including personal badge, which gives you access to all offcial activities and events.

Please wear your badge throughout the conference and social events !

The hours of the registration and information desks are as follows:

Sunday (Sep 4)	16:00-20:00	Moyzes hall (registration desk at welcome reception venue)
Monday (Sep 5)	8:30-19:00	FIIT STU (registration desk in the foyer, 0 floor)
Tuesday (Sep 6)	8:30-18:00	FIIT STU (information desk in the lobby, -1 floor)
Wednesday (Sep 7)	8:30-12:00	FIIT STU (information desk in the lobby, -1 floor)
Thursday (Sep 8)	8:30-17:30	FIIT STU (information desk in the lobby, -1 floor)
Friday (Sep 9)	8:30-13:00	FIIT STU (information desk in the lobby, -1 floor)

Internet Access

Wireless LAN environment is available inside the FIIT STU building.
Network name (SSID): **ICPM6**
Password: **FIITicpm2016**
In addition, EDUROAM service is also available.

HISTORY

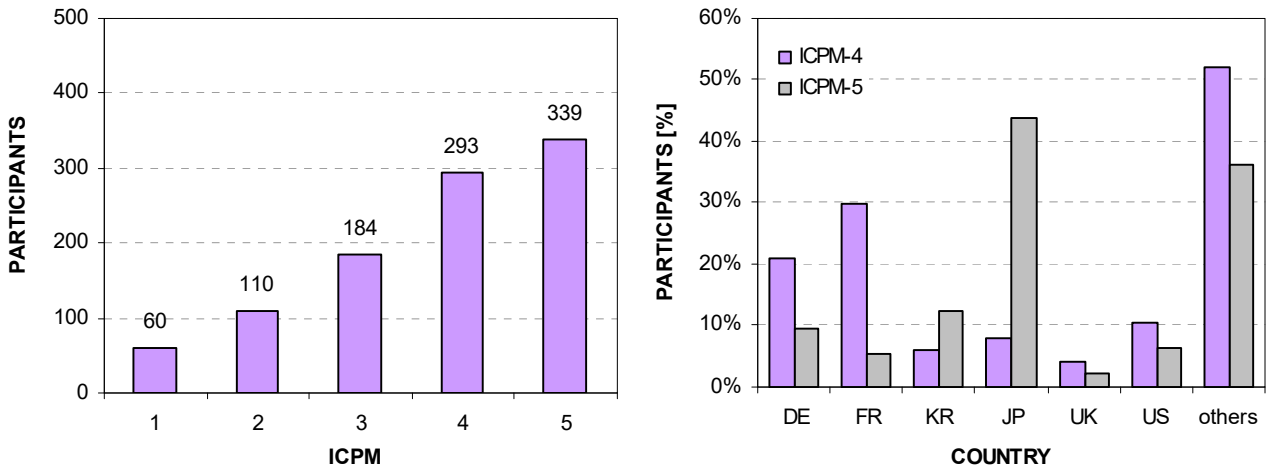
The field of the biomedical applications of gas plasmas was first introduced to the scientific community at the IEEE International Conference on Plasma Science (ICOPS) in the 1990s. Soon after other international plasma conferences including the Gaseous Electronics Conference (GEC), the International Conference on Phenomena in Ionized Gases (ICPIG), and the International Symposium on Plasma Chemistry (ISPC) followed. Along with these conferences, several special issues dedicated to the biomedical plasma applications were published by prominent journals such as IEEE Transactions on Plasma Science, Plasma Processes and Polymers, and Journal of Physics D: Applied Physics. Based on the initial successes of this emerging field, later known as 'plasma medicine', several scientists came together and founded a new conference focused specifically on biomedical applications of plasmas - **The International Conference on Plasma Medicine (ICPM)**.

The first two conferences were organized by A. Fridman and G. Friedman and were held in **Corpus Christi, USA**, in 2007 and **San Antonio, USA** in 2009, respectively. In 2009, a new scientific society 'The International Society for Plasma Medicine (ISPM)' has been formed to support the activities and interests of the growing plasma medicine scientific community. The following two conferences were organized on the European continent - ICPM-3 in 2010 in **Greifswald, DE**, and ICPM-4 in 2012 in **Orleans, FR**. After conferences in America and Europe, the ISPM voted for the next conference to be held in Asia: ICPM-5 was then organized in 2014 in **Nara, JP**.

This sixth conference (ICPM-6) is held in Europe again, this time not in its western, but rather the very central part - in **Bratislava, Slovakia**.

ICPM	Place	Dates	Organizer
1	Corpus Christi, Texas	October 15-18, 2007	A. Fridman and G. Friedman
2	San Antonio, Texas	March 16-20, 2009	A. Fridman and G. Friedman
3	Greifswald, Germany	September 19-24, 2010	K.-D. Weltmann and M. Juenger
4	Orleans, France	June 17-21, 2012	J.-M. Pouvesle and E. Robert
5	Nara, Japan	May 18-23, 2014	S. Hamaguchi
6	Bratislava, Slovakia	September 4-9, 2016	Z. Machala and K. Hensel

General information of all previous ICPM conferences



Number of participants of the ICPM conferences, with details of the two previous ICPMs.

ORGANIZERS

Organizing Institutions and Societies

International Society for Plasma Medicine (ISPM) .....plasmamedizin.com
Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava ..... www.fmph.uniba.sk
Division of Environmental Physics, Comenius University, Bratislava..... enviro.fmph.uniba.sk
Society for Plasma Research and Applications (SPVAP) ..... www.spvap.eu

Local Organizing Committee

Zdenko MACHALA
chairman

Karol HENSEL
vice-chairman

Mário JANDA
secretary

Zuzana KOVAĽOVÁ
scientific manager

Barbora TARABOVÁ
scientific manager

Katarína KUČEROVÁ
scientific manager

Viera BORĐOY
project manager

ISPM Board (International Committee)

Farzi AREFI-KHONSARI
FRANCE

Eun Ha CHOI
SOUTH KOREA

Vittorio COLOMBO
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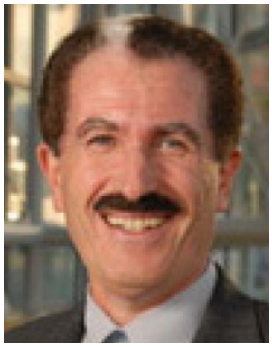
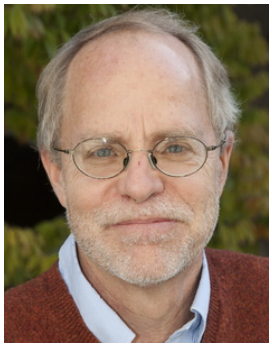
Svetlana ERMOLAEVA
RUSSIA

Theresa FREEMAN
USA

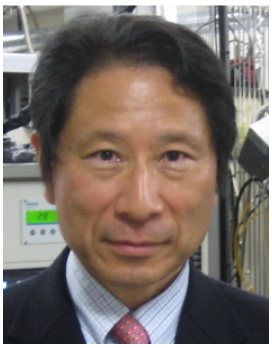


Alexander FRIDMAN
USA



David GRAVES
USA

Satoshi HAMAGUCHI
JAPAN



Masaru HORI
JAPAN

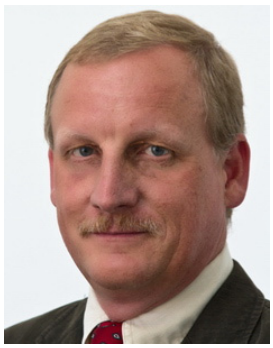
Gerrit KROESEN
NETHERLANDS

Zdenko MACHALA
SLOVAKIA

Jean-Michel POUVESLE
FRANCE

Eric ROBERT
FRANCE

Klaus Dieter WELTMANN
GERMANY



Thomas von WOEDTKE
GERMANY

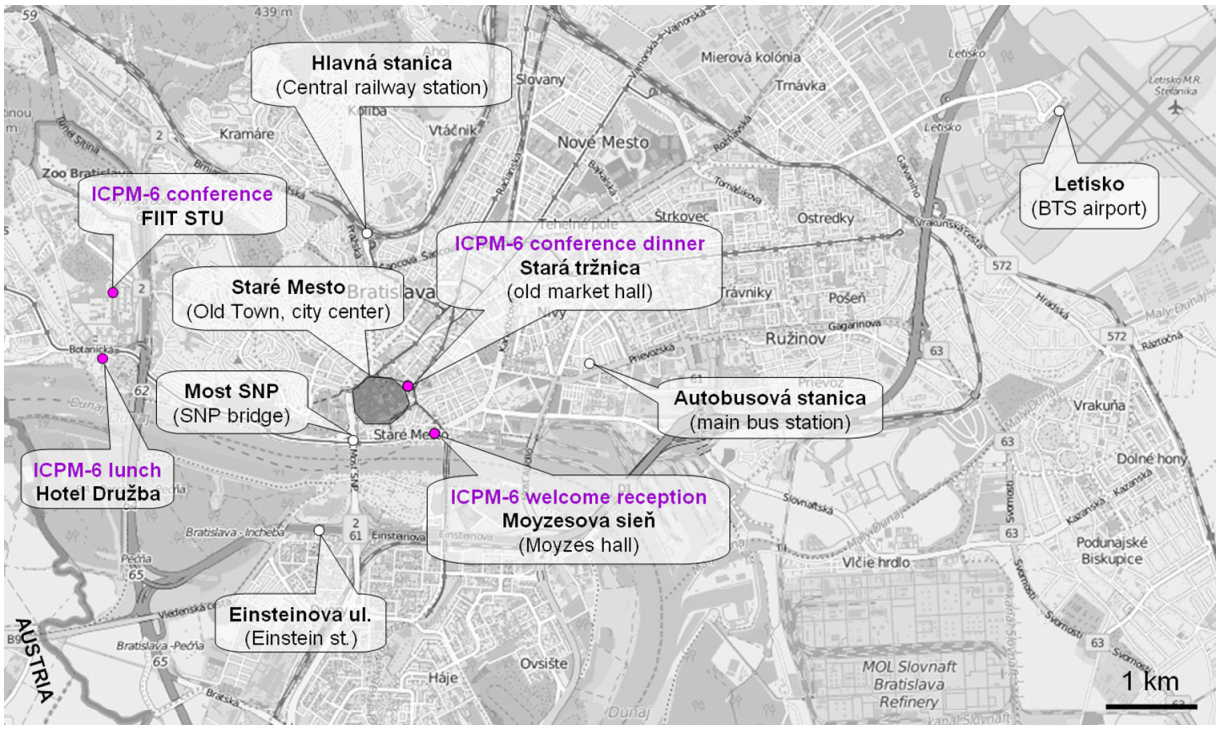
Sponsors and Exhibitors

Hiden Analytical ..... www.hidenanalytical.com
Springer ..... www.springer.com
Journal of Physics D: Applied Physics ..... www.iopscience.org/jphysd
AlmaPlasma Srl. ..... www.almaplasma.com
Wiley ..... eu.wiley.com
Biointerphases ..... www.biointerphases.org
Clinical Plasma Medicine ..... www.journals.elsevier.com/clinical-plasma-medicine
Trek Inc. ..... www.trekinc.com

VENUE

Bratislava

Bratislava is the capital of Slovakia and, with a population of about 500,000, the country's largest city. It is located in southwestern Slovakia, occupying both banks of the River Danube and the left bank of the River Morava. Bordering Austria and Hungary, it is the only national capital that borders two independent countries. Bratislava is the political, cultural and economic centre of Slovakia.



The map of Bratislava with all important points of interest

Points of Interest and Useful Waypoints

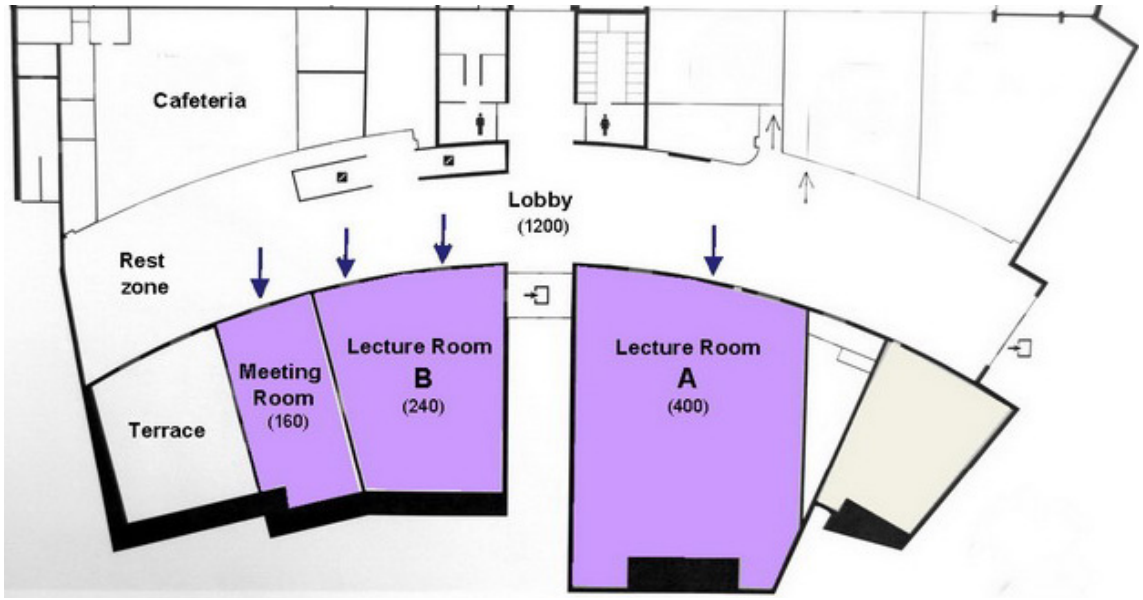
ICPM-6 conference venue (FIIT, Slovak Technical University) ..... N 48° 09.220 E 17° 04.308
ICPM-6 lunches (Hotel Družba) ..... N 48° 08.861 E 17° 04.207
ICPM-6 welcome reception (Moyzesova sieň) ..... N 48° 08.446 E 17° 06.951
ICPM-6 conference dinner (Stará tržnica) ..... N 48° 08.685 E 17° 06.682

City center – Old Town (Staré Mesto) ..... N 48° 08.612 E 17° 06.507
Central railway station (Hlavná stanica) ..... N 48° 09.508 E 17° 06.363
Main bus station (Autobusová stanica) ..... N 48° 08.828 E 17° 07.636
Airport Bratislava (Letisko M. R. Štefánika, BTS) ..... N 48° 10.191 E 17° 12.008

Conference Venue

The conference will be organized in the joint campus of Comenius University (CU) and Slovak University of Technology (STU) in *Mlynská dolina.* The conference lectures and poster sessions will take place at the Faculty of Informatics and Information Technologies (FIIT STU), while technical and personal assistance will be provided exclusively by the Faculty of Mathematics, Physics and Informatics (FMFI).

The building and the lobby of FIIT STU, the ICPM-6 venue

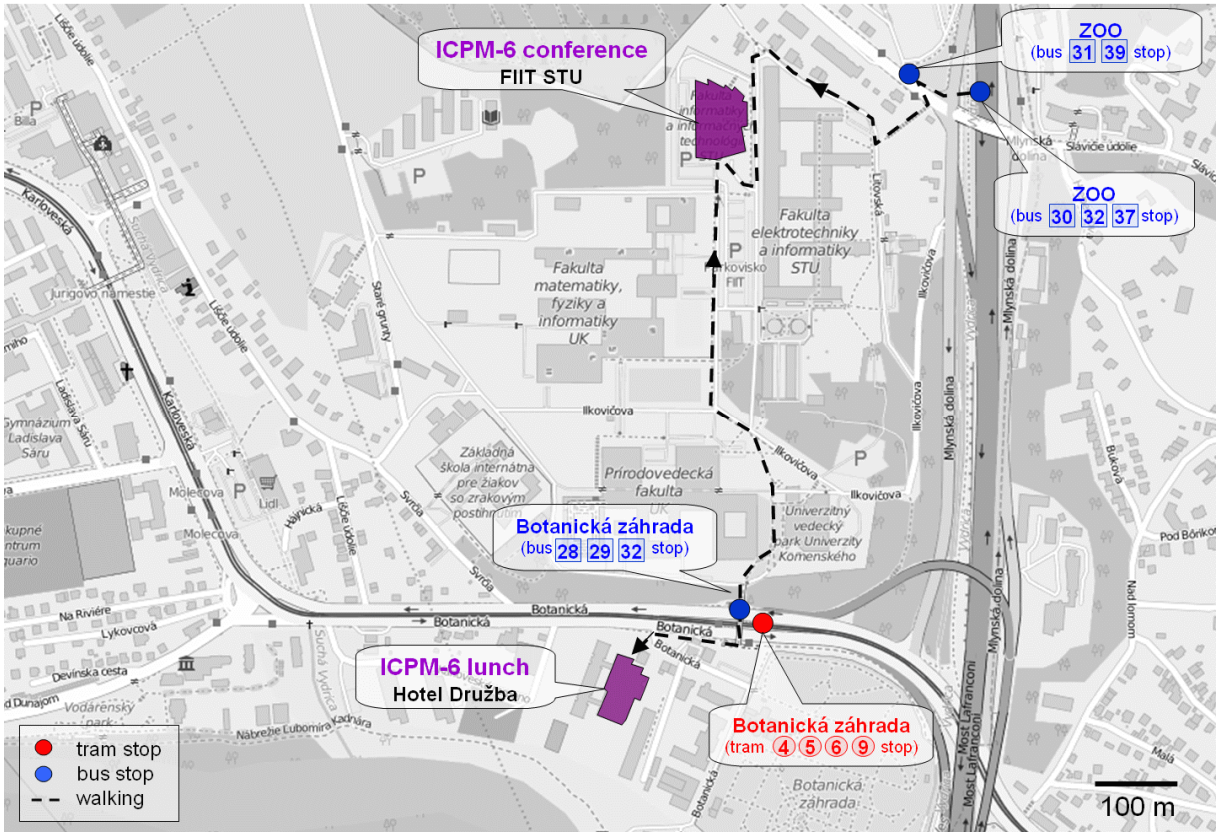


The layout of the FIIT building

Traveling toward the ICPM-6 venue in *Mlynská dolina* by tram (no. 4, 5 ,6, 9) or bus (no. 28, 29, 32) get off at the stop *Botanická záhrada* (Botanical garden). You can also travel by bus (no. 30, 31, 32, 37, 39) and get off at the stop *ZOO.* Then take a short walk (10 minutes) toward the FIIT STU building as indicated on the map on the next page.

Bratislava has public transport system of buses, trams and trolleybuses, which convey at regular intervals according to pre-defined timetables. Most of the line stops of the public transport are comprehensively marked including the name of the stop, and the timetable with a list of all its destinations. If you want to plan your journey in Bratislava city, we recommend you to do it via **www.imhd.sk** website. You can find schedules of all city buses, trams and trolleybuses here as well as transport map and many other valuable information.

The search result will indicate you what bus/tram number(s) to take, the duration of the journey and the price of the travel ticket. Basic travel ticket valid for **15 minutes** costs **0.70 €**, the ticket valid for **30 minutes** costs **0.90 €**. You can buy a travel ticket in yellow coin-operated machines that are usually located at each bus/tram stop. You cannot buy the ticket from the bus driver. You must mark the ticket immediately after getting on the tram/bus in the nearest ticket marker devices located inside the vehicle by every door. No student discounts are possible for foreign students.



The map of ICPM-6 conference and lunch venues with the nearest tram/bus stops

Conference Lunches

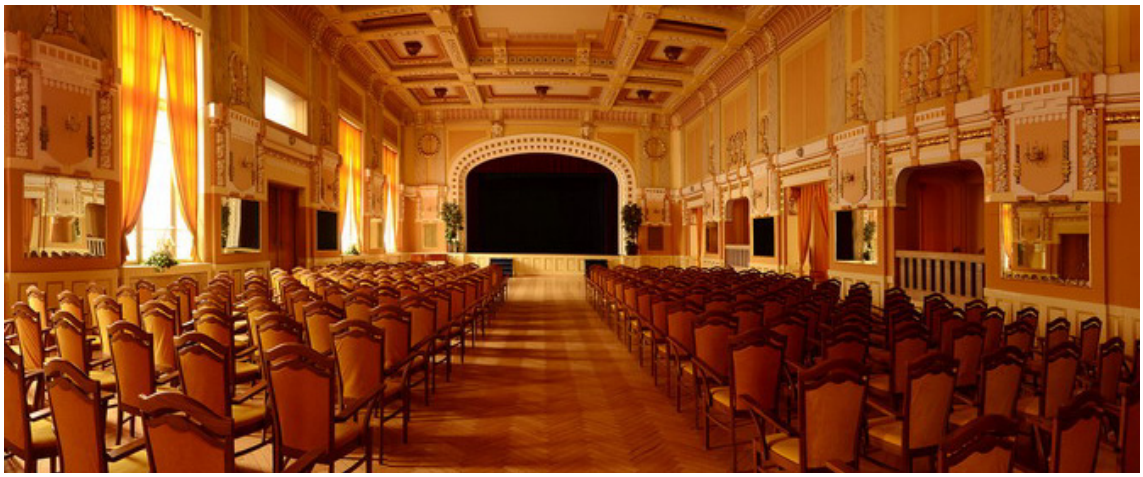
Lunches from Monday (Set 5) to Thursday (Sep 8) are provided and included in the registration of all ICPM-6 participants, except for accompanying persons (who can purchase lunches upon request at the registration desk). The lunches will be served at *Hotel Družba* cafeteria from 12:45-13:50 on Monday, Tuesday and Thursday, and 12:15–13:20 on Wednesday before the conference trip. *Hotel Družba* is located about 10 min walking distance from the ICPM-6 venue, next to *Botanická* tram/bus stop. Lunch on Friday (Sep 9) will be served directly at the ICPM-6 venue (FIIT STU building) after the closing ceremony.

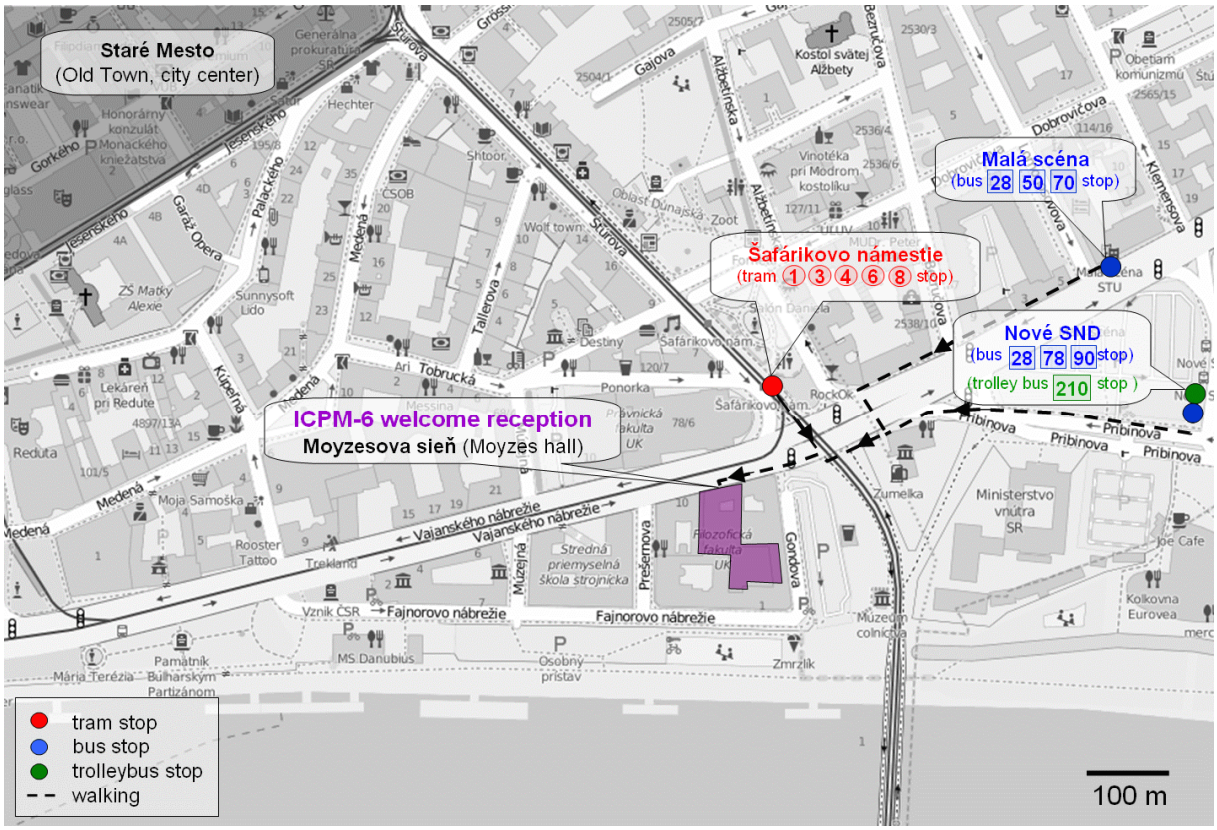
Entrance to the Hotel Družba cafeteria

Welcome Reception

The ICPM-6 welcome reception will be held in *Moyzesova sieň* (Moyzes Hall), a large representative building on the Danube bank that belongs to Comenius University in Bratislava. Designed by Vienna architect Josef Rittner in the early 20th century, the representative hall is nowadays used for classical music concerts, various academic purposes and other public events. The richly decorated Art Nouveau Moyzes Hall is named after the Slovak composer Alexander Moyzes (1906-1984).

To reach the welcome reception by bus, tram or trolleybus, plan your journey via **www.imhd.sk** website. The nearest stops to the reception venue are *Šafárikovo námestie*, *Malá scéna* or *Nové SND* (see the map on the next page). For those who come directly from Vienna airport: To reach the venue from *Most SNP* (SNP bridge) where most of Vienna airport buses stop, take tram 4 or 6 direction east to *Šafárikovo námestie* (1 stop), or walk about 10 min along the Danube river. To reach the venue from the *Autobusová stanica* (main bus station) take bus 70 to *Malá Scéna* stop (2 stops) or trolleybus 210 to *Nové SND* stop (2 stops).



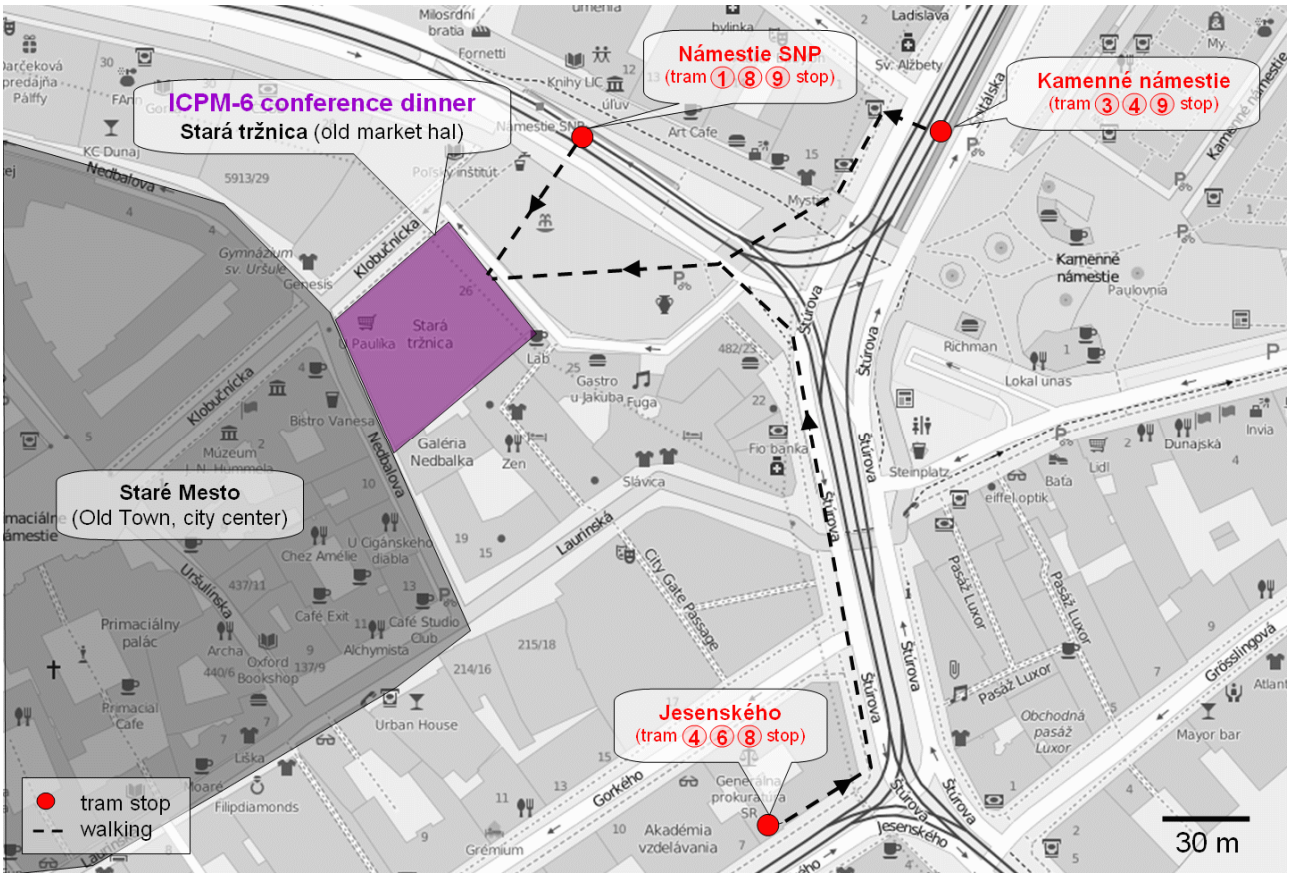


The map of ICPM-6 welcome reception venue with the nearest tram/bus/trolleybus stops

Conference Dinner

The conference dinner will be held in Stará tržnica (Old Market Hall), a large technical building in the very city center. The building was designed by the city engineer Gyula Laubner and its construction was completed in 1910. It served as the City Market for more than 50 years. Between 1960-1982 it served as a television studio building and later the building belonged to the Ministry of Culture. In 1990 the hall was reconstructed to its original architectural form. It currently serves as a meeting point, offering food markets every Saturday and cultural events on other days. Apart from being a market place, the Old Market Hall also hosts various cultural and social events, concerts, performances, exhibitions, festivals, fashion walks and many more.

To reach conference dinner by bus, tram or trolleybus, plan your journey via **www.imhd.sk** website. The nearest stops to the reception venue are *Námestie SNP*, *Kamenné námestie* or *Jesenského* (see the map on the next page). For those who come directly from the ICPM-6 conference venue, take tram 4 or 9 from *Botanická záhrada* to *Kamenné námestie* (6 or 4 stops).



The map of ICPM-6 conference dinner with the nearest tram/bus stops

FEES

The ICPM-6 registration fee covers the major costs of the conference organization. It covers access to all conference sessions, exhibitions, welcome reception, coffee breaks and lunches. During the registration each participants will receive a conference bag containing conference program, book of abstracts, notepad, pen, city guide, and various information materials. The fee also includes the ISPM membership for the next 2-year period and basic conference trips (some trips will require an additional fee). The registration fee is also used to support participation of invited speakers and students, as well as participants from developing countries and economies in transition.

Regular registration fees:

regular participant (academia and research institutions) ..... 550 €
regular participant (industry and private) ..... 650 €
students (student ID required) ..... 300 €

Special fees

partners and exhibitors ..... determined individually
accompanying person* ..... 50 €
conference dinner ..... 50 €

*Fee includes welcome cocktail and the basic conference trip, some conference trips require additional fees. The fees for optional companion program are specified on p. 54-55.

CONFERENCE PROGRAM

Topics

1. Medical treatment with plasmas
2. Plasma-cell and plasma-tissue interactions, biological reactions
3. Plasma-based sterilization/decontamination
4. Agricultural and food applications of plasmas
5. Pharmaceutical applications and biochemical/biomolecular engineering with plasmas
6. Plasma-surface interactions and surface functionalizations for biomedical applications
7. Fundamentals of atmospheric plasmas
8. Plasma sources for biomedical applications
9. Plasma and liquid diagnostics and sensors
10. Modeling and numerical simulations

Presentation Guidelines

The conference program is composed of plenary and invited lectures, oral presentations and of three poster sessions. The length of the plenary and invited lectures, and oral presentations are as follows:

Plenary lecture: 45 min (35 minutes for lecture + 10 minutes for questions and discussion)
Invited lecture: 30 min (25 minutes for lecture + 5 minutes for questions and discussion)
Oral presentation: 15 min (12 minutes for presentation + 3 minutes for questions and discussion)

All plenary and invited lectures, and oral presentations should be prepared and presented in Microsoft PowerPoint (ppt) or Adobe Acrobat (pdf) format. The presentations should preferably be uploaded on the computers in the corresponding lecture rooms in the morning of the same day the presentation is given, at the latest during the coffee or lunch break before the sessions starts. Those who wish to test their talk (especially movies etc.) please contact the ICPM-6 LOC in advance.

Plenary lectures
These lectures are supposed to be quite introductory and as educative as possible to the newcomers in the field and people from different backgrounds (especially fundamental plasma phenomena to biologists /medical doctors and vice versa fundamental biology/medicine to physicists). These lectures are not focused solely on presenter's own results but frame them in much broader context and development of the field.

Poster sessions
Posters will be organized in three poster sessions and will be displayed in the lobby in front of the lecture rooms. The poster numbers listed in the Conference Program booklet and in the Book of Abstracts will be attached to the poster panels. The authors are requested to be present at their posters during the poster sessions. Materials for poster mounting will be available on the poster board. The preferable size for preparing the poster is **A0 (portrait format: 84.1 cm (w) x 118.4 cm (h)).** Posters are requested to be removed by the presenters right after each poster session. The organizers take no responsibility for leftover posters.

Plenary and invited lecture code: P/I- [lecture number]
Oral presentation code: O-[presenation number]
Poster code: P[session number]-[poster number]-[topic]
YRPA = nominated for The Young Researcher Presentation Awards (YRPA)

Plenary Lectures

P-1 **Shinya TOYOKUNI** (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Insight into chemical mechanism in plasma medicine from viewpoints of oxidative stress

P-2 **Jürgen KOLB** (INP Greifswald, Greifswald, GERMANY)
Cell to cell communication affected by electric pulses and plasmas

P-3 **Robert SHORT** (University of South Australia, Adelaide, AUSTRALIA)
Opportunities for plasma technologies in cell therapy and wound healing

P-4 **Matteo GHERARDI** (University of Bologna, Bologna, ITALY)
Plasma treatment in dentistry

P-5 **Vandana MILLER** (Drexel University, Camden, NJ, USA)
Plasma onco-immunotherapy: The future of cancer treatment?

Invited Lectures

I-1 **Peter CELEC** (Comenius University, Bratislava, SLOVAKIA)
Oxidative stress - sources, consequences and its role in the pathogenesis of diseases

I-2 **Natalie CHERNETS** YRPA (Thomas Jefferson University Hospitals, Philadelphia, PA, USA)
Deciphering plasma/tissue interactions to develop appropriate medical treatments

I-3 **Hiromasa TANAKA** (Nagoya University, Nagoya, JAPAN)
Plasma-activated medium and cancer

I-4 **Ali MESBAH** (University of California, Berkeley, CA USA)
Model predictive control of atmospheric pressure plasmas

I-5 **Sylvain ISÉNI** (University of Orléans, Orléans, FRANCE)
Electric field characterization of plasma gun and multi-jet plasma arrays

I-6 **Mounir LAROUSSI** (Old Dominion University, Norfolk, VA, USA)
Low temperature plasma jets and their interactions with biological cells and media

I-7 **Deborah O'CONNELL** (University of York, York, UNITED KINGDOM)
Characterising a COST reference microplasma jet for biomedical applications

I-8 **Mark J. JAROSZESKI** (University of South Florida, Tampa, FL, USA)
Plasmid DNA delivery using a nonthermal He plasma in a murine model

I-9 **Christian OPLÄNDER** (Heinrich Heine University, Düsseldorf, GERMANY)
Effects of cold plasma on human skin and skin cells
post-deadline update: *will be presented as oral presentation by co-author* ***Julian Balzer***

I-10 **Kai MASUR** (INP Greifswald, Greifswald, GERMANY)
Cold plasma mediated influence on cellular redox balance to support wound healing

I-11 **Paola BRUN** (University of Padova, Padova, ITALY)
Mechanisms of wound healing and disinfection in a plasma source for the treatment of corneal infections

I-12 **Kazuo SHIMIZU** (University of Shizuoka, Hamamatsu, JAPAN)
Feasibility study of plasma drug delivery for improving precutaneous absorption of skin

I-13 **Paula BOURKE** (Dublin Institute of Technology, Dublin, IRELAND)
Potential of atmospheric cold plasma for food preservation and processing

I-14 **Nevena PUAČ** (University of Belgrade, Belgrade, SERBIA)
Plasma treatment in seed germination

I-15 **Brendan NIEMIRA** (USDA-ARS Eastern Regional Research Center, Wyndmoor, PA, USA)
Cold plasma as a novel intervention against food-borne pathogens

I-16 **Petr LUKEŠ** (Czech Academy of Sciences, Prague, CZECHIA)
Diagnostics of reaction kinetics in air plasma treated liquids

I-17 **Shoko NISHIHARA** (Soka University, Tokyo, JAPAN)
Atmospheric-pressure plasma irradiation on embryonic stem cells: signals and differentiation

I-18 **Kostya OSTRIKOV** (CSIRO, West Lindfield, AUSTRALIA)
Plasma, cell and cancer

I-19 **Pietro FAVIA** (University of Bari, Bari, ITALY)
Surface modification plasma processes for advanced biomedical applications

I-20 **Hynek BIEDERMAN** (Charles University, Prague, CZECHIA)
Plasma surface modification for biomedical applications

I-21 **Gregor SERŠA** (Institute of Oncology, Ljubljana, SLOVENIA)
Anti-vascular effects of electroporation - implications for electrochemotherapy and gene therapy

I-22 **Lluis MIR,** Institute Gustave-Roussy, Villejuif, FRANCE
Pulsed electric field effects on cells and associated cancer treatments

I-23 **Brendan GILMORE** (Queen's University, Belfast, UNITED KINGDOM)
Controlling bacterial biofilm and virulence using non thermal plasmas

I-24 **Jean-Yves MAILLARD** (Cardiff University, Cardiff, UNITED KINGDOM)
Bacterial spore structures and their protective role in biocide resistance

I-25 **Katsuhisa KITANO** (Osaka University, Osaka, JAPAN)
Identification of chemical species for bactericidal effects of cryo-preserved plasma treated water

I-26 **Elena SYSOLYATINA** (Gamaleya Research Institute, Moscow, RUSSIA)
Cold plasma against mycoplasma, a cell-wall-deficient membrane parasite of eukaryotic cells

I-27 **Nagendra KAUSHIK** (Kwangwoon University, Seoul, SOUTH KOREA)
Immuno-modulatory effect of bio-plasma and its application in cancer treatment

I-28 **Jan BENEDIKT** (Ruhr University, Bochum, GERMANY)
Molecular beam mass spectrometry and vacuum UV-spectroscopy of atmospheric pressure plasmas

I-29 **George NAIDIS** (Russian Academy of Sciences, Moscow, RUSSIA)
Production of reactive species in cold atmospheric-pressure plasma jets

Oral Presentations

O-1 **David GRAVES** (University of California, Berkeley, CA, USA)
Biological effects of cold atmospheric plasma: Current status

O-2 **Pietro RANIERI** YRPA (Drexel University, Camden, NJ, USA)
Propagation of plasma effects into tissue: Cell-to-cell signaling or direct ROS effects?

O-3 **Ryugo TERO** (Toyohashi University of Technology, Toyohashi, JAPAN)
Degeneration of artificial cell membranes induced by plasma-generated reactive oxygen species

O-4 **Kristian WENDE** (INP Greifswald, Greifswald, GERMANY)
On the chemistry of remote effects of non-thermal plasmas

O-5 **Ilaria TRIZIO** YRPA (University of Bari, Bari, ITALY)
DBD-generated RONS in biological liquids for 2D and 3D *in vitro* studies on eukaryotic cells

O-6 **Sander BEKESCHUS** YRPA (INP Greifswald, Greifswald, GERMANY)
Cold physical plasma-treated medium demonstrates antitumor activity against pancreatic cancer cells *in vitro* and *in vivo*

O-7 **Julie CHAUVIN** (Paul Sabatier University, Toulouse, FRANCE)
Investigation of cell death mechanisms of 3D multicellular tumor spheroids (MCTS) after contact with a plasma activated medium

O-8 **Kenji ISHIKAWA** (Nagoya University, Nagoya, JAPAN)
Metabolic profiles on glioblastoma (U251SP) modified in plasma-activated medium (PAM) cultivation

O-9 **Ryo FURUTA** YRPA (Nagoya University, Nagoya, JAPAN)
Dynamic behavior of HeLa cells in plasma-activated medium

O-10 **Pierre-Marie GIRARD** (Paris-Sud University, Orsay, FRANCE)
Synergistic effect of H_2O_2 and NO_2 in cell death induced by cold atmospheric He plasma

O-11 **Eun Ha CHOI** (Kwangwoon University, Seoul, SOUTH KOREA)
Plasma activated water induced the activation of FOXO3 signaling caused cell death of squamous (A349) carcinoma

O-12 **Jörn WINTER** (INP Greifswald, Greifswald, GERMANY)
Challenges and solutions on the way to a deployable plasma endoscope

O-13 **Kerstin HORN** (INNOVENT e.V., Jena, GERMANY)
Screening test of a new pulsed mini-plasma-jet for medical application

O-14 **Toshihiro TAKAMATSU** YRPA (Kobe University, Kobe, JAPAN)
Development of atmospheric non-thermal plasma sources created by 3D printer for medical application

O-15 **Mário JANDA** (Comenius University, Bratislava, SLOVAKIA)
Antimicrobial NOx generated by transient spark in atmospheric dry air and air with water electrospray

O-16 **Thibault DARNY** (University of Orleans, Orleans, FRANCE)
Conductive target influence on helium metastable production in a µs plasma gun discharge

O-17 **Giovanni BUSCO** (University of Orleans, Orleans, FRANCE)
Study of chemico-physical properties of a He plasma gun in the context of skin physioxia for cosmetical applications

O-18 **Tetsuji SHIMIZU** (Terraplasma GmbH, Garching, GERMANY)
Surface micro-discharge plasma for disinfection

O-19 **Takehiko SATO** (Tohoku University, Sendai, JAPAN)
Development of small sterilization device using LT plasma flow at atmospheric pressure

O-20 **Olga STEPANOVA** YRPA (Saint Petersburg State University, Saint Petersburg, RUSSIA)
Bactericidal action of DBD plasma jet in helium at varying average discharge power

O-21 **Masafumi JINNO** (Ehime University, Matsuyama, JAPAN)
Synergistic effect between electrical and chemical factors in plasma gene transfection

O-22 **Yoko YAMANISHI** (Kyushu University, Fukuoka, JAPAN)
Gene transfer by circulating plasma-bubble flow

O-23 **Uroš CVELBAR** (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Safety level of atmospheric pressure jet skin treatment

O-24 **Emilio MARTINES** (Consorzio RFX, Padova, ITALY)
Plasma treatment of sheep skin wounds in veterinary medicine

O-25 **Yuzuru IKEHARA** (AIST, Tsukuba, JAPAN)
Mechanism of blood coagulation induced by plasma treatment in addition to the acceleration of the natural blood coagulation process

O-26 **Mark JACOFSKY** (Plasmology4, Scottsdale, AZ, USA)
Hemostasis with tissue preservation using the Plaz4™ atmospheric pressure plasma jet *in vivo*

O-27 **Michael Gangyu KONG** (Xi'an Jiaotong University, Xi'an, CHINA)
An evaluation of a CAP-based treatment of psoriasis

O-28 **Sameer KALGHATGI** YRPA (EP Technologies LLC, Akron, OH, USA)
Non-thermal DBD plasma for enhancing intracellular DNA delivery

O-29 **Gregory FRIDMAN** (Drexel University, Camden, NJ USA)
Non-equilibrium gliding arc discharge plasma-activated water in plasma agriculture: Pathogen control

O-30 **Dongping LIU** YRPA (Dalian Nationalities University, Dalian, CHINA)
Atmospheric-pressure air microplasmas for agricultural applications

O-31 **Kyoung Suk OH** (National Fusion Research Institute, Gunsan, SOUTH KOREA)
Effect for the GABA accumulation of brown rice using the plasma and the plasma discharged water

O-32 **Stanislav KYZEK** YRPA (Comenius University, Bratislava, SLOVAKIA)
Monitoring of the potential genotoxic effect of low temperature plasma in pea seeds

O-33 **Thomas von WOEDTKE** (INP Greifswald, Greifswald, GERMANY)
The redox potential in liquids as possible parameter to estimate and compare biological plasma effects

O-34 **Fanny GIRARD** YRPA (University of Pau, Pau, FRANCE)
Combining spectro-electrochemical methods to characterize the RONS generated in physiological buffer exposed to diffuse cold atmospheric plasmas

O-35 **Helena JABLONOWSKI** YRPA (INP Greifswald, Greifswald, GERMANY)
Plasma induced reactive oxygen species in biorelevant liquids: different species have various origins

O-36 **Barbora TARABOVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Challenges of RONS detection in air plasma activated solutions by colorimetric and fluorescent based assays

O-37 **Daniela BOEHM** (Dublin Institute of Technology, Dublin, IRELAND)
Plasma activated liquids show distinct biocidal effects between microbial and mammalian cells

O-38 **Endre SZILI** (University of South Australia, Adelaide, AUSTRALIA)
Effect of sparging in plasma medicine

O-39 **Theresa FREEMAN** (Thomas Jefferson University, Philadelphia, PA, USA)
Tissue growth, repair and regeneration due to ASK1 inhibition is further enhanced by cold atmospheric dielectric barrier discharge treatment

O-40 **Shota SASAKI** YRPA (Tohoku University, Sendai, JAPAN)
Interaction between plasma-activated calcium ion channel and uptake of drug-simulated molecule

O-41 **Oleg LUNOV** YRPA (Czech Academy of Sciences, Prague, CZECHIA)
Towards the understanding of non-thermal plasma effects on bacteria and mammalian cells

O-42 **Augusto STANCAMPIANO** YRPA (University of Bologna, Bologna, ITALY)
Effect of cold atmospheric plasma on human papillomavirus type 16 infected keratinocytes

O-43 **Alibi BAITUKHA** YRPA (University of Pierre and Marie Curie, Paris, FRANCE)
Carboplatin drug delivery systems prepared by catalyst free PECVD reactor for biomedical application

O-44 **Michael R. WERTHEIMER** (Polytechnique Montreal, Montreal, CANADA)
Chemical aspects of endothelial cell adhesion and growth for vascular grafts

O-45 **Anna LIGUORI** YRPA (University of Bologna, Bologna, ITALY)
Non-equilibrium atmospheric pressure plasma technology for anti-CD 10 antibody immobilization on PLLA nanofibres

O-46 **Farzaneh AREFI-KHONSARI** (University of Pierre and Marie Curie, Paris, FRANCE)
Deposition of thin films using a transporting discharge at atmospheric pressure

O-47 **Lukasz JABLONOWSKI** YRPA (University of Greifswald, Greifswald, GERMANY)
Atmospheric pressure plasma application in the oral cavity: Short term experiments in mice

O-48 **Bruno HONNORAT** (University of Pierre and Marie Curie, Paris, FRANCE)
Therapeutic effect of cold atmospheric plasma on oral cavity squamous cell carcinomas

O-49 **Hans-Robert METELMANN** (University of Greifswald, Greifswald, GERMANY)
Cancer treatment and physical plasma: A clinical phase-I-study concept and first results

O-50 **Kazue MIZUNO** YRPA (Stanford University, Stanford, CA, USA)
Nanosecond pulsed streamer discharge delayed the tumor growth at unirradiated sites *in vivo*

O-51 **Michael KEIDAR** (George Washington University, Washington, DC, USA)
Toward understanding the selective anti-cancer capacity of cold atmospheric plasma - an aquaporins-based model

O-52 **Nobuyuki SHIMIZU** (International University of Health and Welfare, Tokyo, JAPAN)
Systematization of the mechanism by which plasma irradiation causes cell growth and tumor cell death

O-53 **Ionuţ TOPALĂ** (Alexandru Ioan Cuza University, Iaşi, ROMANIA)
Viability and cell biology for HeLa and VERO cells after exposure to low temperature air DBD plasma

O-54 **Cristina CANAL** (Polytechnic University of Catalonia, Barcelona, SPAIN)
Atmospheric pressure plasma jet selectivity towards bone cancer

O-55 **Sybille HASSE** (INP Greifswald, Greifswald, GERMANY)
Cold argon plasma as an adjuvant therapy option in progressive head and neck cancer - results of a preclinical study

O-56 **Anne MAI-PROCHNOW** (CSIRO, Lindfield, AUSTRALIA)
Cold plasma treatment of single- and mixed-species biofilms

O-57 **Zuzana KOVAĽOVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Biofilm thickness and biomass reduction after treatment with DC air corona discharges

O-58 **Joanna PAWŁAT** (Lublin University of Technology, Lublin, POLAND)
Comparison of RONS generation and biodecontamination by atmospheric pressure plasma sources: Transient spark, mini glide-arc and dielectric barrier discharge jet

O-59 **Andrea COCHIS** (University of Eastern Piedmont, Novara, ITALY)
Effective decontamination of soft reline-based oral cancer shutters by means of non-thermal atmospheric plasma

O-60 **Utku Kürşat ERCAN** YRPA (İzmir Kâtip Çelebi University, İzmir, TURKEY)
Evaluation of antimicrobial activity of nebulized plasma-treated liquids for control of ventilator associated pneumonia

O-61 **Katrin RÖDDER** (INP Greifswald, Greifswald, GERMANY)
Cold plasma treatment of murine cancer cells triggers immunogenic responses in splenocytes *ex vivo*

O-62 **Yosky KATAOKA** (RIKEN, Kobe, JAPAN)
Effect of atmospheric-pressure plasma irradiation on the central nervous system of adult rats

O-63 **Julia BANDOW** (Ruhr University, Bochum, GERMANY)
Plasma-based inactivation of proteins

O-64 **Jan-Wilm LACKMANN** YRPA (Ruhr University, Bochum, GERMANY)
Cysteine as a model for comparing the impact of plasmas on biological samples

O-65 **Ji Hoon PARK** YRPA (Kwangwoon University, Seoul, SOUTH KOREA)
Effect of cold atmospheric plasma and nanosecond pulsed plasma on protein folding and deactivation of drug resistance bacteria: Experimental and computational outlook

O-66 **Liam O'NEILL** (TheraDep, Palo Alto, CA, USA)
Deposition of biomolecules via non-thermal plasma devices

O-67 **Simon MAHEUX** YRPA (Institute of Science and Technology, Belvaux, LUXEMBOURG)
Effect of small unilamellar liposome composition on their degradation mechanism in physiological liquids by nanosecond pulsed cold atmospheric plasma under nitrogen atmosphere

O-68 **Amanda LIETZ** YRPA (University of Michigan, Ann Arbor, MI, USA)
Impact of electrode placement on RONS production in atmospheric pressure plasma jets

O-69 **Maksudbek YUSUPOV** (University of Antwerp, Antwerp, BELGIUM)
Effect of electric field on pore formation in model systems for lipid membrane and skin barrier: A molecular dynamics study

O-70 **Tomoyuki MURAKAMI** (Seikei University, Musashino, JAPAN)
Modelling of plasma interaction with gas-liquid interface

Poster Presentations

POSTER SESSION 1: Monday (Sep 5) – Topics 1, 2, 4, 6, 7, 8, 9
POSTER SESSION 2: Tuesday (Sep 6) – Topics 1, 2, 3, 4, 8, 9
POSTER SESSION 3: Thursday (Sep 8) – Topics 1, 2, 3, 4, 5, 8, 10

POSTER SESSION 1 - Monday (Sep 5) – Topics 1, 2, 4, 6, 7, 8, 9

TOPIC: 1. Medical treatment with plasmas

P1-1-1 **Naoaki YOKOYAMA** (Obihiro University, Obihiro, JAPAN)
Effect of plasma-treatment on the *in vitro* growth of *Trypanosoma brucei*

P1-2-1 **Ihn HAN** (Kwangwoon University, Seoul, SOUTH KOREA)
Role of non-thermal atmospheric pressure bio-compatible plasma in bone tissue engineering and regeneration

P1-3-1 **Sander BEKESCHUS** YRPA (INP Greifswald, Greifswald, GERMANY)
A flow cytometry genotoxicity assay to evaluate the safety of cold physical plasma sources

P1-4-1 **Laura BARILLAS** (Costa Rica Institute of Technology, Cartago, COSTA RICA)
Plasma medicine research in Costa Rica: Overview of first steps

P1-5-1 **Uroš CVELBAR** (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Localized plasma treatment for targeted intra-operative immobilization and demise of lens epithelial cells

P1-6-1 **Alexandr DEJNEKA** (Czech Academy of Sciences, Prague, CZECHIA)
Preclinical testing of non-thermal air plasma in veterinary medicine

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: RONS + oxidative stress

P1-7-2 **Juliana ŠIMONČICOVÁ** (Slovak University of Technology, Bratislava, SLOVAKIA)
Oxidative response to low temperature plasma exposure in *Aspergillus flavus*

P1-8-2 **Toshihiko EKI** (Toyohashi University of Technology, Toyohashi, JAPAN)
Development and characterization of the reporter gene assays in yeast for detecting oxidative stress and DNA damage

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: PAW/PAM and cells

P1-9-2 **Hachiro YASUDA** (Toyohashi University of Technology, Toyohashi, JAPAN)
Characterization of chemical species in plasma treated water essential for inactivation of cells and proteins

P1-10-2 **Hirokazu HARA** (Gifu Pharmaceutical University, Gifu, JAPAN)
Intracellular free zinc plays an important role in plasma-activated medium-induced cell death

P1-11-2 **Hiroshi HASHIZUME** (Nagoya University, Nagoya, JAPAN)
Selective killing of human breast cancer cells by plasma-activated medium

P1-12-2 **Yutaka KAMIMURA** (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Plasma activated medium change ASCs cytokine profile

P1-13-2 **Yang PENG** (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Plasma-activated medium inhibits metastatic tendency of ovarian cancer cells *in vitro*

P1-14-2 **Michael KEIDAR** (George Washington University, Washington, DC, USA)
Induction of apoptosis in human gastric carcinoma cancer cells by cold atmospheric plasma generated in water

P1-15-2 **Chae Bok LEE** YRPA (Kwangwoon University, Seoul, SOUTH KOREA)
Macrophage M1/M2 regulation by plasma activated NO-water

P1-16-2 **Anna MISEROCCHI** YRPA (University of Bologna, Bologna, ITALY)
Study of potential cytotoxicity on eukaryotic cells associated with the use of plasma activated liquids in dental applications

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Biomolecules

P1-17-2 **Ionuţ TOPALĂ** (Alexandru Ioan Cuza University, Iaşi, ROMANIA)
Direct exposure of amino acids and proteins powders to atmospheric pressure helium plasmas with impurities

P1-18-2 **Iulia-Elena VLAD** (Babes-Bolyai University, Cluj-Napoca, ROMANIA)
Protein modification at plasma - liquid interaction

P1-19-2 **Caitlin HESLIN** YRPA (Dublin Institute of Technology, Dublin, IRELAND)
Safety considerations for the application of cold plasma in medicine - cytotoxic/mutagenic potential

P1-20-2 **Andreas HELMKE** (Fraunhofer IST, Göttingen, GERMANY)
XPS study on the modification of amino acids by cold atmospheric plasma

P1-21-2 **Marie BRETON** (Paris-Sud University, Orsay, FRANCE)
Chemical modification of unsaturated lipids treated by atmospheric plasma jet

P1-22-2 **Hirofumi KURITA** (Toyohashi University of Technology, Toyohashi, JAPAN)
Evaluation methods of DNA strand breaks induced by exposure to an atmospheric pressure plasma

P1-23-2 **Shunsuke YOSHIZAWA** YRPA (University of Tsukuba, Tsukuba, JAPAN)
Biochemical mechanism of protein inactivation in aqueous solution by low temperature atmospheric plasma jet

P1-24-2 **Masaharu SHIRATANI** (Kyushu University, Fukuoka, JAPAN)
A comparative study for action of gamma and plasma irradiation dose on thermodynamics of protein

TOPIC: 4. Agricultural and food applications of plasmas
Subtopic: Seeds

P1-25-4 **Katarína KUČEROVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
The effect of cold air plasma activated water on germination and growth of wheat seeds

P1-26-4 **Veronika MEDVECKÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
The effect of atmospheric pressure plasma on soya beans

P1-27-4 **Anna ZAHORANOVÁ** (Comenius University, Bratislava, SLOVAKIA)
The effect of low-temperature plasma on the maize seeds: Germination improvement and microorganisms inactivation

P1-28-4 **Olga STEPANOVA** (Saint Petersburg State University, Saint Petersburg, RUSSIA)
Introduction to plasma agriculture: controlled parameters and some experimental procedures

P1-29-4 **Jean-Michel POUVESLE** (University of Orléans, Orléans, FRANCE)
Evaluation of plasma component effects in LTNTP seed treatments

P1-30-4 **Yeunsoo PARK** (National Fusion Research Institute, Gunsan, SOUTH KOREA)
The biological effects of surface dielectric barrier discharge on seed germination and plant growth with barley

P1-31-4 **Mansour KHORAM** (Islamic Azad University, Borujerd, IRAN)
Effect of low pressure radio frequency plasma on ajwain seed germination

TOPIC: 4. Agricultural and food applications of plasmas
Subtopic: PAW application

P1-32-4 **Junghyun LIM** (National Fusion Research Institute, Gunsan, SOUTH KOREA)
Determination of activation time of PAW and its application to fresh-cut potato

P1-33-4 **Romolo LAURITA** YRPA (University of Bologna, Bologna, ITALY)
Plasma activated water (PAW) for grapevine yellows disease management

P1-34-4 **Romolo LAURITA** YRPA (University of Bologna, Bologna, ITALY)
Plasma activated water as sustainable tool to control bacterial disease severity on tomato plants

TOPIC: 6. Plasma-surface interactions and surface functionalizations for biomedical applications

P1-35-6 **Riccardo TONINI** (University of Brescia, Brescia, ITALY)
Cold atmospheric plasma (CAP) treatment to improve the bonding strength of adhesive-dentin interface in dental composite restoration

P1-36-6 **Anna LIGUORI** YRPA (University of Bologna, Bologna, ITALY)
Single step process for the co-deposition of nanocomposite antibacterial coatings using a non-equilibrium atmospheric pressure plasma jet

P1-37-6 **Pietro FAVIA** (University of Bari, Bari, ITALY)
Bio-composite coatings for biomedical applications

P1-38-6 **Alenka VESEL** (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Surface modification of PET polymer in SO_2/O_2 plasma for improved cell adhesion

P1-39-6 **Ita JUNKAR** (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Improving biocompatible properties of titanium implants by highly reactive oxygen plasma

P1-40-6 **Jaroslav KOUSAL** (Charles University, Prague, CZECHIA)
Etching of model thin films of biological contamination using low-temperature atmospheric plasma jet

P1-41-6 **Cristina CANAL** (Polytechnic University of Catalonia, Barcelona, SPAIN)
Plasma polymerization on β-TCP for the design of antibiotic delivery systems in bone repair surgery

P1-42-6 **Judit BUXADERA-PALOMERO** YRPA (Technical University of Catalonia, Barcelona, SPAIN)
Modulation of doxycycline release from titanium implants by a plasma polymerized polyethylene glycol coating

P1-43-6 **Kanupriya KHURANA** YRPA (Technical University of Catalonia, Barcelona, SPAIN)
Fundamental studies of plasma PEG coatings on bone bioceramics for drug release

P1-44-6 **Jang-Hsing HSIEH** (Ming Chi University of Technology, New Taipei City, TAIWAN)
Antibacterial properties and biocompatibility of Ta-(NCF) thin films

P1-45-6 **Tomy ABUZAIRI** YRPA (Shizuoka University, Hamamatsu, JAPAN)
Patterning of biomolecules onto carbon nanotube array via atmospheric pressure plasma jet

P1-46-6 **Hidehiko YASHIRO** (AIST, Tsukuba, JAPAN)
Enhanced bone-bonding of zirconia ceramics by femtosecond laser processing

TOPIC: 7. Fundamentals of atmospheric plasmas

P1-47-7 **Tomonori HOTTA** YRPA (University of Tsukuba, Tsukuba, JAPAN)
Time evolutions of the metastable helium atoms in a low energy atmospheric pressure plasma using a laser absorption spectroscopic measurement

P1-48-7 **Hiromasa YAMADA** YRPA (University of Tsukuba, Tsukuba, JAPAN)
Study on propagation mode (bullet or striation) of a low energy atmospheric pressure plasma

P1-49-7 **Ryo KUMAGAI** YRPA (Tohoku University, Sendai, JAPAN)
Observation of propagation process of negative streamer in water

P1-50-7 **Chen CHEN** (Xi'an Jiaotong University, Xi'an, CHINA)
Space- and time-resolved LIF measurement of absolute concentration of nitric oxide produced by atmospheric air surface plasma

P1-51-7 **Paolo SERI** YRPA (University of Bologna, Bologna, ITALY)
Geometry optimization of linear and annular plasma synthetic jet actuators for enhanced transport of reactive species

P1-52-7 **Florent SAINCT** YRPA (INU Champollion, Albi, FRANCE)
Experimental study of an asymmetric DBD APPJ

P1-53-7 **Sylvain ISÉNI** (University of Orléans, Orléans, FRANCE)
Electric field and ionization waves in pulsed atmospheric plasma streams (PAPS): complementary in situ diagnostics

TOPIC: 8. Plasma sources for biomedical applications

P1-54-8 **Antoine ROUSSEAU** (École Polytechnique, Palaiseau, FRANCE)
Dielectric losses in DBDs: correlation between *in vitro* and *in vivo* experiments with modeling

P1-55-8 **Paulien SMITS** (Eindhoven University of Technology, Eindhoven, NETHERLANDS)
Considerations in designing and testing plasma devices for medical applications

P1-56-1 **Bouke BOEKEMA** (Association of Dutch Burn Centres, Beverwijk, NETHERLANDS)
In vitro efficacy and safety of a new flexible volume DBD device for the treatment of diabetic foot ulcers
post-deadline update: *will be presented as oral presentation on Tuesday, Room A, 11:50*

P1-57-8 **Björn OFFERHAUS** (Ruhr University, Bochum, GERMANY)
Characterisation of a dielectric barrier surface discharge - space resolution and homogeneity

P1-58-8 **Frederike KOGELHEIDE** YRPA (Ruhr University, Bochum, GERMANY)
Tailoring a dielectric barrier discharge regarding wound healing by adjusting power density and gas composition

P1-59-8 **Ahmed ZAKI** (Zagazig University, Zagazig, EGYPT)
Low-cost DBD plasma hand sanitizer using air and tap water enriched by hydrogen peroxide

P1-60-8 **Chanchai CHUTSIRIMONGKOL** (PhotoBioCare, Nonthaburi, THAILAND)
Non thermal atmospheric DBD plasma: Medical application studies in Thailand

P1-61-8 **Sang-You KIM** (Hanyang University, Seoul, SOUTH KOREA)
Measurement of molecular species generated in atmospheric surface dielectric barrier discharges with dielectric polyimide

P1-62-8 **Sang-You KIM** (Hanyang University, Seoul, SOUTH KOREA)
A large area drug powder treatment and transport system with linear ICP sources and particle control devices

P1-63-8 **Yutaka FUJIWARA** YRPA (University of Tsukuba, Tsukuba, JAPAN)
Study on the moving striation phenomena of a low energy atmospheric pressure neon plasma flare using a high speed camera

P1-64-8 **Hiromasa YAMADA** YRPA (Nagoya University, Nagoya, JAPAN)
Review of plasma characteristic measurements of a low energy atmospheric pressure plasma for blood coagulation

P1-65-8 **Olena SOLOMENKO** YRPA (Taras Shevchenko National University, Kyiv, UKRAINE)
Microplasma atmospheric pressure DC system with vortex gas flow

TOPIC: 9. Plasma and liquid diagnostics and sensors

P1-66-9 **Branislav PONGRÁC** YRPA (Czech Academy of Sciences, Prague, CZECHIA)
Time-resolved optical diagnostics of ns-pulsed underwater discharge

P1-67-9 **Amel ZERROUKI** YRPA (Paul Sabatier University, Toulouse, FRANCE)
OES spectroscopic measurements of temperatures and densities of charged particles in micro-air plasma for gene transfection

P1-68-9 **Arthur SALMON** YRPA (Centrale Supelec, Chatenay-Malabry, FRANCE)
Characterization of RONS produced by pulsed atmospheric pressure plasma sources in air and nitrogen

POSTER SESSION 2: Tuesday (Sep 6) – Topics 1, 2, 3, 4, 8, 9

TOPIC: 1. Medical treatment with plasmas
Subtopic: Skin and wounds

P2-1-1 **Vladyslava FANTOVA** (Czech Academy of Sciences, Prague, CZECHIA)
Inactivation of dermatophyte infection by non-thermal plasma on animal model

P2-2-1 **Victor N. VASILETS** (Russian Academy of Sciences, Chernogolovka, RUSSIA)
Application of air plasma generated nitric oxide for healing of cornea wounds

P2-3-1 **Sebastian von PODEWILS** (University Medicine, Greifswald, GERMANY)
Case report: Cold plasma effectively eradicates actinic keratosis of the scalp after one treatment course

P2-4-1 **Janik BRÜGGEMEIER** YRPA (University of Greifswald, Greifswald, GERMANY)
Cold atmospheric plasma for mild blood coagulation in visceral surgery

P2-5-1 **Yoshihiro AKIMOTO** (Kyorin University School of Medicine, Tokyo, JAPAN)
Expression of galectins and alpha smooth muscle actin in low-temperature plasma-treated healing skin

P2-6-1 **Yudai NOMURA** YRPA (Kobe University, Kobe, JAPAN)
Investigation of blood coagulation effect of non-thermal multi-gas plasma jet on *in vitro* and *in vivo* for endoscopic use

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Skin and wounds

P2-7-2 **Satoshi KITAZAKI** YRPA (Fukuoka Institute of Technology, Fukuoka, JAPAN)
Effects of non-thermal atmospheric-pressure plasma irradiation on skin in hairless mice

P2-8-2 **Masashi UEDA** (Okayama University, Okayama, JAPAN)
Comparison of inflammation after hemostasis with non-thermal plasma or thermal coagulation: a histological and nuclear medical evaluation

P2-9-2 **Julia van der LINDE** YRPA (University of Greifswald, Greifswald, GERMANY)
Repeated cold atmospheric plasma application to intact skin causes no sensitization *in vivo* - an OECD protocol

P2-10-2 **Monika GELKER** YRPA (Hawk University of Appl. Sciences and Arts, Göttingen, GERMANY)
Plasma-induced modification of the dermal permeability

P2-11-2 **Enrico TRALDI** (University of Bologna, Bologna, ITALY)
Treatment of infected *ex-vivo* human skin tissue with a low power atmospheric inductively coupled plasma source optimized through design oriented simulations

P2-12-2 **Vandana MILLER** (Drexel University, Camden, NJ, USA)
Immunomodulatory effects of nsDBD plasma in a polarized model of human skin

P2-13-2 **Šárka KUBINOVÁ** (Czech Academy of Sciences, Prague, CZECHIA)
Non-thermal air plasma in skin wound healing

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Transdermal drug delivery

P2-14-2 **Jaroslav KRIŠTOF** YRPA (Shizuoka University, Hamamatsu, JAPAN)
Study of interaction between plasma and stratum corneum for transdermal drug delivery

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Bacteria, cells and tissues

P2-15-2 **Stanislav KYZEK** YRPA (Comenius University, Bratislava, SLOVAKIA)
Monitoring of low temperature plasma effect in combination with hypericin on human lymphocytes

P2-16-2 **Matej KLAS** YRPA (Comenius University, Bratislava, SLOVAKIA)
Influence of NOx on selective apoptosis of cells

P2-17-2 **Barbora TARABOVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Effects induced on the cell membrane of *Escherichia coli* by the cold air plasma and the PAW

P2-18-2 **Peter POLČIC** (Comenius University, Bratislava, SLOVAKIA)
Effects of reactive plasma particles to yeast cells using genetic mutants

P2-19-2 **Karol HENSEL** (Comenius University, Bratislava, SLOVAKIA)
Air transient spark discharge vs. helium plasma jet: Their effects on water, bacteria, cells and biomolecules

P2-20-2 **Masaru HORI** (Nagoya University, Nagoya, JAPAN)
Comprehensive model on interactions among plasmas, liquids, intracellular molecules and animals towards a plasma medical innovation

P2-21-2 **Yoshimichi NAKATSU** (Kyushu University, Fukuoka, JAPAN)
Mutagenesis in human and mouse cells irradiated by non-thermal atmospheric air plasma

P2-22-2 **Keita SODA** YRPA (University of Tokyo, Tokyo, JAPAN)
Plasma irradiation effects on tissues in the abdominal adhesion mouse model

P2-23-2 **Akira YONESU** (Ryukyu University, Nishihara, JAPAN)
Influence of plasma irradiation on silkwarm

P2-24-2 **Youbin SEOL** YRPA (KAIST, Daejeon, SOUTH KOREA)
On the toxicity of the atmospheric pressure pulsed plasma on photosynthetic organs

P2-25-2 **Cristina MUJA** (INU Champollion, Albi, FRANCE)
Sublethal injury and cell membrane damage in bacterial cells generated by APPJ exposure

P2-26-2 **Jean-Michel POUVESLE** (University of Orléans, Orléans, FRANCE)
Cell response to He, He-O_2 plasma and plasma electric field alone treatments

P2-27-2 **Deborah O'CONNELL** (University of York, York, UNITED KINGDOM)
Low temperature plasma induces a rapid oxidative stress response in primary prostate epithelial cells

P3-28-2 **Marco KREWING** YRPA (Ruhr University, Bochum, GERMANY)
Genome-wide screening for plasma-sensitive mutants reveals genetic basis for bacterial plasma tolerance

P2-29-2 **Svetlana ERMOLAEVA** (Gamaleya Research Institute, Moscow, RUSSIA)
Effects of cold microwave argon plasma on human fibroblasts are dependent on frequency of cell treatments

P-30-2 **Kobra HAJIZADEH** (Kharazmi University, Tehran, IRAN)
Comparison of charged particles and electric field effect of cold atmospheric plasma on DNA damage

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Gene transfection

P2-31-2 **Yoshihisa IKEDA** (Ehime University, Matsuyama, JAPAN)
Membrane permeabilization induced by microplasma irradiation

P2-32-2 **Yoshihisa IKEDA** (Ehime University, Matsuyama, JAPAN)
Cytotoxicity of plasma gene transfection

P2-33-2 **Masafumi JINNO** (Ehime University, Matsuyama, JAPAN)
Clathrin-mediated endocytosis contribution to plasma gene transfection

TOPIC: 3. Plasma-based sterilization/decontamination

P2-34-3 **Hiroaki KAWANO** YRPA (Tokyo Institute of Technology, Yokohama, JAPAN)
Investigation of bactericidal factors in CO_2 plasma bubbling

P2-35-3 **Masafumi ITO** (Meijo University, Nagoya, JAPAN)
Inactivation factors of microorganisms in solutions treated with neutral oxygen radical source

P2-36-3 **Shuma SUGAWARA** YRPA (Tokyo Institute of Technology, Yokohama, JAPAN)
Plasma bubbling inactivation effect on floating and adhesive bacteria

P2-37-3 **Takashi YOKOYAMA** YRPA (Osaka University, Suita, JAPAN)
Disinfection of infection models using human extracted tooth and porcine skin by plasma-treated water with the reduced-pH method

P2-38-3 **Meike MÜLLER** YRPA (German Aerospace Center, Wessling, GERMANY)
Cold atmospheric plasma technology for decontamination of space equipment

P2-39-3 **Sandra MORITZ** (Justus Liebig University, Giessen, GERMANY)
Inactivation of *Enterococcus mundtii* using indirect plasma treatment using surface micro-discharge electrode

P2-40-3 **Anna MISEROCCHI** YRPA (University of Bologna, Bologna, ITALY)
Cold atmospheric plasma treatment of infected skin tissue: Evaluation of sterility, viability and integrity

P2-41-3 **Elena SYSOLYATINA** (Gamaleya Research Institute, Moscow, RUSSIA)
Bacterial eradication by synergy of argon non-thermal plasma jet and silicon nanoparticles

P2-42-3 **Vladyslava FANTOVA** YRPA (Czech Academy of Sciences, Prague, CZECHIA)
Effect of electrode material on bactericidal properties of water treated with DC-operated plasma jet

P2-43-3 **Zlata TUČEKOVÁ** (Comenius University, Bratislava, SLOVAKIA)
Inactivation of *Escherichia coli* by non-thermal plasma of diffuse coplanar surface barrier discharge

TOPIC: 4. Agricultural and food applications of plasmas
Subtopic: Degradation of toxic compounds

P2-44-4 **Natasa HOJNIK** (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Plasma degradation of toxic fungal metabolites

P2-45-4 **Georg AVRAMIDIS** (Hawk University of Applied Sciences and Arts, Göttingen, GERMANY)
Decay of fungal metabolites by atmospheric pressure plasma

P2-46-4 **Hamid GHOMI** (Shahid Beheshti University, Tehran, IRAN)
Elimination of diazinon insecticide from cucumber surface with low temperature plasma treatment

P2-47-4 **Hamid GHOMI** (Shahid Beheshti University, Tehran, IRAN)
Reduction of chemical and microbial contamination of landfill leachate using plasma discharge

TOPIC: 4. Agricultural and food applications of plasmas
Subtopic: Plant growth

P2-48-4 **Sang Hye JI** YRPA (Kwangwoon University, Seoul, SOUTH KOREA)
Study on the activation of plant growth-promoting bacteria (PGPB) within rice plant by non-thermal atmospheric pressure plasma treatment

P2-49-4 **Vandana MILLER** (Drexel University, Camden, NJ, USA)
Gliding arc plasma reduces water consumption while accelerating *Arabidopsis thaliana* growth and fecundity

P2-50-4 **Riku NAKANO** YRPA (Kyushu University, Fukuoka, JAPAN)
Mechanism of growth enhancement of plants irradiated by active oxygen species in O_2 plasma

TOPIC: 8. Plasma sources for biomedical applications

P2-51-8 **Thomas MAHO** (University of Orléans, Orléans, FRANCE)
New plasma sterilization process for packaged medical devices: plasma diagnosis and medical pouch characterization

P2-52-8 **Kostiantyn ACHKASOV** YRPA (Sairem SAS, Neyron, FRANCE)
Compact plasma sources based on microwave solid-state technology for industrial and laboratory applications in medicine

P2-53-8 **Zuzana KOVAĽOVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Bactericidal effects of argon surface discharge in long tube on planktonic bacteria

P2-54-8 **František KRČMA** (Brno University of Technology, Brno, CZECHIA)
New plasma sources for biomedical applications

P2-55-8 **Lars ten BOSCH** YRPA (Hawk University of Appl. Sciences and Arts, Göttingen, GERMANY)
Cold atmospheric pressure plasma - a novel pediculosis treatment approach

P2-56-8 **Ines BÜRGER** YRPA (Ruhr University, Bochum, GERMANY)
Characterization of plasma used for electrosurgical cutting by means of optical emission spectroscopy and a high speed camera

P2-57-8 **Stefan HORN** YRPA (INP Greifswald, Greifswald, GERMANY)
On the development of an endoscopic atmospheric plasma source for pulmonary tuberculosis

P2-58-8 **Yoshihisa IKEDA** (Ehime University, Matsuyama, JAPAN)
High-efficient and high-survivability plasma gene transfection by minimizing plasma and optimizing electrodes configuration

TOPIC: 9. Plasma and liquid diagnostics and sensors
Subtopic: PAW and RONS diagnostics

P2-59-9 **Thapanut SARINONT** YRPA (Kyushu University, Fukuoka, JAPAN)
A comparative study of reactive oxygen species dose provided by atmospheric plasma and gamma ray irradiation using iodine-starch reaction

P2-60-9 **Giichiro UCHIDA** (Osaka University, Osaka, JAPAN)
Effects of plasma-irradiation distance on ROS and RNS productions in liquid

P2-61-9 **Yukihiro KUROKAWA** (Nagoya University, Nagoya, JAPAN)
Generation of active species in laser-induced-plasma activated medium

P2-62-9 **Keigo TAKEDA** (Nagoya University, Nagoya, JAPAN)
Diagnostics of gas- and liquid-phase reactive species generated by AC excited atmospheric pressure Ar plasma

P2-63-9 **Toshiro KANEKO** (Tohoku University, Sendai, JAPAN)
Spatial mapping of gas and aqueous phase OH radicals and plasma-induced effect on cell membrane permeabilization

P2-64-9 **Katarína KUČEROVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
The reactive species produced by transient spark discharge in gas and liquid phase and its effect on *Escherichia coli*

P2-65-9 **Zdenko MACHALA** (Comenius University, Bratislava, SLOVAKIA)
Metallic nanoparticles in air plasma activated water

P2-66-9 **Lucel SIRGHI** (Alexandru Ioan Cuza University, Iaşi, ROMANIA)
Surface dielectric barrier discharge in closed volume air

P2-67-9 **Florian JUDÉE** (Paul Sabatier University, Toulouse, FRANCE)
Detection of free radical species generated by low temperature plasma jet in culture liquid media

P2-68-9 **Thierry DUFOUR** (University of Pierre and Marie Curie, Paris, FRANCE)
Understanding RO(N)S diffusion and chemical reactivity at the interface, sublayer and in-depth of plasma activated media

P2-69-9 **Augusto STANCAMPIANO** YRPA (University of Bologna, Bologna, ITALY)
Advanced investigation on the plasma-liquid interaction in plasma jet impinging on a water surface

P2-70-9 **Mohamed Mokhtar HEFNY** YRPA (Ruhr University, Bochum, GERMANY)
Treatment of liquids with plasma and its applications in medicine

P2-71-9 **Deborah O'CONNELL** (University of York, York, UNITED KINGDOM)
Limitations of spin trapping of the plasma induced species

P2-72-9 **Chen CHEN** (Xi'an Jiaotong University, Xi'an, CHINA)
Influence of plasma-forming gas on aqueous reaction chemistry activated by atmospheric plasma jet in argon containing gas

P2-73-9 **Chen CHEN** YRPA (Xi'an Jiaotong University, Xi'an, CHINA)
Quantitative measurement and chemical relations of aqueous reactive species induced by a helium plasma jet

POSTER SESSION 3: Thursday (Sep 8) – Topics 1, 2, 3, 4, 5, 8, 10

TOPIC: 1. Medical treatment with plasmas
Subtopic: Dentistry

P3-1-1 **Young Min KIM** (Pusan National University, Yangsan, SOUTH KOREA)
Effective fluoride gel application on deciduous tooth enamel by low temperature atmospheric plasma

TOPIC: 1. Medical treatment with plasmas
Subtopic: Cancer in vivo

P3-2-1 **Abraham LIN** YRPA (Drexel University, Camden, NJ, USA)
Non-thermal plasma induction of immunogenic cell death in an *in vivo* tumor mouse model

P3-3-1 **Shahriar MIRPOUR** YRPA (Shahid Beheshti University, Tehran, IRAN)
Atmospheric plasma induces "bystander effect" in the treatment of the breast cancer tumor in *in-vivo*

P3-4-1 **Shahriar MIRPOUR** YRPA (Shahid Beheshti University, Tehran, IRAN)
Effect of the μm size non-thermal atmospheric pressure plasma jet on the breast tumor treatment

TOPIC: 1. Medical treatment with plasmas
Subtopic: PAM and cancer

P3-5-1 **Joseph-Marie PLEWA** (Paul Sabatier University, Toulouse, FRANCE)
Effects of low temperature plasma activated liquid media on multi-cellular tumor spheroids

P3-6-1 **Akiyo TANAKA** (Kyushu University, Fukuoka, JAPAN)
Health effects of repeated intraperitoneal injections of plasma-activated medium in mice

P3-7-1 **Hiroaki KAJIYAMA** (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Plasma-irradiated liquid therapy suppresses intraperitoneal metastasis of chemoresistant ovarian cancer

P3-8-1 **Junichiro IKEDA** (Osaka University, Suita, JAPAN)
Effect of plasma-activated medium (PAM) on cancer-initiating cells for cancer therapy

P3-9-1 **Hayao NAKANISHI** (Aichi Cancer Center, Okazaki, JAPAN)
Efficacy of intraperitoneal therapy with plasma-activated medium targeting peritoneal micrometastasis as revealed by human gastric cancer cell lines in nude mice

P3-10-1 **Kae NAKAMURA** (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Plasma-activated medium (PAM) inhibits peritoneal metastasis in ovarian cancer mouse model

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Cancer cells and tissues

P3-11-2 **Machiko IIDA** YRPA (Nagoya University Graduate School of Medicine, Nagoya, JAPAN)
Effect of non-equilibrium atmospheric pressure plasmas irradiation on spontaneously developed melanoma in RET-mice

P3-12-2 **Reoto ONO** YRPA (Kyushu University, Fukuoka, JAPAN)
Inactivation effect of DBD on oral cancer cells inside culture medium film

P3-13-2 **Masaharu SHIRATANI** (Kyushu University, Fukuoka, JAPAN)
Time development of response of cells irradiated by non-thermal atmospheric air plasma

P3-14-2 **Sun Ja KIM** (Dong-A University, Pusan, SOUTH KOREA)
Selective effects of cold atmospheric pressure plasma on normal and tumor cells

P3-15-2 **Xiaoqian CHENG** YRPA (George Washington University, Washington, DC, USA)
Enhancing cold atmospheric plasma treatment of cancer cells by static magnetic field

P3-16-2 **Eda GJIKA** YRPA (George Washington University, Washington, DC, USA)
Plasma-tissue and plasma-cell interactions: The effects of power and treatment duration in cancer therapy

P3-17-2 **Anthony CORDERO-RAMIREZ** YRPA (Hospital Mexico, San Jose, COSTA RICA)
In vitro evaluation of survival curves for tissues exposed to atmospheric pressure plasmas combined with ionizing radiation

P3-18-2 **Steven VANUYTSEL** (University of Antwerp, Antwerp, BELGIUM)
Cold atmospheric-pressure plasma treatment of glioblastoma cells: Influence of working gas and involvement of mitochondria in apoptosis

P3-19-2 **Emilio MARTINES** (Consorzio RFX, Padova, ITALY)
Effect of indirect plasma treatment on laryngeal cancer cells

P3-20-2 **Eleonora TURRINI** YRPA (University of Bologna, Rimini, ITALY)
Atmospheric non-equilibrium plasma induces apoptosis and oxidative stress pathway regulation in T-lymphoblastoid leukemia cells

TOPIC: 2. Plasma-cell and plasma-tissue interactions, biological reactions
Subtopic: Immune cells

P3-21-2 **Muna BARAKAT** (Queen's University, Belfast, UNITED KINGDOM)
Effect of atmospheric pressure non-thermal plasma exposure on *Pseudomonas aeruginosa*-induced cytotoxicity in murine macrophages

P3-22-2 **Ku YOUN BAIK** (Kwangwoon University, Seoul, SOUTH KOREA)
The response of myeloid cells to non-thermal plasma

P3-23-2 **Anna LIGUORI** YRPA (University of Bologna, Bologna, ITALY)
Cold atmospheric plasma treatment affects membrane markers expression in human monocytes and macrophages

TOPIC: 3. Plasma-based sterilization/decontamination
Subtopic: Biofilms

P3-24-3 **Emanuele SIMONCELLI** (University of Bologna, Bologna, ITALY)
Qualitative live/dead confocal laser analysis on the decontamination efficacy of CAP treatment on *ex-vivo* tooth root canals

P3-25-3 **Martina MODIC** YRPA (Jožef Stefan Institute, Ljubljana, SLOVENIA)
Cold atmospheric pressure plasma inactivation of clinically important single and multi-species biofilms

P3-26-3 **Martina MODIC** YRPA (Jožef Stefan Institute, Ljubljana, SLOVENIA)
A comparison of direct and in-direct atmospheric pressure air plasma treatments for the decontamination of *Staphylococcus epidermidis* biofilm contamination grown on titanium substrates

P3-27-3 **Fatma IBIS** YRPA (İzmir Kâtip Çelebi University, İzmir, TURKEY)
Comparative assessment of antimicrobial efficacy of non-thermal plasma and Er:YAG laser on titanium discs for nonsurgical treatment of peri-implantitis

P3-28-3 **Aliaksandra KAZAK** YRPA (B.I. Stepanov Institute of Physics, Minsk, BELARUS)
Inactivation of consortiums of microorganisms by an air plasma jet at atmospheric pressure

P3-29-3 **Juliana DELBEN** YRPA (Uninga, Maringa, BRAZIL)
Tissue tolerable cold plasma against oral biofilms

P3-30-3 **Anelise DORIA** (Universidade do Vale do Paraiba, Sao Jose dos Campos, BRAZIL)
Action of argon/water vapor plasma jet on *Candida albicans* biofilm growth on silicone substrate

P3-31-3 **Anelise DORIA** (Universidade do Vale do Paraiba, Sao Jose dos Campos, BRAZIL)
Inactivation of biofilms of *Candida albicans* by atmospheric plasma jet operated in continuous and pulsed mode

TOPIC: 3. Plasma-based sterilization/decontamination
Subtopic: Spores

P3-32-3 **Katharina STAPELMANN** YRPA (Ruhr University, Bochum, GERMANY)
Low pressure plasma inactivation of *Bacillus subtilis* spores: insights into the mechanisms of spore resistance

P3-33-3 **Anna KUZMINOVA** YRPA (Czech Academy of Sciences, Prague, CZECHIA)
Atmospheric pressure plasma treatment for inactivation of bacterial spores

P3-34-3 **Padrig FLYNN** YRPA (Queen's University, Belfast, UNITED KINGDOM)
Decontamination of *Clostridium difficile* spores using atmospheric pressure non-thermal plasma

P3-35-3 **Akira YONESU** (Ryukyu University, Nishihara, JAPAN)
Sterilization using LF-microwave hybrid plasma at atmospheric pressure

TOPIC: 4. Agricultural and food applications of plasmas
Subtopic: Decontamination

P3-36-4 **Anelise DORIA** (Universidade do Vale do Paraiba, Sao Jose dos Campos, BRAZIL)
Antifungal action of atmospheric plasma on strains of *Penicillium spp* isolated from onion seeds

P3-37-4 **Katerina VLKOVÁ** YRPA (Czech Technical University, Prague, CZECHIA)
Synergistic effects of essential oregano oil and positive streamer on bacteria and yeasts

P3-38-4 **Lucia HOPPANOVÁ** (Slovak University of Technology, Bratislava, SLOVAKIA)
Low temperature plasma as an alternative means of reducing the amount of used xenobiotics

P3-39-4 **Andrea ŽILKOVÁ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Cold air plasma pasteurization of a fresh apple juice

P3-40-4 **Eunjeong HONG** (National Fusion Research Institute, Gunsan, SOUTH KOREA)
The effect of plasma treated water (PTW) for reducing pathogenic microorganism on fruits

P3-41-4 **Juslan LO** (INU Champollion, Albi, FRANCE)
Microwave coaxial plasma source for spices decontamination

P3-42-4 **Zifan WAN** (Iowa State University, Ames, IA, USA)
High voltage atmospheric cold plasma treatment of yeast for spoilage prevention

P3-43-4 **Zifan WAN** YRPA (Iowa State University, Ames, IA, USA)
High voltage atmospheric cold plasma treatment of queso fresco cheese for inactivation of *Listeria innocua*

P3-44-4 **Zifan WAN** YRPA (Iowa State University, Ames, IA, USA)
High voltage atmospheric cold plasma treatment of refrigerated chicken eggs for control of *Salmonella enteritidis* contamination on the egg shell

P3-45-4 **Mansour KHORAM** (Islamic Azad University, Borujerd, IRAN)
Decontamination of herbal distillates using spark discharge

TOPIC: 5. Pharmaceutical applications and biochemical/biomolecular engineering with plasmas

P3-46-5 **Yoshihito YAGYU** YRPA (Sasebo College, Sasebo, JAPAN)
Gene expression analysis of *Saccharomyces cerevisiae* exposed to FE-DBD plasma

P3-47-5 **Naoyuki KURAKE** (Nagoya University, Nagoya, JAPAN)
Particulates generation in the plasma activated medium (PAM)

P3-48-5 **Yoshihisa IKEDA** (Ehime University, Matsuyama, JAPAN)
Evaluation of importance of H_2O_2 in gene transfection

P3-49-5 **Toshiro KANEKO** (Tohoku University, Sendai, JAPAN)
Effects of multi-stimuli on cell membrane permeability in micro solution plasma

TOPIC: 8. Plasma sources for biomedical applications

P3-50-8 **Yuichi SETSUHARA** (Osaka University, Osaka, JAPAN)
Effects of surrounding gas flow on ROS and RNS productions in non-thermal plasma-jet system

P3-51-8 **Zhen LIU** (Zhejiang University, Hangzhou, CHINA)
A pulsed cold plasma jet and its medical application

P3-52-8 **Magali XAUBET** YRPA (Institute of Plasma Physics, Buenos Aires, ARGENTINA)
Optimization process of an atmospheric pressure plasma jet for medical applications

P3-53-8 **Biswajit BORA** (Chilean Nuclear Energy Commission, Santiago, CHILE)
Electrical and optical characterization of plasma needle to be used for biomedical applications

P3-54-8 **Mohamed Tahar BENABBAS** YRPA (Freres Mentouri University, Constantine, ALGERIA)
Low frequency atmospheric pressure plasma jets for bacteria inactivation on solid surfaces and in aqueous solutions

P3-55-8 **Adam POLAKOVIČ** YRPA (Comenius University, Bratislava, SLOVAKIA)
Cold air plasma source for biomedical applications based on DC corona discharge

P3-56-8 **Vitalii ZABLOTSKII** (Czech Academy of Sciences, Prague, CZECHIA)
Micro-plasma device for biomedical applications

P3-57-8 **Jan-Simon BAUDLER** (INP Greifswald, Greifswald, GERMANY)
Progress towards a target-oriented development and benchmarking process for comparable results in biomedical applications

P3-58-8 **Vittorio COLOMBO** (University of Bologna, Bologna, ITALY)
A novel cold atmospheric plasma device for dental applications

P3-59-8 **Eric ROBERT** (University of Orléans, Orléans, FRANCE)
Rare gas flow channeling in kHz plasma jet operation

P3-60-8 **Nofel MERBAHI** (Paul Sabatier University, Toulouse, FRANCE)
Optimization of ring-rod argon plasma jets at atmospheric pressure for biomedical applications

P3-61-8 **Aboubakar KONE** YRPA (INU Champollion, Albi, FRANCE)
Investigation of the interaction between a helium plasma jet and conductive / non-conductive targets

TOPIC: 10. Modeling and numerical simulations

P3-62-10 **Amel ZERROUKI** YRPA (Paul Sabatier University, Toulouse, FRANCE)
Stochastic simulations with experimental validation of plasma-induced poration of cell membranes for gene transfection

P3-63-10 **Pedro VIEGAS** YRPA (École Polytechnique, Palaiseau, FRANCE)
Numerical and experimental study on the dynamics of a micro-second helium plasma gun with various amounts of O_2 or N_2 admixtures

P3-64-10 **Jonas van der PAAL** YRPA (University of Antwerp, Antwerp, BELGIUM)
Effect of cholesterol and lipid peroxidation on the permeability of ROS through a phospholipid bilayer

P3-65-10 **Christof VERLACKT** (University of Antwerp, Antwerp, BELGIUM)
Insight in the plasma induced oxidation of peptides at the molecular scale

P3-66-10 **Jamoliddin RAZZOKOV** YRPA (University of Antwerp, Antwerp, BELGIUM)
Modeling phosphatidylserine flip-flop in the plasma membrane of cells: a better insight in apoptosis

P3-67-10 **Satoshi UCHIDA** (Tokyo Metropolitan University, Tokyo, JAPAN)
Numerical analysis of permeation properties of oxygen active species in cell membrane by classical molecular dynamics

P3-68-10 **Kazumasa IKUSE** (Osaka University, Suita, JAPAN)
Numerical simulations of plasma-induced metabolic responses of *Escherichia coli*

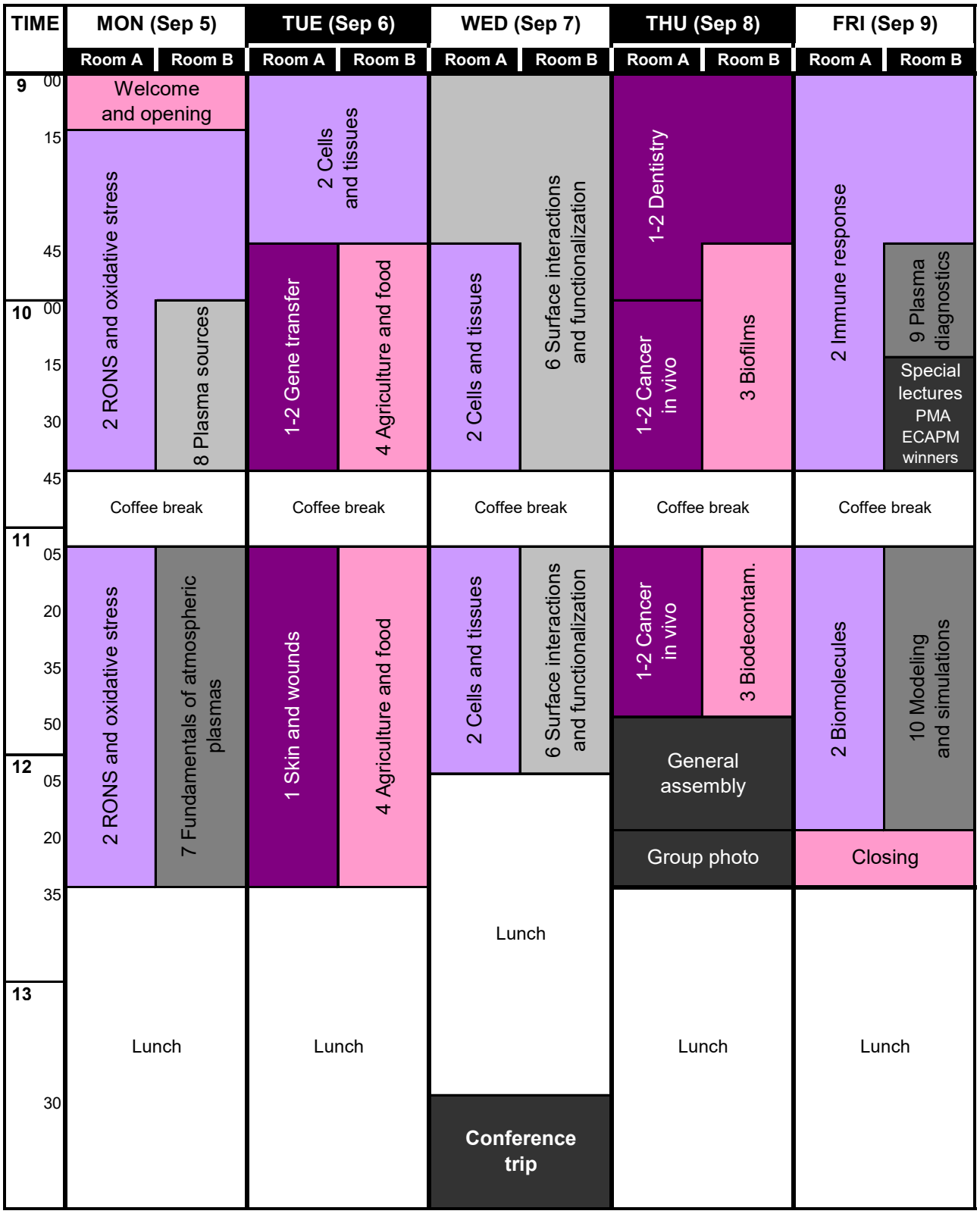
P3-69-10 **Hajime SAKAKITA** (AIST, Tsukuba, JAPAN)
Power distributions of each impedance in the electrical circuit of ionized gas coagulation equipment

P3-70-10 **Dogan GIDON** YRPA (University of California, Berkeley, CA, USA)
Lumped-parameter modeling of atmospheric pressure plasma jets for real-time control applications

P3-71-10 **Constantinos LAZAROU** YRPA (University of Cyprus, Nicosia, CYPRUS)
Numerical investigation of the electric field produced by the interaction of helium plasma jet with normal and cancer cells

Program at Glance – Morning

TIME	MON (Sep 5)		TUE (Sep 6)		WED (Sep 7)		THU (Sep 8)		FRI (Sep 9)	
	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
9 00	Welcome and opening		J. Kolb		R. Short		M. Gherardi		V. Miller	
15	S. Toyokuni									
45			M. Jaroszeski	G. Fridman	S. Nishihara	A. Baitukha	L. Jablonowski	B. Gilmore	K. Rödder	J. Benedikt
10 00	P. Celec	J. Winter		D. Liu		M. Wertheimer	B. Honnorat		Y. Kataoka	
15		K. Horn	M. Jinno	P. Bourke	T. Freeman	P. Favia	G. Serša	A. Mai-Prochnow	N. Kaushik	Special lectures PMA ECAPM winners
30	D. Graves	T. Takamatsu	Y. Yamanishi		S. Sasaki			Z. Kovaľová		
45	Coffee break		Coffee break		Coffee break		Coffee break		Coffee break	
11 05	P. Ranieri	A. Mesbah	K. Masur	K.S. Oh	K. Ostrikov	A. Liguori	H.R. Metelmann	J.-Y. Maillard	J. Bandow	G. Naidis
20	R. Tero			S. Kyzek		F. Arefi-Khonsari	K. Mizuno		J. Lackmann	
35	N. Chernets	M. Janda	J. Balzer	N. Puač	O. Lunov	H. Biedermann	M. Keidar	J. Pawłat	J.H. Park	A. Lietz
50		T. Darny	B, Boekema		A. Stancampiano		General assembly		L. O'Neill	M. Yusupov
12 05	K. Wende	S. Iséni	U. Cvelbar	B. Niemira	Lunch				S. Maheux	T. Murakami
20	I. Trizio		E. Martines				Group photo		Closing	
35	Lunch		Lunch				Lunch		Lunch	
13 30					Conference trip					


TIME
MON (Sep 5)
TUE (Sep 6)
WED (Sep 7)
THU (Sep 8)
FRI (Sep 9)
Room A
Room B
9 00
15
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10 00
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11 05
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12 05
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13
30
Welcome and opening
2 RONS and oxidative stress
8 Plasma sources
2 Cells and tissues
1-2 Gene transfer
4 Agriculture and food
2 Cells and tissues
6 Surface interactions and functionalization
1-2 Dentistry
1-2 Cancer in vivo
3 Biofilms
2 Immune response
9 Plasma diagnostics
Special lectures PMA ECAPM winners
Coffee break
Coffee break
Coffee break
Coffee break
Coffee break
2 RONS and oxidative stress
7 Fundamentals of atmospheric plasmas
1 Skin and wounds
4 Agriculture and food
2 Cells and tissues
6 Surface interactions and functionalization
1-2 Cancer in vivo
3 Biodecontam.
General assembly
Group photo
2 Biomolecules
10 Modeling and simulations
Closing
Lunch
Lunch
Lunch
Conference trip
Lunch
Lunch

Program at Glance – Afternoon

TIME	SUN (Sep 4)	MON (Sep 5)		TUE (Sep 6)		WED (Sep 7)		THU (Sep 8)	
		Room A	Room B	Room A	Room B	Room A	Room B	Room A	Room B
14 00		S. Bekes chus	**M. Larou ssi**	Y. Ikehara	**P. Lukeš**	**Conference trip**		**L. Mir**	A. Cochis
15		J. Chauvin		M. Jacofsky					U.K. Ercan
30		**H. Tanaka**	G. Busco	**P. Brun**	T. von Woedtke			N. Shimizu	**K. Kitano**
45			T. Shimizu		F. Girard			I. Topala	
15 00		K. Ishikawa	**D. O'Con nell**	M.G. Kong	H. Jablo nowski			C. Canal	**E. Sysolya tina**
15		R. Furuta		**K. Shimizu**	B. Tarabová			S. Hasse	
30		P.M. Girard	T. Sato		D. Boehm			Coffee break	
45		E.H. Choi	O. Stepa nova	S. Kalghatgi	E. Szili			**Poster session 3**	
16 00	**Registration**	Coffee break		Coffee break					
20		**Poster session 1**		**Poster session 2**					
17									
18 00	**Welcome reception**	**Special session A** Dosimetry in plasma medicine	**Special session B** Are you ready for your future?		**ISPM board mtg**				
19 00								**Conference dinner**	

TIME	SUN (Sep 4)	MON (Sep 5)		TUE (Sep 6)		WED (Sep 7)	THU (Sep 8)	
		Room A	Room B	Room A	Room B	Room A / Room B	Room A	Room B
14 00		2 Plasma activated water/media (PAW/PAM) and cells	8 Plasma sources	1 Skin and wounds	9 PAW + RONS diagnostics	Conference trip	1-2 Cancer cells and tissues	3 Biodecontamination
15 00				1-2-5 Transdermal drug delivery			Coffee break	
16 00	Registration	Coffee break		Coffee break			Poster session 3	
17		Poster session 1		Poster session 2				
18 00	Welcome reception	Special session A Dosimetry in plasma medicine	Special session B Are you ready for your future?		ISPM board mtg			
19 00							Conference dinner	

Program in Detail

Monday, September 5 - Morning

09:00 **Welcome and opening**

2 RONS and oxidative stress Room A Chairperson: S. HAMAGUCHI

09:15 **P-1** **Shinya TOYOKUNI**
Insight into chemical reaction mechanism in plasma medicine from viewpoints of oxidative stress

2 RONS and oxidative stress Room A Chairperson: S. HAMAGUCHI		8 Plasma sources Room B Chairperson: J. BENEDIKT	
10:00	**I-1** **Peter CELEC** Oxidative stress - sources, consequences and its role in the pathogenesis of diseases	**O-12**	**Jörn WINTER** Challenges and solutions on the way to a deployable plasma endoscope
		O-13	**Kerstin HORN** Screening test of a new pulsed mini-plasma-jet for medical application
10:30	**O-1** **David GRAVES** Biological effects of cold atmospheric plasma: Current status	**O-14**	**Toshihiro TAKAMATSU** Development of atmospheric non-thermal plasma sources created by 3D printer for medical application
10:45	Coffee break		
2 RONS and oxidative stress Room A Chairperson: D. GRAVES		**7 Fundamentals of atmospheric plasmas** Room B Chairperson: V. COLOMBO	
11:05	**O-2** **Pietro RANIERI** Propagation of plasma effects into tissue: Cell-to-cell signaling or direct ROS effects?	**I-4** **Ali MESBAH** Model predictive control of atmospheric pressure plasmas	
11:20	**O-3** **Ryugo TERO** Degeneration of artificial cell membranes induced by plasma-generated reactive oxygen species		
11:35	**I-2** **Natalie CHERNETS** Deciphering plasma/tissue interactions to develop appropriate medical treatments	**O-15**	**Mário JANDA** Antimicrobial NOx generated by transient spark in atmospheric dry air and air with water electrospray
		O-16	**Thibault DARNY** Conductive target influence on helium metastable production in a µs plasma gun discharge
12:05	**O-4** **Kristian WENDE** On the chemistry of remote effects of non-thermal plasmas	**I-5** **Sylvain ISÉNI** Electric field characterization of plasma gun and multi-jet plasma arrays	
12:20	**O-5** **Ilaria TRIZIO** DBD-generated RONS in biological liquids for 2D and 3D in vitro studies on eukaryotic cells		

Monday, September 5 - Afternoon

12:35	Lunch	12:35
	2 Plasma activated water/media and cells Room A Chairperson: T. FREEMAN	**8 Plasma sources** Room B Chairperson: K.-D. WELTMAN
14:00	**O-6** **Sander BEKESCHUS** Cold physical plasma-treated medium demonstrates antitumor activity against pancreatic cancer cells *in vitro* and *in vivo*	**I-6** **Mounir LAROUSSI** Low temperature plasma jets and their interactions with biological cells and media
14:15	**O-7** **Julie CHAUVIN** Investigation of cell death mechanisms of 3D multicellular tumor spheroids (MCTS) after contact with a plasma activated medium	14:15
14:30	**I-3** **Hiromasa TANAKA** Pharmaceutical applications and biochemical/biomolecular engineering with plasmas	**O-17** **Giovanni BUSCO** Study of chemico-physical properties of a He plasma gun in the context of skin physioxia for cosmetical applications 14:30
14:45		**O-18** **Tetsuji SHIMIZU** Surface micro-discharge plasma for disinfection
15:00	**O-8** **Kenji ISHIKAWA** Metabolic profiles on glioblastoma (U251SP) modified in PAM	**I-7** **Deborah O'CONNELL** Characterising a COST reference microplasma jet for biomedical applications 15:00
15:15	**O-9** **Ryo FURUTA** Dynamic behavior of HeLa cells in plasma-activated medium	15:15
15:30	**O-10** **Pierre-Marie GIRARD** Synergistic effect of H2O2 and NO2 in cell death induced by cold atmospheric He plasma	**O-19** **Takehiko SATO** Development of small sterilization device using LT plasma flow at atmospheric pressure 15:30
15:45	**O-11** **Eun Ha CHOI** Plasma activated water Induced the activation of FOXO3 signaling caused cell death of squamous (A349) carcinoma	**O-20** **Olga STEPANOVA** Bactericidal action of DBD plasma jet in helium at varying average discharge power 15:45
16:00	Coffee break	16:00
16:20	**P1** **Poster session 1**	16:20
	Room A Chairperson: V. MILLER Moderator: A. ROUSSEAU	Room B Chairperson: N. CHERNETS
18:00	**Special session A** Dosimetry in plasma medicine (panelists: A. Fridman, J.-M. Pouvesle, K.-D. Weltmann)	**Special session B** Are you ready for your future? (for PhD students and postdocs) 18:00

Tuesday, September 6 - Morning

2 Cells and tissues — Room A — Chairperson: J.-M. POUVESLE

09:00 **P-2** **Jürgen KOLB** — Cell to cell communication affected by electric pulses and plasmas

	1-2 Gene transfer Room A Chairperson: J.-M. POUVESLE	4 Agriculture and food Room B Chairperson: E.H. CHOI
09:45	**I-8** **Mark JAROSZESKI** Plasmid DNA delivery using a nonthermal helium plasma in a murine model	**O-29** **Gregory FRIDMAN** Non-equilibrium gliding arc discharge plasma-activated water in plasma agriculture: Pathogen control
10:00		**O-30** **Dongping LIU** Atmospheric-pressure air microplasmas for agricultural applications
10:15	**O-21** **Masafumi JINNO** Synergistic effect between electrical and chemical factors in plasma gene transfection	**I-11** **Paula BOURKE** Potential of atmospheric cold plasma for food preservation and processing
10:30	**O-22** **Yoko YAMANISHI** Gene transfer by circulating plasma-bubble flow	
10:45	Coffee break	
	1 Skin and wounds Room A Chairperson: R. SHORT	**4 Agriculture and food** Room B Chairperson: M. SHIRATANI
11:05	**I-10** **Kai MASUR** Cold plasma mediated influence on cellular redox balance to support wound healing	**O-31** **Kyoung Suk OH** Effect for the GABA accumulation of brown rice using the plasma and the plasma discharged water
11:20		**O-32** **Stanislav KYZEK** Monitoring of the potential genotoxic effect of low temperature plasma in pea seeds
11:35	**I-9** **Julian BALZER** Effects of cold plasma on human skin and skin cells	**I-12** **Nevena PUAČ** Plasma treatment in seed germination
11:50	**P1-56** **Bouke BOEKEMA** *In vitro* efficacy and safety of a new flexible volume DBD device for the treatment of diabetic foot ulcers	
12:05	**O-23** **Uroš CVELBAR** Safety level of atmospheric pressure jet skin treatment	**I-13** **Brendan NIEMIRA** Cold plasma as a novel intervention against food-borne pathogens
12:20	**O-24** **Emilio MARTINES** Plasma treatment of sheep skin wounds in veterinary medicine	

Tuesday, September 6 - Afternoon

12:35	Lunch	12:35
	1-2 Skin and wounds Room A Chairperson: U. CVELBAR	**9 PAW + RONS diagnostics** Room B Chairperson: M. HORI
14:00	**O-25** **Yuzuru IKEHARA** Mechanism of blood coagulation induced by plasma treatment in addition to the acceleration of the natural blood coagulation process	**I-16** **Petr LUKEŠ** Diagnostics of reaction kinetics in air plasma treated liquids	14:00
14:15	**O-26** **Marc C. JACOFSKY** Hemostasis with tissue preservation using the Plaz4™ atmospheric pressure plasma jet *in vivo*		14:15
14:30	**I-14** **Paola BRUN** Mechanisms of wound healing and disinfection in a plasma source for the treatment of corneal infections	**O-33** **Thomas von WOEDTKE** The redox potential in liquids as possible parameter to estimate and compare biological plasma effects	14:30
14:45		**O-34** **Fanny GIRARD** Combining spectro-electrochemical methods to characterize the RONS generated in physiological buffer exposed to diffuse cold atm. plasmas	14:45
15:00	**O-27** **Michael Gangyu KONG** An evaluation of a CAP-based treatment of psoriasis	**O-35** **Helena JABLONOWSKI** Plasma induced reactive oxygen species in biorelevant liquids: different species have various origins	15:00
	1-2-5 Transdermal drug delivery	**9 PAW + RONS diagnostics**	
15:15	**I-15** **Kazuo SHIMIZU** Feasibility study of plasma drug delivery for improving precutaneous absorption of skin	**O-36** **Barbora TARABOVÁ** Challenges of RONS detection in air plasma activated solutions by colorimetric and fluorescent based assays	15:15
15:30		**O-37** **Daniela BOEHM** Plasma activated liquids show distinct biocidal effects between microbial and mammalian cells	15:30
15:45	**O-28** **Sameer KALGHATGI** Non-thermal DBD plasma for enhancing intracellular DNA delivery	**O-38** **Endre SZILI** Effect of sparging in plasma medicine	15:45
16:00	Coffee break		16:00
16:20	**P2** **Poster session 2**		16:20
18:00		ISPM board meeting	18:00

Wednesday, September 7

6 Surface interactions — Room A — Chairperson: F. AREFI-KHONSARI

09:00 **P-3**

Robert SHORT
Opportunities for plasma technologies in cell therapy and wound healing

2 Cells and tissues Room A Chairperson: J. BANDOW	6 Surface interactions and functionalization Room B Chairperson: F. AREFI-KHONSARI
09:45 **I-17** **Shoko NISHIHARA** Atmospheric-pressure plasma irradiation on embryonic stem cells: signals and differentiation	**O-43** **Alibi BAITUKHA** Carboplatin drug delivery systems prepared by catalyst free PECVD reactor for biomedical application
	10:00 **O-44** **Michael R. WERTHEIMER** Chemical aspects of endothelial cell adhesion and growth for vascular grafts
10:15 **O-39** **Theresa FREEMAN** Tissue growth, repair and regeneration due to ASK1 inhibition is further enhanced by cold atmospheric dielectric barrier discharge treatment	**I-19** **Pietro FAVIA** Surface modification plasma processes for advanced biomedical applications
10:30 **O-40** **Shota SASAKI** Interaction between plasma-activated calcium ion channel and uptake of drug-simulated molecule	
10:45 Coffee break	
2 Cells and tissues Room A Chairperson: M. KEIDAR	**6 Surface interactions and functionalization** Room B Chairperson: P. FAVIA
11:05 **I-18** **Kostya (Ken) OSTRIKOV** Plasma, cell and cancer	**O-45** **Anna LIGUORI** Non-equilibrium atmospheric pressure plasma technology for anti-CD 10 antibody immobilization on PLLA nanofibres
	10:20 **O-46** **Farzaneh AREFI-KHONSARI** Deposition of thin films using a transporting discharge at atmospheric pressure
11:35 **O-41** **Oleg LUNOV** Towards the understanding of non-thermal plasma effects on bacteria and mammalian cells	**I-20** **Hynek BIEDERMAN** Plasma surface modification for biomedical applications
11:50 **O-42** **Augusto STANCAMPIANO** Effect of cold atmospheric plasma on human papillomavirus type 16 infected keratinocytes	
12:05 Lunch	
13:30 **Conference trip**	

Thursday, September 8 - Morning

1-2 Dentistry Room A Chairperson: M. LAROUSSI

09:00 **P-4** **Matteo GHERARDI**
Plasma treatment in dentistry

	1-2 Dentistry Room A Chairperson: M. LAROUSSI	3 Biofilms Room B Chairperson: S. ERMOLAEVA
09:45	**O-47** **Lukasz JABLONOWSKI** Atmospheric pressure plasma application in the oral cavity: Short term experiments in mice	**I-23** **Brendan GILMORE** Controlling bacterial biofilm and virulence using non thermal plasmas
	1-2 Cancer *in-vivo*	
10:00	**O-48** **Bruno HONNORAT** Therapeutic effect of cold atmospheric plasma on oral cavity squamous cell carcinomas	
10:15	**I-21** **Gregor SERŠA** Anti-vascular effects of electroporation - implications for electrochemotherapy and gene therapy	**O-56** **Anne MAI-PROCHNOW** Cold plasma treatment of single- and mixed-species biofilms
10:30		**O-57** **Zuzana KOVAĽOVÁ** Biofilm thickness and biomass reduction after treatment with DC air corona discharges
10:45	Coffee break	
	1-2 Cancer *in-vivo* Room A Chairperson: E. ROBERT	**3 Biodecontamination** Room B Chairperson: B. GILMORE
11:05	**O-49** **Hans-Robert METELMANN** Cancer treatment and physical plasma: A clinical phase-I-study concept and first results	**I-24** **Jean-Yves MAILLARD** Bacterial spore structures and their protective role in biocide resistance
11:20	**O-50** **Kazue MIZUNO** Nanosecond pulsed streamer discharge delayed the tumor growth at unirradiated sites *in vivo*	
11:35	**O-51** **Michael KEIDAR** Toward understanding the selective anti-cancer capacity of cold atmospheric plasma - an aquaporins-based model	**O-58** **Joanna PAWŁAT** Comparison of RONS generation and biodecontamination by AP plasma sources: transient spark, mini glide-arc and DBD jet
11:50	General assembly	
12:20	Group photo	

Thursday, September 8 - Afternoon

	1-2 Cancer cells and tissues Room A Chairperson: R. SATAVA	3 Biodecontamination Room B Chairperson: A. MIZUNO
12:35	Lunch	
14:00	**I-22** **Lluis MIR** Pulsed electric field effects on cells and associated cancer treatments	**O-59** **Andrea COCHIS** Effective decontamination of soft reline-based oral cancer shutters by means of non-thermal atmospheric plasma
14:15		**O-60** **Utku Kürşat ERCAN** Evaluation of antimicrobial activity of nebulized plasma-treated liquids for control of ventilator associated pneumonia
14:30	**O-52** **Nobuyuki SHIMIZU** Systematization of the mechanism by which plasma irradiation causes cell growth and tumor cell death	**I-25** **Katsuhisa KITANO** Identification of chemical species for bactericidal effects of cryo-preserved plasma treated water
14:45	**O-53** **Ionuţ TOPALĂ** Viability and cell biology for HeLa and VERO cells after exposure to low temperature air DBD plasma	
15:00	**O-54** **Cristina CANAL** Atmospheric pressure plasma jet selectivity towards bone cancer	**I-26** **Elena SYSOLIATINA** Cold plasma against mycoplasma, a cell-wall-deficient membrane parasite of eukaryotic cells
15:15	**O-55** **Sybille HASSE** Cold argon plasma as an adjuvant therapy option in progressive head and neck cancer - results of a preclinical study	
15:30	Coffee break	
15:50	**P3** **Poster session 3**	
19:00	**Conference dinner**	

Friday, September 9

2 Immune response — Room A — Chairperson: A. FRIDMAN

09:00

P-5
Vandana MILLER
Plasma onco-immunotherapy: The future of cancer treatment?

2 Immune response Room A Chairperson: A. FRIDMAN	9 Plasma diagnostic Room B Chairperson: M.G. KONG
09:15 **O-61** **Katrin RÖDDER** Cold plasma treatment of murine cancer cells triggers immunogenic responses in splenocytes *ex vivo*	**I-28** **Jan BENEDIKT** Molecular beam mass spectrometry and vacuum UV spectroscopy of atmospheric pressure plasmas
10:00 **O-62** **Yosky KATAOKA** Effect of atmospheric-pressure plasma irradiation on the central nervous system of adult rats	
10:15 **I-27** **Nagendra KAUSHIK** Immuno-modulatory effect of bio-plasma and its application in cancer treatment	Special lectures Plasma Medicine Award and Early Career Award in Plasma Medicine winners 10:30
10:45 Coffee break	
2 Biomolecules Room A Chairperson: T. von WOEDTKE	**10 Modelling and simulations** Room B Chairperson: M. YOUSFI
11:05 **O-63** **Julia BANDOW** Plasma-based inactivation of proteins	**I-29** **George NAIDIS** Production of reactive species in cold atmospheric-pressure plasma jets
11:20 **O-64** **Jan-Wilm LACKMANN** Cysteine as a model for comparing the impact of plasmas on biological samples	
11:35 **O-65** **Ji Hoon PARK** Effect of cold atmospheric plasma and ns pulsed plasma on protein folding and deactivation of drug resistance bacteria	**O-68** **Amanda LIETZ** Impact of electrode placement on RONS production in atmospheric pressure plasma jets
11:50 **O-66** **Liam O'NEILL** Deposition of biomolecules via non-thermal plasma devices	**O-69** **Maksudbek YUSUPOV** Effect of electric field on pore formation in model systems for lipid membrane and skin barrier: A molecular dynamics study
12:05 **O-67** **Simon MAHEUX** Effect of small unilamellar liposome composition on their degradation mechanism in physiological liquids by ns pulsed cold atmospheric plasma	**O-70** **Tomoyuki MURAKAMI** Modelling of plasma interaction with gas-liquid interface
12:20 Closing	
12:35 Lunch	

AWARDS

Plasma Medicine Award

The Plasma Medicine Award (PMA) is the highest recognition awarded by the International Society for Plasma Medicine (ISPM) for lifetime achievements in the field of the Plasma Medicine. Normally, the PMA is awarded by the ISPM Board typically to one individual every two years during the International Conference on Plasma Medicine. However, it is at the discretion of the ISPM Board to award the PMA to multiple individuals or to no individual. The following procedure will be used to implement this rule:

1. The ISPM president will request nominations for candidates for the PMA no later than three months before the ISPM Board meeting at the International Conference on Plasma Medicine (ICPM).

2. Nominations will be requested from the entire membership of the ISPM. Nominations need to contain a nomination letter, describing the lifetime achievements of the candidate and complete curriculum vitae.

Award: Plasma Medicine Awards (PMA)
Purpose: To recognize lifetime achievements in the field of the Plasma Medicine.
Eligibility: Anyone.
Nomination: By ISPM members (nominations by at least 2 ISPM members are required for each candidate). No self-nomination is accepted.
Announcement: During the ICPM-6 conference dinner.

Early Career Award in Plasma Medicine

The Early Career Award in Plasma Medicine (ECAPM) will be awarded to early-career researchers who achieved outstanding work and made a significant contribution to the advancement in the field of Plasma Medicine (independently from their mentors or advisors if any).

Award Name: Early Career Award in Plasma Medicine (ECAPM)
Purpose: To recognize and encourage early-career researchers for their outstanding work in Plasma Medicine.
Eligibility: The nominee must have received his/her first Ph.D. degree (or a degree equivalent to Ph.D.) after Jan. 1, 2004. (i.e. less than 12 years post Ph.D. as of Jan. 1, 2016).
One year will be added to each child of the nominee.
Nomination: By ISPM members (nominations by at least 2 ISPM members are required for each candidate). No self-nomination is accepted.
Announcement: During the ICPM-6 conference dinner.

Young Researcher Presentation Award

The Young Researcher Presentation Awards (YRPA) will be awarded to young researchers for the most outstanding oral or poster presentation at ICPM-6. The total number of YRPA awards will depend on the conference sponsors.

Award: Young Researcher Presentation Award (YRPA)
Purpose: To recognize most outstanding poster and/or oral presenters at ICPM.
Eligibility: A graduate student or early-career professional up to 36 years of age as of Jan. 1, 2016.
Nomination: By student or early-career professional himself/herself.
Evaluation: By special committee appointed by the ISPM members.
Announcement: During the ICPM-6 closing ceremony.
Prize: The awardees will receive books from various publishers.

The presenations nominated for The Young Researcher Presentation Awards (YRPA) are marked with YRPA logo in the program.

Student Grant

The student grants allocated by the organizers will provide a complimentary student registration to the ICPM-6 conference (valued 250 €) to the students from low income countries. The total number of student grants will depend on the conference sponsors.

Eligibility: Students (student ID required!) with accepted abstracts from the countries with gross domestic product (GDP) per capita below US$ 10,000 according to the List of International Monetary Fund.

Student Grant Holders

Mohamed Tahar BENABBAS (Freres Mentouri University, Constantine, ALGERIA)
Anthony CORDERO-RAMIREZ (Hospital Mexico, San Jose, COSTA RICA)
Anelise DORIA (Universidade do Vale do Paraiba, Sao Jose dos Campos, BRAZIL)
Kobra HAJIZADEH (Kharazmi University, Tehran, IRAN)
Aliaksandra KAZAK (National Academy of Sciences, Minsk, BELARUS)
Shahriar MIRPOUR (Shahid Beheshti University, Tehran, IRAN)
Olena SOLOMENKO (Taras Shevchenko National University, Kyiv, UKRAINE)
Iulia-Elena VLAD (Babes-Bolyai University, Cluj-Napoca, ROMANIA)

Participants' Poster Prize

This is a novelty at ICPM. Five researchers from each of the three poster sessions will be selected by all participants who can express their appreciation of the outstanding posters by pasting stickers on the poster number label (the stickers can be found in the special envelope in the conference bag). The awarded poster presenters will receive special funny prizes from the LOC. The idea is to acknowledge the most popular posters by all participants, independently from the YRPA winners selected by the ISPM designated committee.

CONFERENCE TRIP

Conference Trip is scheduled for Wednesday, September 7, 2016, afternoon.

TRIP 1: Knights at Devín Castle

Panorama sightseeing two-way boat trip from Bratislava Old Town to the Devín Castle, associated with the visit of the castle ruins and the stunning program performed by Journeymanship of Ancient Warrior Arts and Crafts in Bratislava that will bring you to the beautiful renaissance age.

Trip #1 **WAS CANCELLED** due to low number of attendees, which did not meet the minimum attendance.

TRIP 2: Driny Cave and Červený Kameň Castle

Visit of the Driny Cave and Červený Kameň Castle associated with wine tasting.

TRIP SUMMARY
program: Driny cave (guided tour) - Červený Kameň Castle (guided tour) - Small Carpatian mountains winery (wine tasting tour)
transport: bus
duration: 6-7 hours (expected return to Bratislava 20:00-21:00)
meal: refreshments and wine tasting
attendance: minimum 50 people, maximum 100 people
additional fee: **15 euro**

The trip begins with a 35 minute guided tour in the famous Slovak cave Driny. Driny is a natural limestone cave located in the West Slovakia in the Little Carpathians Mountains. It is located about 2 km southwest of the village Smolenice. The cave's entrance altitude is 399 m and there is a 15-minute uphill walk from the parking lot. The first attempt to enter the cave was made by Prussian soldiers, who camped nearby during the Austro-Prussian War. It was finally explored in 1929, and the first 175-meter route was opened in 1934. The cave was declared a nature monument in 1968 and became a part of the newly designated Little Carpathians Protected Landscape Area in 1976. Today, of the total explored length of 636 m, 550 m are open to the public. During 35 minute tour you will have a chance to explore beauties of this natural sight.

The trip continues to the famous Červený Kameň (The Red Stone) Castle, which is just 25 minutes away from the cave Driny. The Red Stone Castle was specialized in the development of housing culture of the nobility and bourgeoisie in Slovakia. The 60 minute guided tour through the castle is focused on the contemporary furnished castle interiors. The visitors walk through parlors, bedrooms, dining room and a

knight's hall, where the expositions of contemporary interior furnishings of nobility since the Renaissance period until the Secession period can be seen.

The last stop on the way back to Bratislava will be one of the wineries of the well known Small Carpathian wine region. You will have an opportunity to taste some of the finest wines from the region along with some refreshments.

TRIP 3: Beckov Castle and Trenčín Castle and town

Visit of famous castles on the Váh river and beautiful town Trenčín in the Western Slovakia.

TRIP SUMMARY
program: Beckov Castle (guided tour, falconry show and archery school) - Trenčín historical city center (short guided walking tour) - dinner at Hotel Elisabeth
transport: bus, walking
duration: 7 hours (expected return to Bratislava 21:00)
meal: dinner
attendance: minimum 30 people, maximum 55 people
additional fee: **10 euro**

The trip will first take you to village of Beckov located in the Western Slovakia. The village is famous for its castle built on a steep high cliff above the Váh river (the longest river of Slovakia) and is a dominant feature on the horizon. The dominance of the rock and impression of invincibility it gives challenged our ancestors to make use of these assets. The result is a remarkable harmony between the natural setting and architecture. Beckov Castle is one of the oldest castles of the former Austro-Hungarian Empire. The first written records of the castle date back to 1208. In 1996 the ruins were reinforced and castle was open to the public. In the castle, you will have a chance to see the remains of rich Gothic and Renaissance decorations, stone water tanks, water well, Gothic staircase in the castle chapel and other interesting historical architectural elements. The castle also features a magnificent view of the slopes of the White and the Small Carpathians.

If you would you like to try archery, you will have a chance at Beckov castle. The trip also includes the falconry show that will give you a remarkable experience and an immediate contact with the birds of prey and a show of their flying skills.

After leaving Beckov Castle our next stop will be the beautiful town Trenčín. The Trenčín castle is built on the top of a steep rock which dominates the town Trenčín and the region of Považie. The history of the town goes back to the age of the Roman Empire, testified by the inscription on the rock about the victory of the 2nd Roman legion at Laugaricio (the Latin name of Trenčín) in 179 AD. The oldest building is a stone rotunda, plausibly founded in the Great Moravian period, when the castle served as a community center. In the next centuries it became the domicile of borderland commitat, royal and later aristocratic county. In the 13-14th century, the castle became the residence of Matthew III Csak, the legendary 'Lord of the river Váh and the Tatra Mountains'. The water well in the castle is associated with the legend of the Turkish prince Omar and his great love for beautiful Fatima, whom he had to redeem by digging a well in the rock. Today there are exhibition rooms and many museum expositions inside the castle.

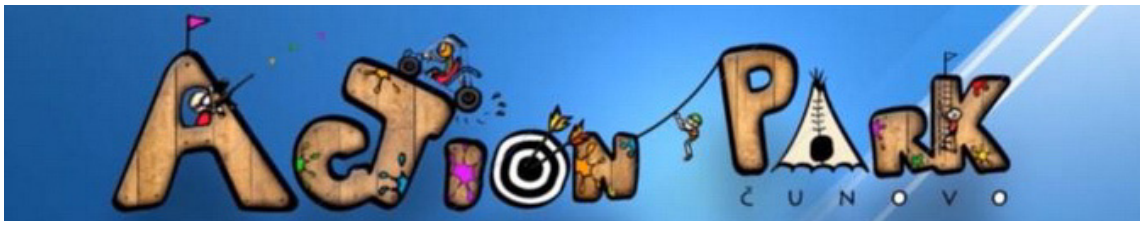
On a short guided tour you will explore the downtown of Trenčín. This walk in the historical center will take you to the Executor's House, City Hall, Jesuit Church, and the Synagogue. You will have an option to individually visit the Trenčín Castle up on the hill or try some shopping in the downtown. After the short tour and some free time we will gather for dinner at the *Retro Restaurant* directly below the medieval castle with the view to the Roman inscription.

TRIP 4: Action Park Čunovo

Plasma Medicine community teambuilding activity in Action Park in Čunovo.

TRIP SUMMARY
program: paintball, rope center, giant swing, long rope lift - refreshments
transport: bus or van
duration: 5 hours (expected return to Bratislava 19:00)
meal: refreshments and drinks
attendance: minimum 15 people
additional fee: **20 euro**

The Action Park is a unique place ready to host the 1st plasma medicine community teambuilding event. The goal of the action is to challenge teamwork, strengthen relationships, and improve communication to increase efficiency and productivity.



The Action Park is situated in southern part of Bratislava, in town district called Čunovo. On the area of 28 000 m^2 and the capacity for 1000 visitors it provides 26 fun and adrenaline attractions, and sports grounds. There are more than 110 of team activities. The facility includes various attractions, including rope center, paintball field, and a playground for extreme golf, bungee trampoline, zorbing hill, off-road track and many other activities. All support necessary complement party tents and shelters, buffet, changing rooms, swimming pool and others. This event is especially for people who are not afraid to try something bold. You will experience a half-day full of adrenaline and fun.

You may experience a modern action sport called **paintball**, which not only requires speed and fitness but also tactical thinking. Action Park area offers the perfect space for sufficient antics when playing paintball in the form of SWAT military field with an area of 70x55 m. Many trenches, shelters and obstacles will make you feel like being on a real battlefield. You can choose from a variety of games such as *Central flag* (the team must try to carve out a flag from the middle of the field and transfer it to their own base) or *Convoy* '(teams must shoot their way through the whole course and use their bike to transfer to the destination point) or a little easier fight games that last until the last shooting player in a particular team.

After paintball you may be challenged in the **rope park** with 15 obstacles at 8 meters above ground. The ropes are a combination of horizontal and vertical obstacles created by cables, pillars and devices with different difficulty levels.

The brave souls who still look for a dose of adrenaline can experience a free fall on the **giant swing**. This attraction starts jumping from the 12 meter height and continues with 7-meter free fall and swinging for a few minutes. The best course finally comes in the form of an adrenaline 120 meters **long rope lift**. You will enjoy the feeling of freedom and experience a speed up to 40 km/h.

TRIP 5: Bratislava Old Town

Remarkable trip on the tour vehicle through the oldest streets of the city centre.

TRIP SUMMARY
program: sightseeing on a tour vehicle (guided tour, the must-sees of the capital) - walking tour (guided tour, the must-sees of the city centre + Primate's Palace) - dinner at Bratislava Restaurant Flagship
transport: tour vehicle, walking
duration: 4 hours (expected dinner time at Bratislava 18:00)
meal: dinner
attendance: minimum 30 people, maximum 120 people
additional fee: **0 euro**

This tour on the *Prešporáčik - Oldtimer* tour vehicle will take you to all the must-sees of the capital. Unique tour vehicle is the only tour vehicle that takes you directly through the oldest streets of the city centre, called the Old Town, to the courtyard of the medieval Castle with a beautiful view of the entire city and its surroundings. From your comfortable seat in the tour vehicle, you will see the legends and most fascinating sites, such as the Grassalkovich/Presidential Palace, Old Town Hall, the Executioner's house; Ventúrska Street - center of the rich musical life of the city; the beautiful Slovak National Theatre or Slovak Philharmony.

After the 60 minutes of tour vehicle tour, with a professional commentary in English language, you will take a 2-hour walk in the pedestrian zone of the Old Town. You can follow your guide and take photos of the tourist's most popular sites: Roland Fountain - the oldest fountain in the city; St. Martin's Cathedral, the coronation Cathedral of Hungarian Kings; ancient St. Clare's Church; St. Michael's Gate - the last remaining well-preserved town gate; palaces from the time of Empress Maria Theresa; the Plague Pillar, galleries, museums, churches, etc.

During your walking tour you will have a chance to have a look inside of a Primate's Palace - a neoclassical palace in the Old Town of the capital. In 1805, the Palace's Hall of Mirrors saw the signing of the fourth Peace of Pressburg (Bratislava), ending the War of the Third Coalition. Today, it serves as the seat of Mayor of Bratislava and it is very special to see it from inside. That is why you cannot miss this trip.

It is said that who has never been in *Flagship* restaurant - does not know Bratislava! You have a great opportunity to finish this amazing afternoon with having a meal in *Bratislava flagship restaurant*. There is a wide choice of Slovak national specialties and a great atmosphere.

Bratislava flagship restaurant interior

COMPANION TRIPS

We prepared two exquisite thematic one-day trips for the accompanying persons, visiting Slovak folk and spa heritage on Tuesday (Sep 6) and Austrian imperial heritage on Thursday (Sep 8) during the scientific program of the conference.

TRIP A: Čičmany, Rajecká Lesná and Rajecké Teplice (SLOVAKIA)

Folk and spa heritage

TRIP SUMMARY
date: Sep 6th, 2016
program: Čičmany (sightseeing of old traditional houses) - Slovak style lunch - Rajecká Lesná (Slovak Betlehem) - Rajecké Teplice (spa)
transport: bus or van
duration: 11-12 hours (expected departure from Bratislava 9:00, expected return to Bratislava 20:00-21:00)
price: **65 euro/person** (price valid for minimum 6 attendees includes transport, English speaking guide, lunch, entrance fee to Čičmany
attendance: minimum 6 people. It can be organized even for less than the minimum of 6 people but the price will be higher (about 80 euro/person).
additional costs: **17 euro/person/2 hours** (spa water world), **22 euro/person/ 2 hours** (sauna and water world)

Čičmany is one of Slovakia's most unique village known by its folk architecture and dark-painted wood houses covered with white-painted decorative patterns. They look exactly like gingerbread houses. In the late 18th century, residents put lime paint on the outside of the houses to protect the wood where it was damaged. But the paint evolved from practical to ornamental in shape of crosses, hearts, stars, spirals, pinwheels, reflecting the motived commonly seen in local needlework. Wooden houses of the folk culture will take you back in time and the museum *Radenov dom* will show you the original life in this folk houses village.

Leaving Čičmany our next stop will be in Rajecká Lesná, the village famous for its wooden Slovak Bethlehem. The Slovak Bethlehem is a masterpiece of Jozef Pekara, a carver from Rajecké Teplice. The masterpiece is 8.5 meters wide, 2.5 meters deep and 3 meters high. It shows not only the birth of Christ in Bethlehem and his life, but also the history of the Slovak Nation. Altogether it shows 170 moving and static figures in folk costumes working, playing, some as pilgrims all together symbolizing the devoutness of Slovaks, and over 150 animal figures.

The tour will end in an exclusive spa centre Aphrodite in Rajecké Teplice. The spa is a luxury facility designed for the most demanding clients who seek quality medical treatment and leisure spa services. The spa offers both relaxing and artistic experience.

TRIP B: Laxenburg and Seegrotte (AUSTRIA)

Imperial Heritage

TRIP SUMMARY
date: Sep 8th, 2016
program: Laxenburg (sightseeing castle and gardens) - lunch near Seegrotte - Seegrotte (cruise through underground lake)
transport: bus or van
duration: 8-9 hours (expected departure from Bratislava 8:30, expected return to Bratislava 17:00-17:30)
attendance: minimum 6 people
price: **68 euro/person** (price valid for minimum 6 attendees includes transport, English speaking guide, lunch, entrance fee to Seegrotte, castle and gardens of Laxenburg)

Laxenburg castle is an imperial palace and castle situated about 15 km south of Vienna, the capital city of Austria. The castle has its roots in the 13th century and is one of the most impressing castles in Europe. It formerly served as a summer retreat, along with Schönbrunn palace, for the imperial Habsburg dynasty. The Emperor Franz Joseph and his wife Sisi spent their honeymoon here. An important part of the castle is a park with its gardens - considered a prime example of horticulture of the 18th and 19th centuries. You can have a nice walk to the neighbouring Franzensburg castle from there.

The trip continues with visiting the Europe's biggest underground lake Seegrotte in Hinterbrühl. The Seegroote is a former gypsum mine formed in 1912 by an underground blasting operation in the mine that went away and caused 20 million liters of water to gush forth from behind the rock. The lower level galleries of the mine were flooded, creating the largest subterranean lake in Europe. You will have an opportunity to see the lake from a motor boat with the professional guiding.

TIME	MON (Sep 5)		TUE (Sep 6)		WED (Sep 7)		THU (Sep 8)		FRI (Sep 9)	
9 00	Welcome and opening		**J. Kolb**		**R. Short**		**M. Gherardi**		**V. Miller**	
15	**S. Toyokuni**									
45			**M. Jaroszeski**	G. Fridman	**S. Nishihara**	A. Baitukha	L. Jablonowski	**B. Gilmore**	K. Rödder	**J. Benedikt**
10 00	**P. Celec**	J. Winter		D. Liu		M. Wertheimer	B. Honnorat		Y. Kataoka	
15		K. Horn	M. Jinno	**P. Bourke**	T. Freeman	**P. Favia**	**G. Serša**	A. Mai-Prochnow	**N. Kaushik**	PMA/ECAPM Winners
30	D. Graves	T. Takamatsu	Y. Yamanishi		S. Sasaki			Z. Kovaľová		
45	Coffee break		Coffee break		Coffee break		Coffee break		Coffee break	
11 05	P. Ranieri	**A. Mesbah**	**K. Masur**	K.S. Oh	**K. Ostrikov**	A. Liguori	H.-R. Metelmann	**J.-Y. Maillard**	J. Bandow	**G. Naidis**
20	R. Tero			S. Kyzek		F. Arefi-Khonsari	K. Mizuno		J. Lackmann	
35	**N. Chernets**	M. Janda	J. Balzer	**N. Puač**	O. Lunov	**H. Biederman**	M. Keidar	J. Pawlat	J.H. Park	A. Lietz
50		T. Darny	B. Boekema		A. Stancampiano		General assembly		L. O'Neill	M. Yusupov
12 05	K. Wende	**S. Iséni**	U. Cvelbar	**B. Niemira**	Lunch				S. Maheux	Murakami
20	I. Trizio		E. Martines				Group photo		Closing	
35	Lunch		Lunch				Lunch		Lunch	
13 30										
14 00	S. Bekeschus	**M. Laroussi**	Y. Ikehara	**P. Lukeš**	**Conference trip**		**L. Mir**	A. Cochis		
15	J. Chauvin		M. Jacofsky					U. K. Ercan		
30	**H. Tanaka**	G. Busco	**P. Brun**	T. von Woedtke			N. Shimizu	**K. Kitano**		
45		T. Shimizu		F. Girard			I. Topala			
15 00	K. Ishikawa	**D. O'Connell**	M. Kong	H. Jablonowski			C. Canal	**E. Sysolyatina**		
15	R. Furuta		**K. Shimizu**	B. Tarabová			S. Hasse			
30	P. M. Girard	T. Sato		D. Boehm			Coffee break			
45	E. H. Choi	O. Stepanova	S. Kalghatgi	E. Szili						
16 00	Coffee break		Coffee break				**Poster session 3**			
20	**Poster session 1**		**Poster session 2**							
17										
18 00	**Special session A** Dosimetry in plasma medicine	**Special session B** Are you ready for your future?		ISPM board meeting						
19 00							**Conference dinner**			