

22nd International Conference on Gas Discharges and Their Applications

September, 2-7, 2018
Novi Sad - Serbia



Final Announcement





It is a great pleasure to invite you to take part in the 22nd International Conference on Gas Discharges and Their Applications, which will be held in Novi Sad, Serbia, from Sunday, the 2nd to Friday, the 7th of September 2018. The International Conference on Gas Discharges and Their Applications has been held since 1960s in order to promote the growth and exchange of information in the fields of plasma science and gas discharge physics. The conference explores all kinds of gas discharges, ranging from low pressure to high pressure plasmas, from thermal to non-thermal plasmas, and their applications such as pulsed-power technology, light sources, environmental and medical applications.

We hope you will equally enjoy the scientific presentations and discussions together with the atmosphere of Novi Sad. We are looking forward to welcoming you in Novi Sad in September 2018.

Chair Prof. Zoran Lj. Petrović

Co-Chair Dr. Nevena Puač

Co-Chair Dr. Saša Dujko

Secretary Dr. Nikola Škoro

Organizers

The conference is organized by the joint committees of the conference and supported by the Serbian Academy of Arts and Sciences and Institute of Physics University of Belgrade.

Serbian Academy of Sciences and Arts



Institute of Physics Belgrade





Conference style

The format of the conference series is well established. Submitted abstracts are refereed, as are the four-page papers which are all orally presented in the conference sessions. There will be plenary sessions with invited speakers, while the contributions will be presented in two parallel sessions. The registration fee covers the conference proceedings for each participant, five lunches, the morning and afternoon refreshments and the social events including the banquet. Reduced fees and rooms at low cost will be available for students.

Scientific Topics

- A. Arcs
- B. Corona, Barrier and Surface Discharges
- C. Glows and Breakdown
- D. High Pressure Plasmas and Applications
- E. Low Pressure Plasmas and Applications
- F. Environmental and Medical Applications
- G. Pulsed-Power Applications
- H. Light Sources
- J. Lightning
- K. Test Techniques and Diagnostics
- L. Fundamental Processes and Cross-Sections
- M. Emerging and Topical Applications of Gas Discharges
- N. Measurement Techniques

Scientific Program

Program of the Conference will consist of Invited Lectures (40+5 min) and Oral Presentations (10+2 min). During the conference three workshops will be organized consisting of invited progress reports and discussion sessions. The GD 2018 conference book of proceedings will be given to all participants as a printed version in black & white (if available for late registration) and as a pdf file in color. Each attendee may present up to 2 contributions.

The detailed Conference Program is available on the conference website:

(<http://gd2018.ipb.ac.rs/index.php/schedule/>)



Invited Lectures

Prof. Jean-Marc Bauchire, GREMI Universite d'Orleans, France

Numerical and experimental study of arc fault in aeronautical conditions

Prof. Vasco Guerra, IST Universidade de Lisboa, Portugal

Nonequilibrium kinetics in CO₂ plasmas

Prof. Kenji Ishikawa, Department of Electronic and Electric Engineering Nagoya University, Japan

Low Temperature Plasma Surface Interactions for Their Future Basic Researches and Applications

Prof. Marc Kushner, MIPSE University of Michigan, USA

Controlling Plasma Surface Interactions When Challenged by Statistics and Equilibrium

Prof. Xingwen Li, State key laboratory of electrical insulation and power equipment Xi'an Jiaotong University, China

Basic data calculation and fundamental experiment for SF₆-alternative gases

Prof. John McBride, Faculty of Engineering and the Environment University of Southampton, UK

The verification process for computational models of arc motion under short circuit conditions in low voltage circuit breakers

Prof. George Naidis, Joint Institute for High Temperatures, Russian Academy of Sciences, Russian Federation

Simulation of subnanosecond discharges in high-pressure gases

Prof. Stephan Reuter, INP Greifswald, Germany

Laser Spectroscopy on Plasma Liquid Systems

Dr. Martin Seeger, ABB Schweiz AG, Switzerland

Electric breakdown in high voltage gas circuit breakers

Prof. Mohammed Yousfi, LAPLACE Université Paul Sabatier of Toulouse, France

Low temperature plasmas for biological applications: Fundamentals and technology



Workshops

• ADVANCED PLASMA TECHNOLOGIES IN MEDICINE, BIOTECHNOLOGY AND AGRICULTURE

Nevena Puač, co-Chair

Zoran Lj. Petrović, co-Chair

WS will be held on Tuesday, the 4th of September during the GD2018 conference in Novi Sad, Serbia. The topics covered by the WS are in the rapidly growing fields of plasma medicine and plasma agriculture including non-thermal plasma sources, their diagnostics and applications. The effects of non-thermal plasma in biomedical applications are demonstrated through decontamination and sterilization, interaction with living cells through proliferation and differentiation, biomaterial processing, etc. Likewise, plasmas have more and more applications in the field of plasma agriculture and food technology. Not-thermal plasmas are shown to increase germination speed and percentage, give better plant yield, decontaminate food and packaging, etc. Regardless of these achievements there are still a lot of open questions about optimization of not-thermal plasma sources, mechanisms involved in all above mentioned processes and the roles of each plasma constituents.

List of Invited Speakers

- **Satoshi Hamaguchi**, Center for Atomic and Molecular Technologies, Osaka University, Japan
Numerical simulation of reactions and transport of chemical species in water exposed to atmospheric pressure plasma
- **Matteo Gherardi**, Department of Industrial Engineering (D.I.N.), Alma Mater Studiorum-Università di Bologna, Italy
On the use of plasma activated water as plant defense enhancer
- **Selma Mededović-Thagard**, Department of Chemical and Biomolecular Engineering, Clarkson University, USA
Plasma within and contacting a liquid: which physical and chemical phenomena are important for a particular application
- **Goran Sretenović**, Faculty of Physics, University of Belgrade, Serbia
Study of Plasma Jet Interaction with Liquid Target
- **Suzana Živković**, Institute for Biological Research “Siniša Stanković”, University of Belgrade, Serbia
Morphological and physiological aspects of plasma treatment – induced changes in plant cells and tissues



• **SWARM PHYSICS AND GASEOUS DIELECTRICS: FUTURE CHALLENGES IN THEORY AND PRACTICE**

Saša Dujko, co-Chair

Zoran Lj. Petrović, co-Chair

The workshop (WS) will be held on Monday, the 3rd of September during the GD2018 conference in Novi Sad, Serbia. It will bring together leading specialists from universities, research laboratories, utilities and funding agencies from throughout the world, interested in swarm based studies for the development and utilization of gaseous dielectrics in the high-voltage technology. The focus of the WS will be on experimental and theoretical methods of studying charged particle interactions with molecules, including scattering and transport, in both gaseous and condensed phases. Particular topics include modeling of charged particle kinetics in low-temperature plasmas focusing on techniques associated with the Boltzmann equation, Monte Carlo method and the fluid equation based models. The workshop will consist of invited progress reports followed by a discussion session on topical issues and future of the field.

List of Invited Speakers

• **Ronald D. White**

Self-consistent tests of cross-section sets for electron-biomolecule interactions using mixtures

• **Jaime de Urquijo**

Electron/ion transport in insulating gases

• **Kohki Satoh**

Electron transport analysis in Nitrogen at high E/N region

• **Thomas Hammer**

Evaluation of dielectric strengths of fluoro-organic compounds buffered with nitrogen and carbon dioxide for use in HV-applications

• **Danko Bošnjaković**

Fluid modeling of resistive plate chambers



● MODELING OF PLASMA-MATERIALS INTERACTIONS

Yann Cressault, Chair

WS will be held on Thursday, the 6th of September during the GD2018 conference in Novi Sad, Serbia. The main topics will be mainly focused on the thermal plasmas and the modeling of the plasma-materials interactions. Two kinds of presentations will be proposed : the first one the modeling of plasma-electrodes-polymers interactions existing in many applications such as welding or cutting processes, circuit breakers and so on; the second one on the modeling of plasma-particles interactions (nanoparticles, powders, ...). The workshop will consist of reports on the methods used to model plasma-materials interactions followed by a discussion session on future of the field.

List of invited speakers

- **Mikhail S. Benilov**, Departamento de Fisica, Universidade da Madeira, Portugal

Recent advances in simulation of plasma-electrode interaction in arc discharges

- **Margarita Baeva**, INP Greifswald, Germany

The bidirectional electrodes-plasma interaction as indispensable part of advanced arc plasma modelling

- **Yasunori Tanaka**, Kanazawa Univ, Kakuma, Japan

Spallation occurrence from polyamide materials exposed by thermal plasma

- **Joseph D. Yan**, Department of Electrical Engineering and Electronics, University of Liverpool, UK

Inclusion of nozzle dimensional change due to PTFE ablation in switching arc simulation

- **Philippe Robin-Jouan**, ARC – Circuit Breaker & Bay Development, Grid Solutions, GE Power, France

Ablation modelling in High Voltage circuit-breakers: impact on the arc extinction

- **Simon Marek**, RWTH Aachen, Aachen University, Germany

Evaporation-based model for plasma-cathode attachment in GMA welding



Executive management committee:

Dr. J.E. Jones, Chair

Prof. G.R. Jones

Prof. J.W. Spencer

Prof. K Hidaka

Dr. A.B. Murphy

Prof. D. Hong

Dr. P. Robin-Jouan

International scientific committee:

Dr. J.-M. Bauchire, France

Dr. J.-P. Borra, France

Prof. Yann Cressault, France

Prof. M. Farzaneh, Canada

Prof. C.M. Franck, Switzerland

Prof. A. Haddad, UK

Prof. K. Hidaka, Japan

Prof. D. Hong, France

Prof. G.R. Jones, UK

Dr. J.E. Jones, UK

Dr. A.B. Murphy, Australia

Prof. Z. Lj. Petrović, Serbia

Prof. G.J. Pietsch, Germany

Prof. V. Rakov, USA

Prof. Ph. Robin-Jouan, France

Prof. A. Robledo-Martinez, Mexico

Prof. Kohki Satoh, Japan

Dr. M. Seeger, Switzerland

Prof. J.W. Spencer, UK

Dr. S. Stangherlin, Switzerland

Dr. T. Teich, Switzerland

Dr. Igor Timoshkin, UK

Prof. J. -Y. Trepanier, Canada

Prof. K.-D. Weltmann, Germany

Prof. Y. Wu, China

Dr. J. D. Yan, UK

Local organizing committee:

Prof Zoran Lj. Petrović, Chair

Dr Nevena Puač, Co-Chair

Dr Saša Dujko, Co-Chair

Dr Nikola Škoro, Secretary

Dr Danko Bošnjaković

Kosta Spasić

Dr Dragana Marić

Dr Gordana Malović

Prof. Bratislav Obradović

Jelena Sivoš

Marija Puač

Dejan Maletić

Nenad Selaković

Jasmina Mirić

Ilija Simonović

Vladan Simić



Venue

The conference will take place at the Master Congress Center in Novi Sad. The large congress hall and six smaller ones, with state-of-the-art equipment, cover a total area of 2700 m². The Congress Centre has excellent audio and video equipment, necessary for organization of meetings and presentations. In the closest vicinity of the Master Congress Center there are hotels that can accommodate large number of participants. The downtown of Novi Sad is at a 15 minutes walking distance from the Congress Center.

Social events

• EXCURSION TO BELGRADE AND BOAT CRUISING

The GD 2018 excursion will take place on Wednesday 5th of September and is included in the registration fee. Please note that upon registration on registration desk you need to confirm your participation. The conference participants will visit Belgrade city center and enjoy boat cruising. Belgrade is the capital city of Serbia, with around 2 million people living in it. This city seems to wake up as soon as the sun goes down. Sightseeing cruise is one of the most delightful ways to see the beauties of Belgrade. Enjoy a comfortable trip on the Danube and Sava rivers and discover most beautiful historical and cultural attractions.



• CONFERENCE BANQUET

Conference Banquet will be held on September 6th in the restaurant Ribarac, on Ribarsko ostrvo, a few kilometers from Novi Sad. Transportation to the restaurant is organized. Buses will leave from the Master Congress Center-main entrance at 19:40.

Travel

Novi Sad is 70 km from the "Nikola Tesla" Airport in Belgrade, or less than an hour's drive. There are good road and railroad connections between Novi Sad and Belgrade. Shuttle bus transfers and special taxi transfers will be organized by the official travel agency of the conference PANACOMP. Detailed information about the shuttle bus transportation from Airport Nikola Tesla and booking will be available at the conference website.



Transfer of participants

LOC offers an organized free transfer for GD 2018 participants on Sunday 2nd September from Belgrade airport to Novi Sad by shuttle buses organized by GD 2018 technical organizer Panacomp agency. Drop-off point in Novi Sad will be at the participant's accommodation place. After the conference ending, on 7th of September GD participants will have organized free transfer from Novi Sad (meeting point will be in front of Master Center – the conference venue) to Belgrade airport.

For all dates, in addition to the free shuttle transfer, GD 2018 technical organizer Panacomp agency offers paid car transfer from and to the Belgrade airport.

To apply for free organized transfer of GD 2018 participants on 2nd and 7th of September all participants have to fill in the transfer form at <http://gd2018.ipb.ac.rs/index.php/locationtravel/transfer/> before 27th of August. To apply for paid car transfer (any dates) please send an email to the Technical organizer mice@panacomp.net.

Please note that there is no direct public transport connection between the Belgrade airport and Novi Sad. Buses and trains to Novi Sad depart from the Belgrade city center. Although taxi service to Belgrade city center runs with the obligatory price system, some malpractice may occur.

Accommodation

For all conference participants Technical Organizer Panacomp Wonderland Travel agency offers accommodation in some of the best hotels in Novi Sad at reduced prices during the conference (01.09 – 08.09.2018). All hotels are situated within the walking distance from the conference site and not far away from the city center. List of the hotels and Accommodation booking form are available on the conference website. We strongly recommend that you arrange your hotels and transfers through the official agency of the conference PANACOMP.

Booking of accommodation in recommended hotels, payment of registration, arrangement of the transfers will be made through the agency:

PANACOMP ZEMLJA ČUDA D.O.O., TECHNICAL SUPPORT

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Hotels GD

- Untitled layer
-  Hotel President
 -  Hotel Park
 -  Hotel Master
 -  Hotel Novi Sad
 -  Master Congress Center
 -  Train station - Novi Sad (main)
 -  Bus station - Novi Sad (main)
 -  Downtown

