Second Announcement and Call for Papers

GEC 2022/ICRP-11

October 3 - 7, 2022
Sendai International Center
Sendai, Japan

The 75th Annual Gaseous Electronics Conference &
The 11th International Conference on Reactive Plasmas

Organized by
GEC Executive Committee
International Organizing Committee of ICRP-11

Supported by
American Physical Society

Co-sponsored by
The Japan Society of Applied Physics

https://www.apsgec.org/gec2022/
The 75th Annual Gaseous Electronics Conference (GEC-2022) will be held as an international joint conference with the 11th International Conference on Reactive Plasmas (ICRP-11).

GEC, a special meeting of the APS Division of Atomic, Molecular, and Optical Physics (DAMOP), promotes ideas on the physical and chemical processes and dynamics taking place in partially ionized, collisional plasma and between the atoms, molecules, charged particles, photons, waves, and fields. The GEC has a long leadership history of presenting fundamental and basic science contributions on plasma sources, diagnostics, simulation, plasma chemistry, basic phenomena, atomic and molecular processes. In recent years, GEC has also been a leading venue for reporting on emergent areas of plasma-biotechnology, plasma medicine, multiphase plasmas, environmental applications and atmospheric-pressure plasma systems.

ICRP has been taking place based on the initiative of the Division of Plasma Electronics, the Japan Society of Applied Physics since 1991. The subjects covered in ICRP are the entire field of reactive plasmas and their applications to material, environment, energy, space, bio and medical fields with emphasis on basic phenomena, technologies, and the underlying basic physics and chemistry.

The GEC-2022/ICRP-11 will continue its tradition of offering a truly outstanding venue for leading research in low temperature plasma science and collision physics.

Themes ranging from fundamental plasma research to advanced topics will be discussed at GEC-2022/ICRP-11.

Sendai Tanabata Festival

Akiu Hot Spring
Scientific Program

The scientific program occurs from Tuesday-Friday with three to four parallel oral sessions consisting of contributed talks, invited talks, and Prize talks, which are 15, 30, and 45 minutes in length, respectively. Contributed posters will be presented during the afternoon poster sessions in the middle of the week.

The main program is preceded by workshops on Monday. Workshop topics are industrial plasmas, catalytic effects in plasma-liquid interaction, functional processes in plasma-solid reactions, and plasmas for space propulsion.

Conference Topics

General Sessions:

1. Atomic & molecular process
   1.00 Atomic and molecular collisional and dynamical processes
   1.01 Electron and photon collisions with atoms and molecules: excitation
   1.02 Electron and photon collisions with atoms and molecules: ionization
   1.03 Heavy-particle collisions
   1.04 Dissociation, recombination and attachment
   1.05 Distribution functions and transport coefficients for electrons and ions
   1.06 Other atomic and molecular collision phenomena

2. Plasma science
   2.01 Nonequilibrium kinetics of low-temperature plasmas
   2.02 Basic plasma physics phenomena in low-temperature plasmas
   2.03 Plasma boundaries: sheaths, boundary layers, others
   2.04 Plasma-surface interactions
   2.05 Plasma diagnostic techniques
   2.06 Modeling and simulation: computational methods
   2.07 Modeling and simulation: validation and verification
   2.08 Modeling and simulation: plasma sources
   2.09 Modeling and simulation: chemical reactions
   2.10 Modeling and simulation: other
   2.11 Glows: dc, pulsed, microwave, others
   2.12 Capacitively coupled plasmas
   2.13 Inductively coupled plasmas
   2.14 Magnetically-enhanced plasmas: ECR, helicon, magnetron, others
   2.15 Atmospheric and high pressure plasmas: jets and gliding arcs
   2.16 Atmospheric and high pressure plasmas: dielectric barrier and corona discharges
   2.17 Atmospheric and high pressure plasmas: catalysis and chemical conversion
2.18 Thermal plasmas: arcs, jets, switches, others
2.19 Plasmas in liquids
2.20 Plasma on or contacting liquids
2.21 Plasmas and aerosols
2.22 Negative-ion and dust-particle-containing plasmas
2.23 Gas phase plasma chemistry
2.24 Other plasma science topics

3. Plasma applications
3.01 Plasmas for light production: laser media, glows, arcs, flat panels, and novel sources
3.02 Plasma etching
3.03 Plasma deposition
3.04 Plasma ion implantation
3.05 Green plasma technologies: environmental and energy applications
3.06 Plasma processing for photovoltaic applications
3.07 Biological, medical, and agricultural applications of plasmas
3.08 Plasma propulsion and aerodynamics
3.09 Plasmas for nanotechnologies, flexible electronics, and other emerging applications
3.10 Plasma for other materials processing and synthesis

Workshop:
1. Industrial plasma technologies
2. Plasma physics for space propulsion technologies
3. Functional surfaces in plasma elementary and process-applicable reactions
4. Catalytic effects in plasma-liquid interaction
Will Allis Prize Talk

Makabe, Toshiaki  (Keio University, Japan)
“40 years with studies on radiofrequency plasma and related transport theory”

The GEC Executive Committee is pleased to recognize Professor Emeritus Makabe as the recipient of the 2022 Will Allis Prize for the Study of Ionized Gases.

ICRP Award Talk

The speaker for the ICRP Award will be announced in the 3rd announcement.

General Sessions:

Adamovich, Igor  Ohio State University, USA
Agarwal, Sumit  Colorado School of Mines, USA
Akatsuka, Hiroshi  Tokyo Institute of Technology, Japan
Barrachina, Raul  Bariloche Atomic Centre, Argentina
Bourdon, Anne  Ecole Polytechnique, France
Camata, Renato  University of Alabama at Birmingham, USA
Charles, Christine  The Australian National University, Australia
Chiang, Wei-Hung  National Taiwan University of Science and Technology, Taiwan
Choe, Wonho  KAIST, Korea
Colgan, James  Los Alamos National Laboratory, USA
Cvelbar, Uros  Jožef Stefan Institute, Slovenia
Fontes, Chris  Los Alamos National Laboratory, USA
Gans, Timo  Dublin City University, Ireland
Gherardi, Matteo  University of Bologn, Italy
Gibson, Andrew  Ruhr University Bochum, Germany
Hamdan, Ahmad  Université de Montréal, Canada
Hara, Kentaro  Stanford University, USA
Haruyama, Tetsuya  Kyushu Institute of Technology, Japan
Helmersson, Ulf  Linköping University, Sweden
Hill, Christian  Vienna International Centre, Austria
Hoshino, Masamitsu  Sophia University, Japan
Iqbal, Muzammil  Korea Institute of Machinery and Materials, Korea
Ishikawa, Kenji  Nagoya University, Japan
Kadyrov, Alisher  Curtin University, Australia
<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tr>
<td>Kamataki, Kunihiro</td>
<td>Kyushu University, Japan</td>
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<td>Kersten, Holger</td>
<td>Kiel University, Germany</td>
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<td>Komuro, Atsushi</td>
<td>The University of Tokyo, Japan</td>
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<td>Lacoste, Deanna</td>
<td>King Abdullah University of Science and Technology, Saudi Arabia</td>
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<td>Laroussi, Mounir</td>
<td>Old Dominion University, USA</td>
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<td>Levko, Dmitry</td>
<td>Esgee Technologies Inc., USA</td>
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<td>Likhanskii, Alexandre</td>
<td>Applied Materials, Inc., USA</td>
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<td>Lietz, Amanda</td>
<td>North Carolina State University, USA</td>
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<td>Lim, Yegeon</td>
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<td>Maguire, Paul</td>
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<td>Uchida, Giichiro</td>
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<td>Zhang, Cheng</td>
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<td>Zheng, Bocong</td>
<td>Fraunhofer USA Center Midwest, Michigan State University, USA</td>
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**Workshops:**

Invited speakers for the workshops will be announced in the 3rd announcement.
Contributed Papers

Call for Contributed Papers

Abstracts:
Contributed papers will be given orally in a 15-minute timeslot (12 minutes for presentation and 3 minutes for questions) or as a poster. For either mode, authors must submit an abstract, which succinctly identifies the problem, describes the approach, and summarizes the status or result of the completed or intended intellectual contribution. Contributors must submit abstracts using the Abstract Submission site (https://www.apsgec.org/gec2022/abstracts.php).

Before you start:
- Know the number and the order of authors
- Proofread the abstract
- Abstracts are limited to 1,300 characters (about 250 words)
- Note the sorting category (category list) or focus topic
- Presentation Summary: Please provide a brief summary of your presentation written for a general audience. The summary should describe the “takehome” messages of your talk and their implications.

To submit an abstract, you must:
1. Use the GEC sorting category list when submitting
2. Know the correct ordering of authors and collaborators, and
3. Submit abstract content. The website will ask you for an APS membership number. If you are not an APS member, you should type “GEC abstract” in the member ID box when submitting.

For general information about APS abstract submission, please visit the following site (https://www.aps.org/meetings/abstract/submit.cfm).

Abstract Submission opens: March 9, 2022
Abstract Submission deadline: June 10, 2022 (4:00 pm US Central Time)
Awards and Grants

Awards and Grants Deadlines

The GEC Student Award for Excellence:
The GEC Student Award for Excellence recognizes the important contributions students make to the GEC every year with their research, presence, and passion. One awardee will be selected and receive a $1,000 USD prize. The eligibility and nomination materials can be found on the Awards site (https://www.apsgec.org/gec2022/awards.php).
The application materials must be emailed as a single PDF file to the chair of the GEC 2022 Student Award for Excellence Committee, Dr. Stephan Reuter (stephan.reuter@polymtl.ca) by 4:00 pm US Central Time on June 10, 2022.

The GEC Student Poster Prize:
The GEC Student Poster Prize recognizes three student presented research posters for their contribution to the work and future of GEC. The eligibility and nomination materials can be found on the Awards site (https://www.apsgec.org/gec2022/awards.php).
Student applications are to be emailed to the chair of the GEC 2022 Student Poster Prize Committee, Dr. Masaya Shigeta (shigeta@tohoku.ac.jp) by noon US Central Time on September 26, 2022.

The Student Travel Grant:
The Student Travel Grant provides funding to offset the cost of attending the conference in person (onsite). The grant will cover the full registration cost of the conference and partial coverage for lodging. Nomination materials can be found on the Grants and Scholarship site (https://www.apsgec.org/gec2022/grants_scholarships.php).
Submit nominations to GEC Scholarship chair, Dr. Tetsuji Shimizu (tetsuji.shimizu@aist.go.jp) by 4:00 pm US Central Time on June 10, 2022.

The Child Care Grant:
The Child Care Grant provides up to $400 to attendees who bring young children to the meeting or who incur extra expense in leaving dependents at home (i.e., daycare, babysitting, or caregiver services), or who need to fund additional activities or services to address accessibility issues. The Application materials can be found on the Grants and Scholarship site (https://www.apsgec.org/gec2022/grants_scholarships.php).
Submit applications to GEC Scholarship chair, Dr. Tetsuji Shimizu (tetsuji.shimizu@aist.go.jp) by noon US Central Time on September 1, 2022.
Non-Technical Events

Special Events

Student Networking Event:
Thursday, October 6, 2022.
The event consists of a few roundtable discussions with students and researchers. Free lunch is provided. Good opportunity to learn about the inside story of research, work environment at companies and universities, career plan, tips of experiments, and more.

Women in Physics:
Thursday, October 6, 2022.
Lectures by female researchers who are active on the cutting edge of science will be held. The scientists will talk not only about the research they are working on, but also about their own experiences, including their career paths.

Social Events

Welcome Reception:
Monday, October 3, 2022.

GEC Reception and Banquet:
Thursday, October 6, 2022.

Closing Ceremony:
Friday, October 7, 2022.
Committees

GEC Executive Committee Members

Chair: Julian Schulze, University of Bochum, Germany
Chair elect: Shahid Rauf, Applied Materials Inc.
Past secretary: Gabe Xu, University of Alabama in Huntsville
Secretary: Toshiro Kaneko, Tohoku University, Japan
Secretary elect: Scott Baalrud, University of Michigan
Treasurer: Aranka Derksi, Wigner Research Centre for Physics, Hungary
Kallol Bera, Applied Materials Inc.
Mark Koepke, West Virginia University
Mark Kushner, University of Michigan
Sandra Quintanilla, University of North Texas
Stephan Reuter, Ecole Polytechnique de Montreal, Canada
Tetsuji Shimizu, National Institute of Advanced Industrial Science and Technology, Japan

GEC reference reactor
Conference Venue

GEC-2022/ICRP-11 is planned to be held as an in-person meeting at the Sendai International Center (http://www.aobayama.jp/english/) located in Sendai, Japan. If the Covid19 pandemic does not allow to hold an onsite conference, a fully virtual meeting will be organized.
Travel Information

Tokyo has two international airports, Haneda and Narita, with many international flights, making it easy to get to Japan from anywhere in the world. There are two daily direct flights from Narita airport to Sendai. It takes 30 minutes by train from Sendai Airport to downtown Sendai. On the other hand, if you are traveling by train from Narita or Haneda airports, you can take the Shinkansen (bullet train) from the respective airports to Sendai via Tokyo Station. It takes 90 minutes from Tokyo Station to Sendai Station by Shinkansen.

Access 1: from Tokyo Airports (Narita/Haneda) to Sendai Station

Access 2: from Sendai Station to the venue
There are many hotels in Sendai. We recommend that you make your own reservations at the hotel reservation websites listed below.

- **Expedia**
- **Booking.com**
- **Trivago**

Map of Hotels:
Calendar of Events

Abstract Submission opens  March 9, 2022
Abstract Submission deadline  June 10, 2022 (4:00 pm US Central Time)
Author Notices of Acceptance  August 12, 2022
Third announcement  May, 2022
Early registration deadline  August 31, 2022

Invitation Letters

If a letter of invitation is needed to attend the conference, please contact Conference Secretariat (gec2022@senkyo.co.jp) with the following information:

- Attendee name and salutation (Prof., Dr., Mr., Mrs., Ms., etc.)
- Affiliation
- Address
- Title of the presentation/poster (if giving a presentation or poster)

Contact

For scientific program or technical information, contact:

Toshiro Kaneko (kaneko@tohoku.ac.jp)
Julian Schulze (schulze@aept.ruhr-uni-bochum.de)