The 62nd Gaseous Electronics Conference will be held in Saratoga Springs, NY, on October 20–23, 2009. The GEC Executive committee invites the submission of abstracts on the topics of basic phenomena and plasma processes in partially ionized gases and the theory and measurement of basic atomic and molecular collision processes. Papers reporting on experimental, theoretical, and computational studies that address either fundamental properties of low-temperature plasmas or their applications are encouraged. Applications of interest include, but are not limited to:

- Plasma processing of materials including semiconductors, metals, insulators, MEMS devices and displays,
- Biological and emerging applications of plasmas,
- Plasma-surface interactions,
- Plasma diagnostics,
- High pressure and micro-plasmas,
- Gas discharge lamps,
- Gas lasers,
- Plasma chemistry and combustion,
- Plasma aerodynamics,
- Ionospheric phenomena,
- Ion sources,
- Electron and photon collisions with atoms and molecules,
- Heavy particle interactions: ion-molecule, neutrals etc,
- Other topics listed on page 4 of this announcement.

Although most papers will deal with low-energy processes, contributions on electronic or radiative processes produced by high-energy electrons or heavy particles are also welcome.
Invited Speakers

The invited speakers, their affiliations and the titles of their presentations for the 2009 GEC are:

**GEC Foundation Talk**

David Graves, UC Berkeley (US), When low temperature plasmas meet surfaces

**Special Session on Plasma Ion Implantation**

Michael Lieberman, UC Berkeley (US), Sheath dynamics and energetic particle distributions on substrates  
Mark Kushner, Univ. Michigan (US), Modeling of large area sources

**Plasma Combustion**

Biswa Ganguly, Air Force Research Laboratory, WPAFB (US), Effects of non-thermal plasmas and electric field on hydrocarbon/air flames

**Attosecond Intense Lasers**

Todd Ditmire, Univ. Texas – Austin (US), Intense laser-driven cluster plasma production of fusion neutrons

**Biological Applications of Plasmas**

Michael Kong, Loughborough Univ. (UK), Cold atmospheric plasma sterilization: from bacteria to biomolecules  
Thomas Schlathölder, Univ. Groningen (Netherlands), Ion induced ionization and fragmentation of biomolecules and biomolecular clusters

**Atomic and Molecular Cross-Sections in Plasma Modeling**

Song-Yun Kang, Tokyo Electron Limited (Japan), Development and validation of a C₅F₈/Ar/O₂ mixture chemistry model using quantum chemistry methods  
Michael Brunger, Flinders Univ. (Australia), Electron impact excitation data for modeling planetary atmospheres and cometary comae: Results and their sensitivity to the input data  
Christopher Fontes, LANL (US), Atomic data needs for modeling supernova light curves

**Electron-molecule collisions**

Timothy Gay, Univ. Nebraska (US), Angular momentum partitioning in electron-molecule collisions  
Ann Orel, UC-Davis (US), Electron-driven excitation and dissociation of molecules  
Paul Johnson, JPL (US), Electron-molecule processes relevant to planetary atmospheres

**Thrusters**

Laxminarayan Raja, Univ. Texas-Austin (US), Microdischarge plasma thrusters for small satellite propulsion

**Plasma Surface Interactions**

Matthew Goeckner, Univ. Texas-Dallas (US), Plasma surface interactions in fluorocarbon systems

**Capacitively Coupled Plasmas**

Uwe Czarnetzki, Ruhr Univ. Bochum (Germany), The electrical asymmetry effect in capacitive discharges  
J. Gary Eden, University of Illinois (US), Large arrays of microplasma: Science, applications and the road ahead
**Plasma Diagnostics**

Akihiro Kono, *Univ. Nagoya (Japan)*, Diagnostics of charged particles in low temperature plasma employing laser Thomson scattering  
Yi-Kang Pu, *Tsinghua University (China)*, Using C-R models to determine electron density and temperature in discharges containing rare gases  
ChinWook Chung, *Hanyang Univ. (Korea)*, Plasma diagnostics using floating harmonics method and recent results in processing plasmas

**Materials Processing**

Steve Rossnagel, *IBM (US)*, Measuring DNA through a nanopore fabricated using plasma processing technology  
Jane Chang, *UCLA (US)*, Reaction mechanisms in patterning complex oxide materials by plasmas  
Masaharu Shiratani, *Kyushu Univ. (Japan)*, Ultrahigh quality amorphous silicon film deposition for solar cell employing novel plasma enhanced CVD

**Inductively Coupled Plasmas**

Gerjan Hagelaar, *Toulouse (France)*, Electron heating in inductive discharges  
Yuichi Setsuhara, *Osaka Univ. (Japan)*, Production and control of inductively-coupled plasmas sustained with multiple low-inductance antenna modules for large-area and low-damage processing of next-generation devices

**Ion-atom collisions**

Allison Harris, *Missouri S&T (US)*, Fully differential cross sections for transfer-excitation and transfer-ionization  
Markus Schoeffler, *Lawrence Berkeley Natnl. Lab. (US)*, Double ionization dynamics of Helium dimers investigated during charged particle impact

**Electron-atom collisions**

Danica Cvejanovic, *Univ. Western Australia*, Electron impact induced light emission from Zinc atoms  
Bruno deHarak, *Univ. Kentucky (US)*, Laser-assisted electron impact autoionization of Helium

**Plasma polarization spectroscopy**

Atsushi Iwamae, *Japan Atomic Energy Agency (Japan)*, Plasma polarization spectroscopy in magnetically confined plasmas  
Peter Hakel, *Univ. Nevada-Reno (US)*, Integration of PIC simulations and magnetic-sublevel atomic kinetics for plasma polarization spectroscopy
Oral and Poster Session Topics

The Executive committee solicits contributed oral and poster presentations on the wide range of topics normally addressed at the GEC. The abstract sorting categories are listed below. If you have difficulty choosing the category which best fits your work you may contact the Local secretary or an Executive committee member for assistance.

1. Atomic and Molecular Processes
   (a) Electron and photon collisions with atoms and molecules
   (b) Heavy particle interactions: ion-atom, ion- switches and others
   (c) Dissociation, recombination and attachment
   (d) Molecular clusters and many-body problems
   (e) Computational methods for atomic and molecular processes
   (f) Distribution functions and transport coefficients for electrons and ions
   (g) Near-threshold collision processes
   (h) Slow collisions
   (i) Collisions with complex targets
   (j) Ionization of atoms and molecules
   (k) Other atomic and molecular collision phenomena

2. Plasma
   (a) High pressure glow discharges
   (b) Thermal plasmas: arcs, jets, molecule, neutral-neutral and other
   (c) Laser media, kinetics, processes
   (d) Lighting plasmas: glows, arcs, flat novel sources and other
   (e) Plasma diagnostics: optical, electrical and other
   (f) Plasma chemistry: atmospheric, gas phase, surface
   (g) Plasma boundaries: sheaths, boundary layers and other
   (h) Dusty plasmas
   (i) Negative ion plasmas
   (j) Plasma instabilities
   (k) Computational methods for plasmas
Special Events

Several events will be held during the conference. For more details on these events, visit the conference website.

Commemoration of life and work of Irving Langmuir

Due to the proximity of Langmuir's residence and place of work in Schenectady, the conference will organize the following events:

- **An Exhibition** by the Schenectady Museum and Science Center will showcase some of Langmuir's personal items.
- **A Documentary** on his life.
- **A Guest Speaker** will present an overview of Langmuir's life and work at the after-banquet talk.

Intellectual property workshop

A workshop on intellectual property law and rights (both US and worldwide) will be hosted by Tokyo Electron Ltd.

Vorpal PIC code hands-on demonstration

Engineers from Tech-X Corporation, a long-time exhibitor at the GEC, will hold a hands-on demonstration and workshop on their flagship product — 3D PIC simulator **VORPAL**.

Location

Saratoga Springs is an internationally known tourist destination in Upstate New York, easily reachable from New York, Boston and other cities in the north-east United States. The town is known for its vibrant horse racing tradition, mineral water spas, cultural events and many historical sites from the Age of Discovery, American War of Independence, Industrial Revolution, and the first electronic revolution (the one that produced vacuum tubes). The conference is located in Saratoga Spring's Victorian downtown. Within walking distances are many restaurants, shops and galleries.

Nearby points of interest

Within 30 miles (50 km) are

- **Schenectady** where Irving Langmuir lived and worked
- **Albany** site of a major research center in semiconductor manufacturing and nano-technology
- **Troy** home of the Rensellaer Polytechnic Institute
- **Malta** where a consortium of AMD and Middle Eastern investors is building a state-of-the-art 300 mm fab

Within an hour's drive from Saratoga Springs are hiking paths in the Adirondacks Mountains and water sports on Saratoga lake and lake George.

Conference format

The GEC usually has two parallel oral sessions in the morning and afternoon and two poster sessions in the evenings. Oral sessions consist of invited talks or oral contributions:
Invited talks are given in 30-minute time slots: 25 minutes for the presentation and five minutes for questions.

Oral contributions are given in 15-minute time slots: 12 minutes for presentation and three minutes for questions.

Social events

The GEC also organizes two social events:

Reception on Monday, October 19, 2009, beginning at approximately 6:00pm with refreshments and finger food

Conference Banquet on Thursday evening, October 22, 2009. The Chair will present the conference award for best student paper and make Executive committee announcements. The banquet is followed by the guest speaker (see below)

Abstract Submission

Both APS members and non-members can submit abstracts to the GEC. For all the contributions — invited, oral or poster — the authors must submit an abstract using the American Physical Society website in either Microsoft Word RTF or LaTeX formats. Note that the APS website is not yet ready for the abstracts. You will be informed when it goes live.

The abstract submission deadline is 5:00PM US Eastern Standard Time on June 12, 2009

Registration

The registration fee includes the opening reception, refreshment breaks and conference materials. The conference banquet is included in the conference fee only for students and retirees. Registration will be done on-line using the GEC website. Registration will open on or about March 30, 2009.

Registration fees

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<tr>
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<td>Banquet*</td>
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*Banquet fee is not included in the regular registration, except for students and retirees

Early registration deadline is August 22, 2009

Travel

Saratoga Springs is within a three and a half hour driving distance from New York City, Boston, and Montreal. Major airlines service the nearby Albany International airport. Train and bus service is available from Boston, New York City, and other cities. Transportation details and maps of the area will be available on the conference website. Please note that there is no shuttle service available from the Albany airport to Saratoga Springs. Taxis are available and the cost is about $70 one way.
Accommodations

The conference is holding a block of rooms at the Saratoga Hilton Hotel at a special rate of $169/night.

*The conference rate is guaranteed until September 18, 2009*

Reservations can be made at

The Saratoga Hilton
534 Broadway
Saratoga Springs, NY 12866
Group Reservations: 888-866-3596
Web reservations: www.thesaratogahotel.com
Group code: ACQF

For further information on local hotels, consult the GEC website.

Exhibitors

Exhibitors form an integral part of the GEC community. The conference attendees come from universities, corporations and national laboratories. Countries from the Americas, Europe, Asia and Australia are well represented.

For exhibition space inquiries please contact the Local committee. Locations will be determined on a first come, first served basis.

Student Support

The Executive committee considers student participation to be one of the key missions of the GEC. To encourage this, the Local committee offers limited financial support towards student travel. In addition, the Executive committee will recognize the best paper by a student with the *GEC Student Award for Excellence*.

**GEC Student award for excellence**

Only oral presentations are considered for this prize. To nominate a presentation for the award, please send the abstract and a supporting letter from the student’s adviser to the conference Chair.

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If sending by email, the abstract should be in plain text, Microsoft Word or PDF format. The Executive committee will review the nominations and select the *Student Award Finalists*. Member of the Executive committee who will serve as judges, will attend the finalists’ talks and select the award winner. The award recipient will be presented with a certificate along with a cash prize.

**Student travel assistance**

Travel assistance takes form of monetary assistance to students who attend and present at the conference. The advisers should send the application and a copy of the student’s abstract to the Local secretary...
If sending by email, the abstract should be in plain text, Microsoft Word or PDF format. The student travel assistance request is separate from the Student Award nomination.

On-line information

The 62nd GEC website [http://sites.google.com/site/2009gec/](http://sites.google.com/site/2009gec/) contains information about abstract submission, registration, and housing. It will also contain information about local points of interest, travel, weather and much more.

The Conference has organized a Group Forum for conference participants to exchange information (such as when looking for housing roommates). The Group Forum is a Google Group, visible only to GEC participants.

Local Organizing Committee

The 62nd GEC is organized by the following volunteers:

- **Mirko Vukovic**  Local secretary
- **Tim Sommerer**  Travel and lodging
- **Eric Joseph**  Exhibitors
- **Laxminarayan Raja**  Sponsors
- **Eric Eisenbraun**  Visa letters
- **Gordana Vukovic**  Webmaster
- **Mayuko Broomfield**  Finances

Contact information for Local committee members is on the GEC 2009 [website](http://sites.google.com/site/2009gec/).