

57th Annual Gaseous Electronics Conference September 26-29, 2004

Queen's University Belfast and Dublin City University

GEC04 Executive Committee

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FIRST ANNOUNCEMENT

February 2004

The Fifty-Seventh Annual Gaseous Electronics Conference (GEC) will be held September 26-29, 2004 in the Conference Centre at the Fitzpatrick Bunratty Hotel, Bunratty, Co. Clare, Ireland.

The GEC Executive Committee invites papers on basic phenomena and plasma processes in partially ionized gases, and on the theory and measurement of basic atomic and molecular collision processes. Papers reporting on experimental, theoretical, and computational studies which 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, gas lasers, ion sources, gas discharge lamps, plasma chemistry, plasma-surface interactions, ionospheric phenomena, diagnostics, and similar topics. Although most papers will deal with low-energy processes, papers that concern electronic or radiative processes produced by high-energy electrons or heavy particles are also welcome.

ARRANGED SESSIONS

Each year the GEC Executive Committee selects topics for special emphasis. Arranged Sessions contain both invited and contributed oral presentations, and **participants are especially encouraged to submit contributed papers and posters on these topics**. Use an appropriate abstract category code number from those listed on page 3. The topics and invited speakers selected for the 2004 GEC are:

Plasma Applications for Nanotechnology

Tomohiro Nozaki, *Tokyo Institute of Technology*, Generation of atmospheric pressure glow discharge without dielectric barrier and application to nanotube deposition.

Jörg Winter, *Ruhr-University Bochum*, Nanoparticles in process plasmas: Growth-diagnostics-applications.

Biological and Emerging Applications of Plasmas

Paul Burrow, *University of Nebraska-Lincoln*, Resonances and bond breaking in bio-molecules.

Kit Bowen, *Johns Hopkins University*, Photoelectron spectroscopic studies of gas-phase biomolecular anions.

(Continued on next page)

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High Pressure Glow Discharges

Akihiro Kono, *Nagoya University*, Characteristics of high-pressure microwave glow discharge in a microgap aimed at VUV light source.

Ute Ebert, *CWI Amsterdam / TU Eindhoven*, On branching streamers and sprites: channel head dynamics in laboratory and high atmosphere.

Material Processing in Low Pressure Plasmas

Stephan Wege, *INFINEON Technologies Dresden*, To be announced.

Demetre J. Economou, *University of Houston*, Multidimensional plasma sheaths over electrically inhomogeneous surfaces.

Ionization

Joachim Ullrich, *Max-Planck-Institut fuer Kernphysik, Heidelberg*, Reaction microscopes: The "cloud chambers" of atomic and molecular physics.

Ian Williams, *Queen's University Belfast*, Ionization in strong electric fields.

Dissociation

Winifred Huo, *NASA Ames Research Center*, Dissociative ionization of biomolecules.

Hartmut Hotop, *Technische Universitaet Kaiserslautern*, High resolution studies of dissociative electron attachment to molecules.

Slow Collisions

Zheng-Tian Lu, *Argonne National Laboratory*, Atom trap, Krypton-81, and Egypt.

William Stwalley, *University of Connecticut*, Making molecules at microKelvin.

Lighting

K.W. Whang, *Seoul National University*, The R & D issues in plasma display panel technology.

Lee Collins, *Los Alamos National Laboratory*, Chemi-ionization of Mercury in lighting environments.

Marco Haverlag, *Philips Lighting, Eindhoven*, Modelling of the energy balance and transport processes in metal halide lamps using PLASIMO.

Optical Diagnostics

Gus Hancock, *Oxford University*, Probing low temperature plasmas with diode lasers.

Serguei Kazantsev, *Observatoire de Paris, Meudon*, Polarization spectroscopy as a diagnostic tool.

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ORAL AND POSTER SESSION TOPICS

In addition to the special topics listed above, 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:

- | | | | |
|------|---|------|--|
| 1.1 | Electron and photon collisions with atoms and molecules | 2.7 | High pressure glow discharges |
| 1.2 | Heavy particle interactions: ion-atom, ion-molecule, neutral-neutral, other | 2.8 | Thermal plasmas: arcs, jets, switches, others |
| 1.3 | Dissociation, recombination and attachment | 2.9 | Laser media, kinetics, processes |
| 1.4 | Molecular clusters and many-body problems | 2.10 | Lighting plasmas: glows, arcs, flat panels, novel sources, others |
| 1.5 | Computational methods for atomic and molecular processes | 2.11 | Plasma diagnostics: optical, electrical, others |
| 1.6 | Distribution functions and transport coefficients: electrons, ions | 2.12 | Plasma chemistry: atmospheric, gas phase, surface |
| 1.7 | Near-threshold collision processes | 2.13 | Plasma boundaries: sheaths, boundary layers, others |
| 1.8 | Slow collisions | 2.14 | Dusty plasmas |
| 1.9 | Collisions with complex targets | 2.15 | Negative ion plasmas |
| 1.10 | Ionization of atoms and molecules | 2.16 | Plasma instabilities |
| 1.11 | Other atomic and molecular collision phenomena | 2.17 | Computational methods for plasmas |
| | | 2.18 | Plasma-surface interactions |
| 2.1 | Glows: dc, pulsed, rf, microwave, inductive, others | 2.19 | Materials processing in low pressure plasmas: etching, deposition, new materials |
| 2.2 | Coronas, breakdown, and sparks | 2.20 | Environmental applications |
| 2.3 | Capacitively coupled plasmas | 2.21 | Treatment of textiles |
| 2.4 | Inductively coupled plasmas | 2.22 | Biological and emerging applications of plasmas |
| 2.5 | Magnetically-enhanced plasmas: ECR, helicon, magnetron, others | 2.23 | Plasma propulsion |
| 2.6 | Dielectric barrier discharges, displays | 2.24 | Plasma applications for nanotechnology |
| | | 2.25 | Innovative plasma applications |
| | | 2.26 | Other plasma topics |

THE WILL ALLIS PRIZE LECTURE

The Executive Committee is pleased to announce that the Allis Prize Lecture at the 2004 GEC will be:

Bill McConkey, *University of Windsor*, "Colliding electrons - Workhorses of gaseous electronics"

The Allis Prize Lecture is a plenary talk. The Allis Prize of the American Physical Society for the Study of Ionized Gases was established in 1989 in recognition of the outstanding contributions of Will Allis to this field of study. In the lecture the prize winner is asked to present an overview of a topical area and to put it into context for the very cross-disciplinary audience that attends the GEC. The talk covers both introductory material, to guide students and newcomers, as well as cutting edge work from the speaker's own experience, to engage the expert.

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ABSTRACT SUBMISSION

Contributed papers may 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 briefly but accurately describes the scientific work.

Contributors must submit abstracts using the American Physical Society online web submission process at <http://www.aps.org/meet/abstracts>. The GEC2004 abstract submission site will be available in March 2004.

The deadline for receipt of abstracts is 5:00 pm US Eastern Standard Time on Friday, June 11, 2004.

Before logging on you need to have available to you (1) the GEC sorting category code for the abstract (2) the number and ordering of authors and collaborators (3) the abstract content (4) an American Physical Society membership number, if you are not an APS member type "GEC abstract" in the member id box.

The web page will guide you through the submission process. We strongly urge you to proof-read your *formatted* abstract before submission. This can be done by logging onto <http://abstracts.aps.org/> and selecting the meeting TEST. When you are ready to submit your abstract you select the meeting GEC2004 by clicking on that button. A form will be created for you. Simply input information as requested. If you encounter problems at any point in the abstract submission process, please contact the APS Abstract Help-Line by sending e-mail to abs-help@aps.org or by calling 301-209-3290 during regular business hours, US Eastern Time.

Invited speakers should refer to their letters of invitation for instructions on locating the invited speakers template.

Contributors or invited speakers who are absolutely unable to submit an abstract via the web should contact APS at abs-help@aps.org.

GEC INFORMATION ONLINE

The official website for the Gaseous Electronics Conference 2004 is <http://gec2004.qub.ac.uk>. This website will contain the most detailed and up-to-date information on the conference and its location. There you will find details of how to sign up to receive further announcements and deadline reminders by email.

Additional information may be obtained from the American Physical Society website at <http://www.aps.org>. The GEC maintains a permanent website at <http://www.gec.org/>.

CONFERENCE SECRETARY

Further information on the conference may be obtained from the conference secretary at the following address:

Bill Graham
Department of Pure and Applied Physics
Queen's University Belfast
Belfast BT7 1NN
Northern Ireland

Voice: +44 28 90 973941
FAX: +44 28 90 973110
Email: gec2004@qub.ac.uk

GEC04
<http://gec2004.qub.ac.uk>

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REGISTRATION

You are strongly encouraged to register online at <http://gec2004.qub.ac.uk>. Registration information, including instructions and forms will be included with the second announcement and will also be available shortly on the GEC2004 website.

2004 Registration Fees

Note fees are in euros. Only payments in euros can be accepted

	Early*	Late
General	€225	€285
Conference Lunch	€21	
Banquet	€45	
Student/Retiree[†]	€130	€160

[†]Student/Retiree conference registration also includes the conference lunch on 29 September 2004.

***The early registration deadline is 26 July 2004**

The Registration fee includes the opening reception, refreshment breaks and conference materials. For students and retirees the conference lunch on 29 September 2004 is also included in the registration fee.

ACCOMMODATION

The conference will be held in the Conference Centre at the Fitzpatrick Bunratty Hotel, Bunratty, Co. Clare, Ireland. Blocks of rooms have been reserved at a number of hotels for conference participants. Room rates and contact information for the hotels are shown below. Conference participants must make their own reservations directly with the hotel. Mention the Gaseous Electronics Conference when you make your reservation to insure that you get the conference rate. The deadline for making reservations at the conference rate is August 25, 2004. Note that Irish accommodation prices often include the cost of a full cooked breakfast in the price.

Fitzpatrick Bunratty Hotel

Bunratty
Co Clare
Tel: 00 353 61 361177
Fax: 00 353 61 471252
E-mail: bunratty@fitzpatrickss.com
Website: <http://www.fitzpatrickss.com/>

€96 Single B&B
€130 Double/Twin B&B

Great Southern Hotel Shannon Airport

(8 km[†])
Shannon Airport
Co Clare
Tel: +353 61 471122
Fax: +353 61 471982
E-mail: res@shannon-gsh.com
Website: <http://www.gshotels.com>

€ 85 Single B&B
€ 110 Double/Twin B&B

Bunratty Castle Hotel

Bunratty
Co Clare
Tel, + 353 61 478700
Fax. +353 61 364891
E-mail: info@bunrattycastlehotel.com
Website: <http://www.bunrattycastlehotel.com/>

€85 Single B&B
€130 Double/Twin B&B

Radisson SAS, Limerick

(6 km[†])
Ennis Road
Limerick
Co Clare
Tel: +353 61 456506
E-mail: bridget.kenny@radissonsas.com
Website: <http://www.radissonsas.ie>

€105 Single B&B
€120 Double/Twin B&B

[†]There is an approximately half hourly public bus service connection with Bunratty and the conference will provide some transport to and from these hotels. If you wish to hire a car, there is free parking at the conference centre.

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There is a small, family-style (~ 10 room) hotels within a few minutes walk of the Conference Centre.

The Bunratty Manor Hotel
Bunratty Village
Co Clare
Tel: + 353 61 707984
<http://www.bunrattymanor.net/>

We have no rooms held in there so booking well in advance is recommended. Prices etc. are available on their websites.

In addition there are a large number of small hotels, guesthouses and bed and breakfast establishments in the area. Information and contact details for most of these accommodations is available at <http://www.shannonregiontourism.ie/clare>. Much of this accommodation is well within walking distance of Bunratty. But please remember, if you are planning to stay in this type of accommodation and to walk, that this is a rural area and there is no street lighting.

TRAVEL

Bunratty is 8 km from Shannon International Airport. There are direct flights from over 19 international destinations including: Atlanta, Boston, Brussels, Chicago, Washington, Frankfurt, London, Manchester, Minsk, Moscow, New York, Paris, Philadelphia, Toronto. Airline schedules are available on the Shannon Airport website. Many hotels operate shuttle bus services to and from the airport and in addition Bunratty is served by the local bus service.

Bunratty is 14 km from Limerick City which has bus and rail links to the the rest of Ireland, including Dublin (~3.5 hours), making Dublin Airport an alternative point of entry to Ireland.

There are also ferry services connecting the east coast of Ireland with Great Britain and mainland Europe.

SPECIAL EVENTS

RECEPTION

An opening reception will be held on the evening of Saturday 25 September 2004 in the Conference Centre at the Fitzpatrick Bunratty Castle starting at 7 pm.

CONFERENCE LUNCH

A conference lunch will be held on 29 September 2004. This will be a table-served lunch and will be an opportunity for the presentation of prizes and Executive Committee announcements.

BANQUET AT BUNRATTY OR KNAPPOGUE CASTLE

We have block booked the medieval banquets at these castles for the night of Monday 27 September 2004. We have reservations at two locations since each is limited to about 140 persons.

Bunratty Castle is located adjacent to the Fitzpatrick Bunratty Hotel. It was built around 1450. The banquet consists of a 4 course "medieval" Irish meal, with Mead and some craic*.

Knappogue Castle is about 15 miles from Bunratty Village (buses will be provided). This was built in 1467 by Sean MacCon McNamara and is considered a magnificent example of a medieval tower house. The banquet consists of a 5 course "medieval" meal and some craic*.

*An Irish word for fun, entertainment and of course good conversation.

Reservations are on a first come basis. Closing date for guaranteed reservations is 27 July 2004.

EXHIBITORS

Once again this year we will be making arrangements to host exhibitors of products of interest to the GEC community. A list of conference exhibitors will be provided in a later Announcement. Firms interested in exhibiting at the conference should contact the Conference Secretary.

STUDENT SUPPORT

A. GEC STUDENT AWARD FOR EXCELLENCE

In order to recognize and encourage the important contribution students make to the Gaseous Electronics Conference, the GEC Executive Committee will recognize the best paper presented by a student with the:

“GEC Student Award for Excellence”

Only oral presentations are eligible for the prize. Nominations for the award consist of a copy of the student's abstract (plain text if submitting by email, please do **NOT** send the raw LaTeX file) and a supporting letter from the student's advisor. (Note: this letter is separate from the letter of application for Student Travel Award.) Advisors may nominate only one student. Nominations should be sent by the abstract deadline (June 11 2004) to the conference chair:

GEC Student Award Nominations
c/o Prof Lepsha Vušković
Old Dominion University
Department of Physics
4600 Elkhorn Avenue, Room 306
Norfolk, VA 23529 USA
Fax: 757-683-3038 Email: yuskovic@physics.odu.edu

Based upon the abstracts submitted, the GEC Executive Committee will review the nominations and select **Student Award Finalists**. Members from the GEC Executive Committee will serve as judges. Judges will attend the finalists' talks and select the award winner. The recipient of the Student Award for Excellence will be announced at the Conference Lunch and will be presented with an award certificate along with a 500 Euro prize.

B. STUDENT TRAVEL ASSISTANCE

The GEC is committed to encouraging and supporting student participation. Advisors may request partial reimbursement of travel expenses for students attending and presenting papers at the GEC. To request support, student advisors should send a letter of application (Note: this letter is separate from the letter of support for the GEC Student Award for Excellence.) and a copy of student's abstract (plain text if submitting by email, please do **NOT** send the raw LaTeX file) to the conference secretary at the address below. Applications must be received no later than the abstract deadline, June 11, 2004.

Send applications for student travel awards to:

GEC Student Travel Assistance
c/o Prof Bill Graham
Department of Pure and Applied Physics
Queen's University Belfast
Belfast BT7 1NN
Northern Ireland

Voice: +44 28 90 973941
FAX: +44 28 90 973110
Email: gec2004@qub.ac.uk