

## PREFACE

# The 19th European Sectional Conference on Atomic and Molecular Physics of Ionized Gases

### Guest Editor

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The 19th Europhysics Sectional Conference on the Atomic and Molecular Physics of Ionized Gases (ESCAMPIG-2008) took place in Granada (Spain) from 15 to 19 July 2008. The conference was mainly organized by the Spanish National Research Council (CSIC), with the collaboration and support of the University of Córdoba (UCO) and the Research Center for Energy, Environment and Technology (CIEMAT).

It is already 35 years since the first ESCAMPIG in 1973. The first editions of ESCAMPIG were in consecutive years (1973 and 1974) but later on it became a biennial conference of the European Physical Society (EPS) initially focusing on the collisional and radiative atomic and molecular processes in low temperature plasmas. The successive ESCAMPIGs took place in Bratislava in 1976 (3rd), Essen in 1978 (4th), Dubrovnik in 1980 (5th) and so on until the last one organized in Granada in 2008 (19th), the first ESCAMPIG in Spain.

A number of changes have taken place in the Granada edition of ESCAMPIG. First, the previous six topics that have remained unchanged for almost two decades (since 1990) have now been updated to become twelve new topics which, in the opinion of the International Scientific Committee (ISC), will enhance the opportunity for discussions and communication of new findings and developments in the field of low temperature plasmas. The new list of topics for ESCAMPIG is:

- Atomic and molecular processes in plasmas
- Transport phenomena, particle velocity distribution function
- Physical basis of plasma chemistry
- Plasma surface interaction (boundary layers, sheath, surface processes)
- Plasma diagnostics
- Plasma and discharges theory and simulation
- Self-organization in plasmas, dusty plasmas
- Upper atmospheric plasmas and space plasmas
- Low pressure plasma sources
- High pressure plasma sources
- Plasmas and gas flows
- Laser produced plasmas

Secondly, a new prize has been created, the 'William Crookes' prize in Plasma Physics to be awarded biennially to a mid-career (10 to 20 years after PhD) researcher who has been judged to have made major contributions in one or more of the areas covered by ESCAMPIG. The prize was co-sponsored by the ESCAMPIG-2008 local committee, the European Physical Society (EPS) and *Plasma Sources Science and Technology*. The award was €1,000 and a diploma along with hotel accommodation and waived fees to attend ESCAMPIG-2008 where the award was presented. The first 'William Crookes' prize was awarded to Professor Dr Richard Van de Sanden from the Eindhoven University of Technology '*for his major contributions to fundamental plasma-wall interaction studies and their use in plasma enhanced deposition and etching*'.

More than 290 scientists from 35 countries around the world attended ESCAMPIG-2008 in Granada. Also remarkable is the important number of registered students (87) that participated in the conference. The total number of abstracts submitted was over 330 with more than 300 poster presentations in the three scheduled poster sessions. The oral sessions involved 16 invited lectures and eight ISC selected hot topical presentations. In addition, two afternoon special sessions of ESCAMPIG-2008 were devoted to two workshops on:

- Sprite chemistry and their impact in the upper atmosphere of the Earth  
Organized by Dr T Neubert and Dr F J Gordillo-Vazquez
- Diagnostics of active species in plasma deposition of thin films  
Organized by Dr F L Tabarés

Following a tradition started in previous ESCAMPIG editions, a special issue of *Plasma Sources Science and Technology* (PSST) is published including peer-reviewed papers based on the invited lectures, hot topic presentations and workshop contributions. Many of the authors agreed to prepare and submit within deadline suitable articles with original results or in the form of reviews and critical overviews of their own published results. I would like to thank all the speakers for their co-operation and efforts in preparing interesting lectures and for preparing papers for the special issue of PSST devoted to ESCAMPIG XIX. These papers are an equilibrated representation of the topics treated during the conference. Their publication in PSST will significantly contribute to giving the contents of ESCAMPIG a wider audience. I would like to thank the International Scientific Committee, chaired by Professor W G Graham, for building up the Scientific Program of ESCAMPIG-2008. Finally, I want to thank the workshop organizers and all the sponsors (public institutions and companies) whose contribution was an essential part of the success of ESCAMPIG 2008 in Granada.