

# **C16 activities during the period October 2017-March 2018**

## **1) Introduction**

This report covers activities of the Commission during the period October 2017- March 2018.

## **2) Activities during October 2017-December 2017**

The Vice Chair of the C16 represented the Chair Lin Ni Hau at the IUPAP General Assembly of 2017.

The call for the Young Scientist Prize (YSP) 2018 was launched, with the approval of the Chair Lin-Ni Hau.

## **3) Activities during 2018**

The new Commission C16 took function in January 2018.

### **3.1) Selection of the winner of the YSP 2018**

The process for the selection of the winner of the YSP 2018 was completed at the end of March.

### **3.2) Participation in WG**

M.Q. Tran was nominated as Associate Member of the IUPAP WG on Particle Accelerator. He participated in a meeting of the WG, which was held at the Paul Scherrer Institute in Switzerland.

## Annex 1 Report on the ICPIG 2017

### **The XXXIII International Conference on Phenomena in Ionized Gases**

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Ionized gases are an amalgamation of electrically charged species (electrons and ions), eventually mixed with neutral molecules, that may exhibit significant deviations with respect to thermodynamic equilibrium, with hot electrons stimulating the reactivity of the cold neutrals. This fourth state of matter was termed “plasma” by Irvin Langmuir 90 years ago, and the community immediately perceived its relevance for many applications with societal interest, ranging from the production of energy by fusion plasmas to the processing of both organic and inorganic materials by partially ionized gases.

The International Conference on Phenomena in Ionized Gases (ICPIG) was founded in 1953, only three decades after Langmuir’s identification of plasma, and today ICPIG is one of the oldest and most important international conferences on plasma physics. In its early editions, ICPIG was mostly dedicated to fundamental science (focusing on topics such as elementary processes and fundamental data, plasma diagnostics, wave and instabilities and space physics), but the recent burst of interest in plasma-based applications has pushed the community to follow new research paths, contributing also to enlarge the scope of ICPIG, for example with the addition of topics on plasma processing of surfaces and particles, and medical, biological, environmental and aeronautical applications. Although this diversification led inherently to the foundation of more specialized plasma conferences and workshops, ICPIG kept the role of interconnecting the broad community of low-temperature plasma physics, holding a key position as a “forum for the discussion of nearly all fields of plasma science”.

The XXXIII edition of ICPIG was held in Estoril, Portugal, from 9 to 14 July. The Local Organizing Committee was composed by members of the Instituto de Plasmas e Fusão Nuclear, Instituto Superior Técnico, belonging to the University of Lisbon, the University of Oporto and the University of Minho.

The XXXIII ICPIG has featured a new conference format. Leveraging on the large diversity that characterizes ongoing research in plasma physics, and aiming also on broaden opportunities for the diffusion of scientific results by both young and senior researchers, the International Scientific Committee of ICPIG has decided to reduce the number of general invited talks to introduce, for the first time, oral contributions. The 2017 scientific program was composed by 6 invited general lectures, 29 invited topical lectures and 36 oral contributions, organized in two parallel sessions, in addition to 4 poster sessions and 1 special session on “Challenges in the modelling of low- temperature plasmas” (in honour of our late and distinguished colleague Carlos Matos Ferreira), corresponding to a total of 416 submissions presented by 387 participants from 36 countries. One of the important scientific highlight is the growing importance of the physics and applications of atmospheric plasma .

ICPIG awards the ‘von Engel and Franklin Prize’, established in 1998. It is sponsored by the ‘Hans von Engel and Gordon Francis Fund’ and is administered by the Board of Physical Sciences, University of Oxford. The prize is named in honor of two distinguished

colleagues who had a major role in ICPIG and its community since the first meeting in 1953. The 2017 von Engel & Franklin Prize was awarded to Prof. Uwe Czarnetzki (Ruhr Universität – Bochum) for his long-standing and important contributions to the field.

ICPIG is organized in accordance with IUPAP principles, regarding the free circulation of scientists for international purposes, as stated in the declaration of the International Council of Science, adopted at the 26th General Assembly in 2008 and endorsed by the 27th General Assembly in 2011. In particular, no *bona fide* scientist is excluded from participation on grounds of origin, nationality or political considerations unrelated to science. ICPIG XXXIII is indebted to IUPAP for its generous financial support, that allowed to support the travel expenses of several participants from developing countries.

The XXXIII edition of ICPIG was very successful, since it brought together a large number of researchers that could discuss plasma physics for 5 days, in a relaxed atmosphere, enjoying a high-quality scientific program.

## Figures

**Figure 1.** View of the main auditorium during the Opening session



**Figure 2.** Group photo of ICPIG participants in front of the Estoril Conference Center

