

# IUPAP Commission C13 - Physics for Development

## Report to the 2017 IUPAP General Assembly

### **Summary:**

*The two main achievements of C13 in the three-year period 2015-2017 are the establishment of a **C13 Medal** to recognize outstanding contributions to the enhancement of physics in developing countries, and the successful bid to the **ICSU grant** program for a 3-year, 300,000 Euro project on light-source and crystallographic sciences, in collaboration with IUCr.*

### **1. C13 annual meetings**

The C13 Commission held three annual meetings in Trieste, Italy, at the end of August of each year.

### **2. Inaugural IUPAP C13 Medal**

Following approval by the Council in 2015, the call for nominations for the first *IUPAP Medal for Outstanding Contributions to the Enhancement of Physics in Developing Countries* was issued in 2016. The winner of the Inaugural Medal is Prof. Jorge Flores-Valdés, “for his outstanding work along 50 years towards the development of Physics and scientific institutions and the popularization of science in Central America”. The Medal winner will receive the award during the 2017 IUPAP General Assembly, where the recipient will be invited to present a paper on the work upon which the Medal selection was made.

### **3. “LAAMP”: ICSU Grant and collaboration with IUCr**

C13 led the preparation of a successful proposal for a 3-year, 300,000 Euro ICSU grant on the “*Utilisation of Light Source and Crystallographic Sciences to Facilitate the Enhancement of Knowledge and Improve the Economic and Social Conditions in Targeted Regions of the World*”. The project is co-lead by IUPAP and IUCr and is supported by IUMRS, UNESCO, ICTP, EPS, AAPPS, and many synchrotron light sources worldwide. Through this project, now known as LAAMP (Lightsources for Africa, the Americas and Middle East Project; <http://www.iucr.org/outreach/laamp>), ICSU partners with IUPAP and IUCr to enhance Advanced Light Source (AdLS) and crystallographic science in Africa, the Middle East, Mexico and Caribbean. AdLSs have revolutionized research in many science and technology disciplines, leading to a proliferation of facilities worldwide (the website [lightsources.org](http://lightsources.org) has links to some 47 facilities in 23 countries in various stages of operation, construction or planning). However, although the SESAME AdLS in Allam, Jordan, has recently circulated its first beam and hopes to begin experiments in the next few months, no AdLS facility operates in Africa, Mexico or the Caribbean. To start the process of growing and enhancing AdLS and crystallographic science in those regions, LAAMP will undertake the following tasks: (1) develop a Strategic Plan for each region to grow and enhance its AdLS and crystallography user communities; (2) establish a Colloquium Programme for each region to recruit new AdLS and crystallography users; (3) publish an Information Brochure that describes AdLSs, crystallography and the many fields that they impact; (4) facilitate researchers' visits to AdLS and crystallography facilities; and (5) convene a meeting at UNESCO to present the regions' Strategic Plans and define the charge for more detailed Business Plans that include feasibility studies of constructing AdLSs in regions where they do not

yet exist. By enhancing AdLS and crystallographic sciences, the regions' peoples will benefit from research that will tackle devastating viruses such as Zika, Ebola and HIV; the development of sustainable sources of clean energy; and investigations into archaeological and paleontological treasures. Thus, a major outcome of this project will be acceptance by governments that AdLSs and crystallography will bring major advances in their countries' socio-economic development.

#### 4. Conferences / African School Series

In addition to sponsoring the below list of “Type-D” conferences, in the 2015-2017 period C13 has continued to organize and support the African School Series on Electronic Structure Methods and Applications (ASESMA). ASESMA was initiated in 2010 as a joint effort of C13 and C20. This series of schools on computational materials science is planned on a biennial basis, and focuses on theory and computational methods for predicting and understanding materials through calculations at the fundamental level of electronic structure. Particular emphasis is placed on applications relevant to developing countries in Africa. The fourth school in this series took place June 12 -22, 2016 at the University of Ghana and the fifth school will be held in 2018 in Addis Ababa, Ethiopia. Previous schools were in Cape Town, South Africa (2010), Eldoret, Kenya (2012), and Johannesburg (2015).

List of “Type-D” conferences sponsored by C13 in the period 2015-2017:

- *Spring School and Workshop on “Cold Atoms and Molecules & Applications in Metrology”,* 16 – 23 March 2015, Tunis, Tunisia
- *XIII Hadron Physics,* 22 – 27 March 2015, Rio de Janeiro, Brazil
- *Celebration of the 2015 International Year of Light and Official Launch of the African Optics and Photonics Society,* 2 – 9 April 2015, Dakar, Senegal
- *Entrepreneurship for Scientists and Engineers,* Maharaja Sayajirao University of Baroda, India, 19–21 September 2016
- *4<sup>th</sup> Biennial African School of Fundamental Physics and Applications (ASFPA),* 01 – 19 August 2016, Kigali, Rwanda.
- *4<sup>th</sup> African School on Electronic Structure Methods and Applications (ASESMA),* 12 – 25 June 2016, University of Ghana, Legon-Accra, Ghana.
- *XLVII International Symposium on Multiparticle Dynamics (ISMD2017),* 31 July – 4 August 2017, Tlaxcala, Mexico
- *24<sup>th</sup> IUCr Congress and General Assembly,* 21 – 28 August 2017, Hyderabad, India
- *Laboratory and synchrotron X-ray crystallography: applications to emerging countries,* 9 – 20 October 2017, University of Ziguinchor, Senegal

#### *C13 Members:*

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 Dipali Bhatt-Chauhan – Secr.  
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Kennedy Reed  
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