



SAIP – BIOPHYSICS

BIOPHYSICS REPORT 2015 – 2016

BACKGROUND

This report is an overview of the activities that have taken place between the 60th and 61st Annual SAIP Conferences to help promote and establish Biophysics as a scientific discipline within South Africa. The report focuses on activities where the SAIP Biophysics Initiative has organised, sponsored and/or supported an activity or event. The SAIP Biophysics Committee notes that there have been other associated activities that have and are taking place which are also designed to support the aims of the Biophysics Initiative but which are not reported here.

ACTIVITIES 2015 – 2016

1. Biophysics activities during the 60th Annual SAIP Conference

A record number of 15 Biophysics oral presentations were given during the 2015 SAIP conference: 11 in the Photonics Track, 2 in the Theoretical Physics Track, and 2 in the Condensed Matter and Materials Physics Track. A broad range of subjects were presented, which included photosynthetic light harvesting, molecular motors, biofilms, and diseases such as diabetes and cancer. The range of experimental techniques spanned atomic resolution imaging, single-molecule and ultrafast spectroscopy on the one extreme and remote atmospheric sensing of insects on the macroscopic scale. Monetary prizes were awarded for the best presentation on a Biophysics topic by an MSc and a PhD student.

2. Biophysics Promotional Booklet

A promotional biophysics booklet for high school pupils and undergraduate students was published and distributed at the 2015 National Science Week, school excursions to science centres in Gauteng, outreach activities with local SPIE (the International Society for Optics and Photonics) student chapters, and given to physics students at the following universities: UP, TUT, WITS, NWU (Potchefstroom and Mafikeng), UFS,

UKZN, SU, UWC, and UCT. The remaining copies will be distributed at further outreach opportunities, including the 2016 National Science Week.

3. Biophysics Postgraduate Courses

Postgraduate biophysics courses were again given at UP and UCT. At UP, the course was presented to physics students and focussed on molecular and structural biophysics, spectroscopy and energetics, while the course at UCT focussed on X-ray crystallography, microscopy of proteins and modelling of proteins.

4. South African Biophysics Strategy

Numerous discussions have taken place during the past year to stimulate the growth of Biophysics in South Africa. This includes discussions with the South African Association for Physicists in Medicine and Biology (SAAPMB), the US National Cancer Institute (NCI), the (International) Biophysical Society (BPS), and Instruct (a pan-European organization that has been constituted specifically for the purpose of sharing large, international infrastructure). We agreed to join forces with the SAAPMB by supporting their annual conferences.

5. Science Policy Forum, 8-9 Dec. 2015

The Biophysics Initiative (with the assistance of Lawrence Norris) has presented the following lectures at the Science Policy Forum on 9 Dec. 2015 under the title, "Biophysics Underpins BioDesign and a Vibrant Bioeconomy": *We discussed South Africa's prospective role in the global biophysics enterprise and discussed how biophysics is a fundamental enabling science in medicine, agribusiness, sustainable energy, and industrial biotechnology.* Unfortunately Lawrence Norris was not able to attend the Forum and follow-up discussions are planned. We received valuable feedback from DST.

6. Biophysical Society (BPS) Thematic Meeting

The Biophysics Initiative was active in the organisation of the prestigious Biophysical Society Thematic Meeting on Understanding, Diagnosis and Treatment of Infectious Diseases in Stellenbosch during 16–20 Nov. 2015. Funds made available by the Initiative enabled several local students to attend the meeting. (See conference website: <http://www.biophysics.org/2015southafrica/Home/tabid/5316/Default.aspx>)

7. Quantum Effects in Biological Systems (QUEBS)

The 2016 International Conference on Quantum Effects in Biological Systems (QUEBS) was hosted in Durban and organised by one of the SAIP Biophysics Committee members. Numerous prominent international speakers were attracted and approximately 12 local students were sponsored from funds made available by the Initiative. (Conference website: <http://www.quebs2016.org/>)

8. Biophysics activities during the 61st Annual SAIP Conference

We are organising a Biophysics Winter School to precede the 61st SAIP Conference in Cape Town around the theme “The Biophysics of Cells and Macromolecules.” The lectures will be given by local biophysicists as well as a prominent Dutch biophysicist whom we have sponsored.

See conference website: <http://events.saip.org.za/internalPage.py?pagelId=3&confId=86>