



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Spring School

on

Solar Energy and Photosynthesis

1-5 October 2018

University of Pretoria, South Africa

Please register here: [Registration form](#)

For further details /queries, please email:

upsepspringschool@gmail.com

Registration deadline: 31 JULY 2018

Seats are limited due to popularity of the course

Accommodation as well as travel bursaries are offered

Target Audience

BSc Honours / MSc students. PhDs and postdocs are also welcome
Students with background in Physics, Chemistry, Biology and/or Engineering are encouraged to participate

- ✓ Highly interactive, interdisciplinary school
- ✓ Participation in assessment activities is compulsory
- ✓ Participation certificates will be given
- ✓ Participants are encouraged to bring a poster about their own research



The top BSc Honours / MSc student will be awarded a fully funded internship at CEA Saclay (France)

Free registration includes lunch and morning and afternoon snacks

Sponsors



More about the course...

The present global energy demand of approximately 17 TW is predicted to increase twofold by 2050 as the result of population and economic growth. Africa's energy demand will probably be the highest of all continents. The challenge in fulfilling in a sustainable way our high demand for energy is not one of an inherent lack of available energy. In fact, the amount of solar energy reaching the earth's surface in one hour is more than what is consumed by mankind in an entire year. However, there are still major challenges faced by current solar energy technologies that have to be overcome to make the technologies economically viable, especially for developing countries. The two main challenges are

- (1) to develop inexpensive materials that offer a high efficiency of solar energy conversion; and
- (2) to store the energy in a compact, inexpensive and durable form.

Fundamental research needed to address these two challenges is limited in South Africa and in Africa at large. The proposed course will address this knowledge gap and will focus primarily on the first challenge, i.e. the fundamental aspects of solar energy conversion in various types of materials. Particular focus will be given to "natural" solar energy conversion, i.e. the primary steps of photosynthesis, during which solar energy is converted into chemical energy on a massive scale, to highlight the importance of bio-inspired solar energy technologies. This calls for a strong multidisciplinary approach, including physics, chemistry, materials science, biology and engineering.

Topics included:

- 1) **Photosynthesis (Natural Solar Energy Conversion)**
- 2) **Chemistry of Sustainable Materials**
- 3) **Photovoltaics & Engineered Materials**
- 4) **Laser Spectroscopy**

Organisers & Lecturers

(University of Pretoria)

Prof. Tjaart Krüger (Convenor)

Prof. Mmantsae Diale

Dr. Michal Gwizdala

Prof. Emil Roduner

Dr. Shankara Radhakrishnan

Dr. Steven Hussey

Dr. Eshchar Mizrachi

Guest Lecturers:

Prof. Rienk van Grondelle

(Vrije Universiteit, Amsterdam)

Dr. Bruno Robert

(CEA-Saclay, France)

Prof. Emil Roduner

(University of Stuttgart, Germany)