

Photovoltaics in General

The aim of photovoltaics is the direct conversion of solar radiation into electricity by using solar cells. It is studied in applied solid state physics, material sciences and electrical engineering. Photovoltaics is one of the worldwide strongest developing industries and has a tremendous potential for environmental friendly production of electricity.

Photovoltaics in East Africa

Technologies based on photovoltaics are highly needed for decentralized and cost-effective production of electricity in East Africa, in both urban and rural areas. Cost-effective concepts in photovoltaics allow to achieve international scientific success for every East African scientists already with basic equipment.

Derivation of "Summer School"

Summer school is a specific type of conference with an academic program for at least one or two weeks. The name derives from the European summer season when students have time for extra education.

Hahn-Meitner Institute (HMI)
Berlin, Germany

Jomo Kenyatta University
of Agriculture and Technology (JKUAT)
Nairobi, Kenya

Berlin-Nairobi Exchange (BNE)
Berlin, Germany and Nairobi, Kenya

Contact

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19 August – 1 September 2007

Cost-effective Photovoltaics Research



Summer School in Nairobi

on Applied Solid State Physics,
Material Sciences and Electrical Engineering
Supporting Renewable Energy Research
in East Africa

Date

19 August – 1 September 2007

Location

Conference Center (AICAD)
at Jomo Kenyatta University of Agriculture
and Technology, Nairobi, Kenya

Lecturers

Senior lecturers from Germany and Kenya

Who can participate?

30 young East African scientists interested in photovoltaics from advanced Bachelor students to junior researchers and lecturers

Fully Sponsored

- Lectures, seminars and laboratory
- Tutorial material
- Certificate
- Accommodation and meals
- Daily allowance
- One-day excursion (Nakuru National Park)
- Travel expenses (only partly sponsored)

Application process

Consisting of two phases:

- Phase I: Web application form
- Phase II: Motivation essay, curriculum vitae and letter of recommendation

Deadline for application is 31 Mai 2007.

Further details at:

<http://www.berlinnairobi.org/summerschool>

Lectures

The lectures provide an overview of essential theoretical aspects of photovoltaics and introduce several relevant types of solar cells.

a) Introduction of Solar Cell Types

- Organic Solar Cells
- Dye Sensitized Solar Cells
- Si Photovoltaic Technology
- Amorphous Si Solar Cells
- c-Si Solar Cells
- Chalcopyrite Solar Cells
- III-V Semiconductor Cells (Ga:As)
- Concentrator Solar Cells

b) Aspects of Photovoltaics

- Maximum Efficiency of Solar Cells
- PN – Junction
- Recombination Processes
- Aspects of Transport
- Surface Characterization
- Amplifiers
- Signal Processing
- Perspectives of Photovoltaics

Seminars

The seminars illustrates the theory with significant examples.

- Sun Simulator
- Connection of Solar Cells
- Photovoltaics at Hahn-Meitner Institute
- Several evening seminars on:
Renewable Energy
in East Africa and Europe

Laboratory

The laboratory training offers practical experience on cost-effective methods in photovoltaics. Dye sensitized solar cells are one example for such methods.

- Preparation and Characterization of Dye Sensitized Solar Cells
- Efficiency of Solar Cells
- Transmission of Dye Solutions
- Mini Grid
- Photocurrent Transient

Further Details

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