Physikalisches Institut
Fakultät für Mathematik und Physik
Albert-Ludwigs-Universität Freiburg

Quantum Efficiency Seminar und Colloquium

PETTER PERSSON

Faculty of Science
Lund University, Schweden

Quantum Photoelectrochemistry of Nanostructured Materials for Solar Energy Conversion

Theoretical studies of nanostructured materials for emerging solar energy conversion applications that include both photovoltaic technologies and artificial photosynthesis are presented. Computational modelling of photoinduced processes in light-harvesting molecular systems, as well as electronic properties of nanostructured semiconductor materials will be discussed. Progress towards improved control of interfacial electron transfer processes through a combination of theoretical predictions and experimental activities is illustrated with recent examples using chromophores linked to nanostructured semiconductor substrates via dedicated spacer units. Our theoretical investigations are based on atomistic first principles calculations, with emphasis on density functional theory (DFT) based methods, and the computational work is conducted in close collaboration with experimental groups that span from synthesis to characterization.

Date: **Tuesday, June 26th, 2012 14:15 pm**
Location: **Lecture Hall 1, Hermann-Herder-Str. 3, Freiburg**

Contact: Andreas Buchleitner, Institute of Physics, Quantum Optics and Statistics
T +49 761 203 5821 F +49 761 203 5967 E buchleitner_office@physik.uni-freiburg.de
www.physik.uni-freiburg.de