Bar-Ilan University
אוניברסיטת בר-אילן

Faculty of Exact Sciences
Department of Chemistry

הפקולטה למדעים מדויקים
המחלקה לכימיה

S P E C I A L S E M I N A R

Wednesday 3/4/19, 9:15

Nano Building 206, seminar room C563

SPEAKER:

Prof. Thomas Kirchartz

Institute of Technology of Nanostructures
University Duisburg-Esse, Germany

TOPIC:

What makes a good solar cell

For the purpose of identifying novel absorber materials based on experimental or computational material screening, it is useful to identify the basic ingredients required to make a good solar cell out of the combination of different absorber and contact materials. Figures of merit are needed that quantify whether a certain material is likely to perform well as a solar cell. To answer the question, which parameters are most important, we look into the key properties of good solar cells such as high absorption coefficient, mobility and charge carrier lifetime and study their interdependences and how they determine the efficiency at different thickness of the solar cell. Finally, we study some microscopic parameters such as the effective mass or electron-phonon coupling in a device to identify key microscopic properties that are likely to lead to a combination of high absorption, high mobilities and long lifetimes and thereby high photovoltaic efficiencies

About the presenter:

Thomas Kirchartz is currently a professor of electrical engineering and information technology at the University Duisburg-Essen and the head of the department of analytics and simulation and the group of organic and hybrid solar cells at the Research Centre Jülich (Institute for Energy and Climate Research). Previously he was a Junior Research Fellow at Imperial College London. His research interests are all aspects regarding the fundamental understanding of photovoltaic devices including their characterization and simulation

Host: Prof David Cahen