Solar Energy and Building Physics Laboratory
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LESO LUNCHTIME* LECTURES

renewable energy - building science - urban physics

Tuesday 23 July2013, 12h20-13h30
EPFL – CM 4

Diametric Strategies for Ultra-Efficient Photovoltaics

Prof. Jeffrey GORDON
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Summary

Recent advances from two diametric approaches for realistically approaching the fundamental limits to solar cell conversion efficiency, which follow from basic thermodynamics, will be presented. One relates to a new concept in cell architecture for concentrator photovoltaics, with the possibility of using exclusively indirect bandgap semiconductors (including Si and Ge) at irradiance values of thousands of suns. The second constitutes the first experimental demonstration of performance enhancement by recycling photon emission from high-efficiency non-concentrator (one-sun) solar cells. An analysis of the results points to roadmaps for future improvements.

Author

Jeffrey Gordon holds the rank of professor at Ben-Gurion University of the Negev (Israel) in the Department of Solar Energy and Environmental Physics at the Blaustein Institute for Desert Research. He obtained his PhD from Brown University in 1976 after an BA and an MA from Columbia University. Following a Post-doc at the Weizmann Institute of Science he joined Ben Gurion University, of which he has been a Faculty member since 1978.
His research and teaching interests focus on advanced optical design, the solar energy sciences, photovoltaic physics, novel nanomaterial syntheses, and ultra-high algal bioproductivity, fields in which he has published numerous papers.
http://www.bgu.ac.il/~jeff/

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*Presentations are followed by an aperitif, to give the opportunity to guest and speakers to further discuss the topic.