IAS DISTINGUISHED LECTURE

Regenerative Thermo-PhotoVoltaics, a New Opportunity in Radiative Science

Prof Eli Yablonovitch, James & Katherine Lau Chair in Engineering, University of California at Berkeley; Visiting
Jockey Club Institute for Advanced Study

Date : 28 May 2014 (Wednesday)
Time : 3:00 - 4:30 pm
Venue : Lecture Theater, Lo Ka Chung Building, Lee Shau Kee Campus, HKUST

Details

Abstract

Recent breakthroughs in the understanding of solar cells have led to new record efficiencies. Like all new scient
repercussions that extend into new and unexpected areas. Serendipitously, the need for high internal reflect
solar cells solves a 50-year-old-impasse that had prevented progress in thermo-photovoltaics. In thermo-pho
converted directly into electricity in photovoltaic cells; but the efficiency has not exceeded ~15%. By employing
recycle the thermal photons, efficiencies are projected to reach >50%, making thermo-photovoltaics compe
engines to produce electricity. The only moving parts are photons, nonetheless, a thermo-electric generator
internal combustion engine for charging hybrid vehicles.

About the speaker

Prof Eli Yablonovitch received his PhD in applied physics from Harvard University in 1972. He has worked at B
Exxon and Bell Communications Research, where he was Director of Solid-State Physics Research and b
crystals. Before joining University of California at Berkeley in 2007, where he is currently James & Katherine La
Yablonovitch had also taught at Harvard University and University of California at Los Angeles.

Prof Yablonovitch's work has covered a broad variety of topics: nonlinear optics, laser-plasma interaction
photovoltaic energy conversion, strained-quantum-well lasers, and chemical modification of semiconductor s
interests are in optoelectronics, high speed optical communications, high efficiency light-emitting diodes and r
crystals at optical and microwave frequencies, quantum computing and quantum communication.

In 2003, Prof Yablonovitch was elected Member of both the US National Academy of Engineering and US Nati
He is also a Fellow of the Institute of Electrical and Electronic Engineers (IEEE), the Optical Society of America,
Society. He has been awarded the Adolf Lomb Medal, the W. Streifer Scientific Achievement Award, the R
Springer Prize, the Harvey Prize, the IEEE Photonics Award and the Institution of Engineering and Technology M

The lecture is free and open to all. Seating is on a first-com
Light refreshments will be served from 4:30 to

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