DEPARTMENT OF PHYSICS

This Week in Physics

SYRACUSE UNIVERSITY
College of Arts & Sciences

Week of
September 21, 2009
http://www.phy.syr.edu/SeminarsEvents.htm

DEPARTMENT OF PHYSICS

201 Physics Building
Syracuse NY 13244-1130

Phone: 315-443-3901
Fax: 315-443-9103
Email: davis@phy.syr.edu

THURSDAY, SEPTEMBER 24

Colloquium
4:00 PM, Rm 202 (refreshments 3:30 PM)
Prof. Eric Schiff (Syracuse University)
Science and Solar Cells: Physics old and physics new

There is a new urgency to the long quest for sustainable energy sources to replace fossil fuels. What roles do physics and physicists play? In this talk I'll describe two examples of how physics establishes fundamental limits for solar cells. Inexpensive solar absorbers are unlikely to be single crystals, but rather amorphous and polymeric materials that can be quite disordered. Disorder leads to "Anderson localization" of electronic states; we'll show how Anderson localization ultimately determines the useful thickness of the cells, and thus the fraction of sunlight that can be absorbed. Many scientists, including the Syracuse group, are now working on new "plasmonic" approaches intended to trap light inside solar schemes. Can these escape a fundamental physical limit for "stochastic light trapping" proposed in the 1980s?

FRIDAY, SEPTEMBER 25

Condensed Matter/Biological Physics Seminar
11:00 AM, Rm 202
Professor Jennifer Ross (UMass, Amherst)
Building Biological Complexity 1-2-3