



# SOLAR QUEST

SEMINAR ANNOUNCEMENT

**James Dimmock**

Sharp Laboratories of Europe

## **HOT CARRIER SOLAR CELLS – THEORETICAL REQUIREMENTS AND EXPERIMENTAL DEMONSTRATION**

DATE: Friday, November 28, 2014

TIME: 9:00-10:30

PLACE: Seminar Room A-502  
CCR Building, 5F

### **ABSTRACT**

First generation single-junction solar cells are fundamentally limited in efficiency due to the incompatibility of a single band-gap energy cell absorbing a broadband energy spectrum. Hot carrier solar cells aim to overcome this incompatibility by functioning as an electronic heat engine. This talk will overview the theoretical requirements for a hot carrier solar cell, focusing on a device architecture using tunneling from a narrow band-gap semiconductor to a wide band gap semiconductor. It will summarize our experimental demonstration of hot carrier extraction in a prototype cell and present experimental results from recent improvements to this structure.

Solar Quest Host: Assoc. Prof. Masakazu Sugiyama, ext. 22336

