



The Hebrew University Center  
for Nanoscience & Nanotechnology



## Nano Seminar

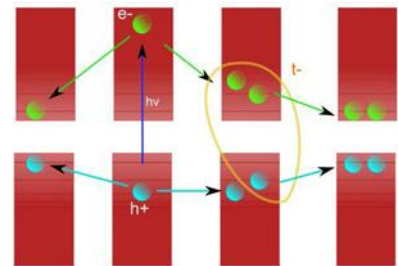
# Multiexciton Generation at the Nanoscale

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### **Abstract:**

Carrier multiplication (CM) is a process where several charge carriers are generated upon the absorption of a single photon in semiconductors. This process is of great technological ramifications for solar cells and other light harvesting technologies. For example, it is expected that when more charge carriers created shortly after the photon is absorbed, the larger fraction of the photon energy can successfully be converted into electricity, thus increasing the device efficiency.



In this talk I will discuss the process of multiexciton generation (MEG) leading to carrier multiplication in semiconducting nanocrystals and nanorods. I will mention briefly the theoretical framework we have developed including an efficient stochastic approach enabling the calculation of MEG for systems with thousands of atoms. The main focus of the talk will be to describe MEG in CdSe, InAs and Silicon based materials of different size, shape and composition. The most exciting result is our recent discovery of efficient MEG in type II nanorods, where we show how one could gain significant increase in the MEG efficiency at the onset energy.

### **Gathering & Refreshments at 10:50**

Please contact Alexandra Bannykh at 6584919 if you are interested in meeting the lecturer.

**Monday, Oct 31<sup>th</sup> 2016, 11:00 at the Seminar Hall**

Los Angeles Building, entrance floor.