

**CMP Seminar**  
**Michigan State University**

**Gil Refael**  
Caltech

***Lighting up topological insulators: large surface photocurrents from magnetic superlattices***

The gapless surface states of topological insulators (TI) can potentially be used to detect and harvest low-frequency infrared light. Nonetheless, it was shown that significant surface photocurrents due to light with frequency below the bulk gap are rather hard to produce. Adding a periodic magnetic pattern to the surface dramatically enhances surface photocurrents in TIs. The ability to produce substantial photocurrents on TI surfaces from mid-range and far-infrared light could be used in photovoltaic applications, as well as for detection of micrometer wavelength radiation.

**Monday, October 31, 2016**  
**4:10 p.m.**  
**BPS 1400**  
**Prof. Mark Dykman - Host**