



Dienstag, 04.07.2017, 16.15 Uhr in W0 0-001

**Yi Ren**

Ångström Solar Center, Uppsala University

### **Kesterite Based Thin Film Solar Cells: A Steady Rising PV Technology**

Kesterite  $\text{Cu}_2\text{ZnSnS}_4$  (CZTS) is interesting as a sustainable photovoltaic technology due to its earth-abundant elements and suitable semiconducting properties. To date, record efficiencies of above 13% (for Se contained CZTS) and 9% (for pure sulfide) have been achieved. Part of the success for kesterite technology is the introduction of a thermal process followed by precursor deposition. However, the lacking of understanding such process also breeds issues, which is crucial in promoting high quality of bulk CZTS as well as the relevant interfaces in the device structure. In this seminar, I will present how we can connect the improved CZTS material quality at Uppsala University, which results from the understanding of the different thermal treatments, to the improvement of the solar cell performance (a record high  $V_{oc}$  of 783mV with CdS based buffer was achieved). I will also present how influential the interface modifications could be on CZTS solar cell performance.