

# **Physics Colloquium**

**“Modeling and simulations  
of the low-cost solar-cell materials”**

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Solar photovoltaics (PV) have been cited as a potential promising option for a low-carbon future. The deployment of PV cells must be at the scale of tens of peak terawatt in order to contribute significantly to U.S. and global energy demands. But the current is far from reaching this goal. Cost-effective, earth-abundant and environmentally benign PV materials are needed. In this colloquium, I will present our recent first-principles computational studies on some potential materials for these requirements. A brief review of the methodology and the study in this field will be given. The focus will be on the electronic structures of cupric and cuprous oxides. Doping in  $\text{Cu}_2\text{O}$  will also be discussed in details.

**Thursday, Feb 9, 3:40pm in Sci 234**

**Refreshments at 3:00 in Science 103**