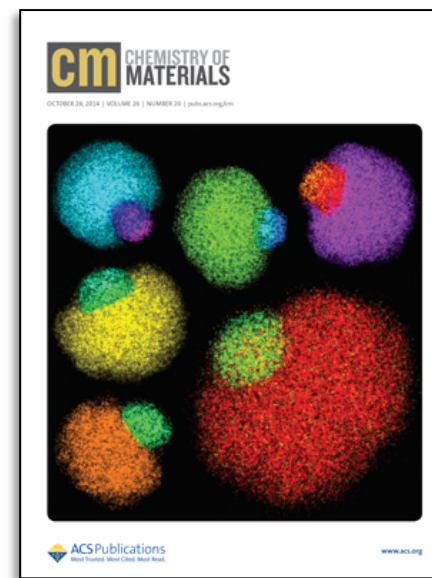
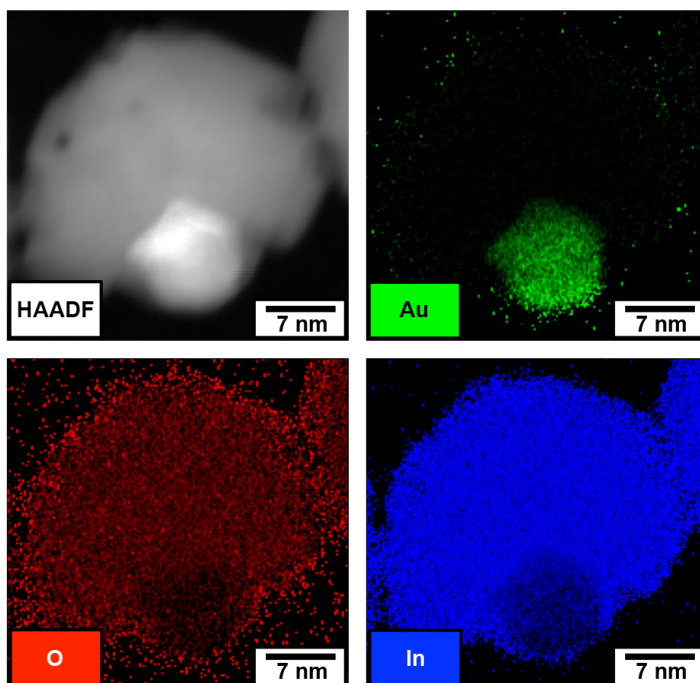
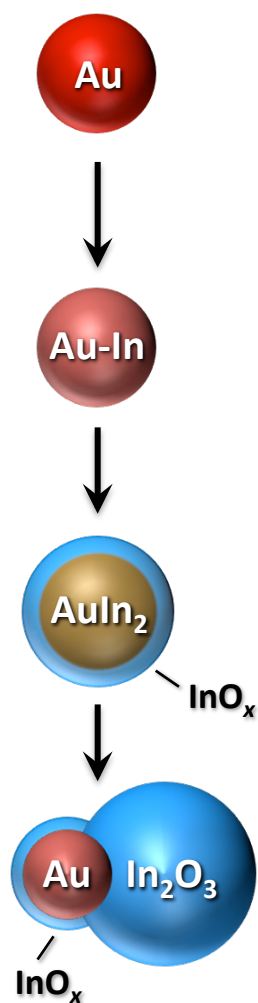


# Dual-Plasmonic Gold–Indium Oxide Hybrid Nanoparticles

Thomas R. Gordon and Raymond E. Schaak\*

*Department of Chemistry, The Pennsylvania State University, University Park PA 16801*

DMR-0820404 (Penn State MRSEC, IRG4)



Gordon, Schaak, *Chem. Mater.* **2014**,  
26, 5900-5904. [Cover article]

In solution, gold (Au) nanoparticles incorporate indium (In) at elevated temperatures to form Au-In and AuIn<sub>2</sub> alloys. Selective oxidation of the indium in the alloys then occurs, resulting in the formation of indium oxide (In<sub>2</sub>O<sub>3</sub>). The In<sub>2</sub>O<sub>3</sub> separates from the Au, forming a hybrid Au-In<sub>2</sub>O<sub>3</sub> nanoparticle. Au particles absorb visible light while In<sub>2</sub>O<sub>3</sub> particles absorb near infrared light, resulting in a single particle with two distinct optical (plasmonic) absorptions.