



Showcasing research from Dr. Soubantika Palchoudhury's laboratory, Chemical and Materials Engineering, University of Dayton, Ohio 45460, USA.

Multinary light absorbing semiconductor nanocrystals with diversified electronic and optical properties

This work highlights the major breakthrough in research at the rich interface of nanochemistry and theoretical electronic structure prediction for a family of new multinary chalcogenide semiconductor nanocrystals, $\text{CuZn}_2\text{As}_x\text{Se}_{4-x}$ (A: Al, In, Ga; $0 < x < 4$). A fundamental understanding of tunable electronic properties of the Cu-chalcogenide nanocrystals is achieved *via* synthesis and multi-modal material characterization coupled with density functional theory and virtual crystal approximation. This work showcases the progress of sustainable chalcogenide nanostructures for photovoltaic and light-emitting applications.

As featured in:



See Soubantika Palchoudhury, Jingsong Huang *et al.*, *Nanoscale Adv.*, 2024, **6**, 3785.