Rapid Synthesis of Multinary Chalcogenide Nanoparticles

Researchers at Purdue University have developed an innovative technology that is a fast and simple process for the synthesis of binary, ternary, and multinary nanoparticles of various combinations of Cu, In, Ga, and Se using commonly available precursors at moderate temperatures and atmosphere pressures.

The precursors that can be used in such processes may include various metal halides, elemental metals, elemental chalcogen, as well as chalcogen compounds. This new process is a low cost alternative that still maintains a high throughput synthesis of crystalline chalcogenide nanoparticles while providing a simpler method of production and integration than current technologies. Applications for this technology include thin-film solar panel devices.

Domain:
- Materials Engineering

Advantages:
- Cost effective
- Simple method
- High throughput method

INNOVATOR BIOGRAPHY

Dr. Rakesh Agrawal is the Winthrop E. Stone Distinguished Professor of Chemical Engineering at Purdue University. His research interests include energy transformation and use issues for solar, coal, biomass and hydrogen economy, novel separation processes using distillation, membranes, and adsorption, and cryogenics and gas liquefaction processes.