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Rapid Synthesis of Ternary Chalcogenide Nanoparticles

A cost-effective, high-throughput, and simplified synthesis method produces crystalline chalcogenide nanoparticles for superior integration into applications like thin-film solar panel devices.

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 atmospheric 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.

Advantages:

-Cost effective

-Simple method

-High throughput method

Potential Applications:

-Green technology

-Materials

-Manufacturing

-Solar panels

TRL: 5

Technology ID

64629

Category

GreenTech/Carbon Management
Semiconductors/Fabrication & Process Technologies
Materials Science & Nanotechnology/Nanomaterials & Nanostructures

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