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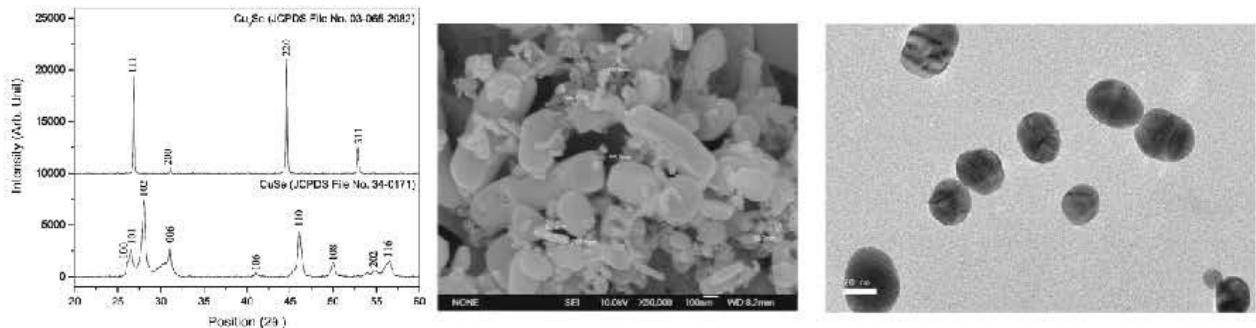
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RESEARCH HIGHLIGHTS

1. Synthesis (nanoparticles compound/composites, quantum dots, thin film):

- Polycrystalline chalcogenide semiconductor
- Organic-inorganic perovskite semiconductor
- Metal organic framework

Using physical and chemical approach



Josephine Ying Chyi Liew, Zainal Abidin Talib, Zulkarnain Zainal, Mazliana Ahmad Kamarudin, Nurul Huda Osman and Han Kee Lee, Structural and transport mechanism studies of copper selenide nanoparticles, Semiconductor Science and Technology, Volume 34, Number 12, 2019.

2. Characterization:

- Structural (XRD, EDX, FTIR, Raman Spectroscopy, defect and impurities)
- Morphological (FESEM, HRTEM, AFM)
- Electrical (electron-phonon transport properties, conduction mechanism, CAFM, PFM)
- Optical (linear and nonlinear optics, UV-Vis Spectroscopy, Photoluminescence)
- Thermal (photothermal, photoacoustic, DSC, TGA)

3. Application testing:

- Solar cell efficiency
- Light Emitting Diode (LED)
- Thermoelectric power

4. Development and modification of experimental setup:

- Electrical conductivity measurement setup
- Thermal diffusivity measurement setup
- Heat capacity measurement setup
- Thermoelectric power measurement setup
- Thermal conductivity measurement setup