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Title:	A study of Pb halide perovskite- chalcogenide core-shell structure
Authors:	<a href="#">Meena, Akhilesh Kumar.</a>
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Abstract:	Perovskites are leading the arena of current research due to their applications in photovoltaics, light-emitting diodes, photodetectors, solar fuels, etc. However their susceptibility to environmental factors like moisture, oxygen, thermal stress, light, and applied electric field along with shorter lifetime, limits their usage in commercial applications. This issue intensifies as we move to the nanoscale region. The poor stability of these nanocrystals attracted attention of researchers to work on surface modification of it. Nonetheless, it is critical to address this issue in perovskites to date. Coating these nanocrystals has proven to improve stability, but it's a difficult task as a direct coating on nanocrystals leads to lattice mismatch. It has been considered an effective strategy to combat serious issues linked to it over the past two decades. In this work, we prepared CsPbBr <sub>3</sub> /ZnSe nanocomposite, where CsPbBr <sub>3</sub> nanocrystals are present in the core and are covered by a ZnSe shell. UV-Vis, PL Spectroscopy, TGA, DSC, TCSPC, TEM and SEM are used for the analysis. The composite synthesis is very facile via high-temperature hot injection keeping intact the cubic phase of CsPbBr <sub>3</sub> . This nanocomposite exhibits almost twice the thermal stability and decay time of 27.6ns with a band gap of 2.4eV, which is useful for various optoelectronic and photovoltaic applications.
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