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Synthesizing Methylammonium-Octhylammonium Lead Bromide Hybrid Perovskite Nanoparticles

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Abstract
Organic-Inorganic hybrid perovskite materials have attracted significant research interest in the field of photovoltaic as well as light emitting applications. Methylammonium-Octylammonium Lead Bromide ($MOPbBr_3$) as one of the organic-inorganic hybrid perovskite materials have been synthesized through non template chemical precipitation technique. This technique is simple and allows low cost solution processing in low temperature route to form $MOPbBr_3$ nanoparticles. The formation of $MOPbBr_3$ nanoparticles has been characterized through X-ray Diffraction (XRD), Transmission Electron Microscopy (TEM), X-Ray Fluorences (XRF) analyzer and Nuclear Magnetic Resonance (NMR). Exploiting the optical properties through UV-Vis spectroscopy and photoluminescence spectroscopy specifically could greatly enhance the efficiency and functionality of applications based on this materials.

Keywords: Organic-Inorganic hybrid perovskite, non-template chemical precipitation, nanoparticles, optical properties.