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Title:	Mesoporous Alumina Mediated Synthesis of Perovskite Nanocrystals and their Photophysical studies
Authors:	Takhellambam, Daimiota (/jspui/browse?type=author&value=Takhellambam%2C+Daimiota)
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Abstract:	<p>Metal halide perovskites are new class of compounds which has intrinsic defect tolerant property and belong to a group of bright emitters. Lead halide Perovskite with the formula AMX_3 having similar structure are reported to possess high photoluminescence quantum yield which can cover up a large color gamut. They are classified as effective absorbers of light which can be subjected in applications of photovoltaics. However, working on nano scale of these perovskite nanocrystals has been a challenge due to several factors including stability, moisture dependency, high temperature requirement and agglomeration tendency of the nanocrystals. Our main emphasis is to produce perovskite nano crystals of both pristine $CsPbBr_3$ and $Br-I$ mixed nano crystals in a thin film form using alumina as the mesoporous template keeping in view real world applications. Another crux of our work focuses on the exchange of anion (halide counterpart) of the solid PNC to get PNCs of different compositions having band gap tenability over the visible spectral range. This work also reports the improved stability of iodine rich PNCs of more than 120 minutes at room temperature in air. This can be attributed to the confinement of PNCs inside mesoporous network.</p>
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