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Title:	An attempt to synthesize 2D layered non- Pb halide double perovskite using organic spacer cations
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Abstract:	<p>The introduction of double perovskite has lead to develop Lead-free perovskites that have similar properties to that of the predecessors, with nearly the same efficiency. Three- dimensional (3D) hybrid organic–inorganic lead halide perovskites (HOIPs) feature remarkable optoelectronic properties for solar energy conversion but suffer from longstanding issues of environmental stability and lead toxicity. Associated two- dimensional (2D) analogues are garnering increasing interest due to superior chemical stability, structural diversity, and broader property tunability. Toward lead-free 2D HOIPs, double perovskites (DPs) with mixed-valent dual metals are attractive. Translation of mixed-metal DPs to iodides, with their prospectively lower bandgaps, represents an important target for semiconducting halide perovskites, but has so far proven inaccessible using traditional spacer cations due to either intrinsic instability or formation of competing non-perovskite phases, thus usage of bromides id due to its optical properties which are highly tunable, through varying the layer thickness and increasing the length of the organic spacer. Here are critical measures of ongoing works concentrated on the two-dimensional (2D) perovskite materials due to their special physical and compound properties emerging from the quantum confinement impact. This thesis work characterizes upon the fact of synthesizing A<sub>2</sub>AgSbBr<sub>6</sub> with different spacer cations, and since many Bi DPs have been synthesized and Sb is isoelectronic to Sb, thus it can also be used for processing DPs. The second chapter helps in understanding the different characterization techniques which were used in the experimentation processes to recognize the formation of certain perovskites. The characterization processes used were Photoluminescence, UV-Vis Spectroscopy and X-Ray Diffraction. The third chapter of synthesis helps in understanding the production by amount of the certain perovskites using different spacer cations. The fourth chapter helps in the characterization of these attempts to synthesize the hybrid perovskites, followed by the final chapter of future aspects and its outlook.</p>
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