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# Glasses containing halide perovskite nanocrystals and their potential applications

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## Abstract

Cesium lead halide nanocrystals have attracted much attention due to their particular opto-electronic properties. Stability of those perovskite nanocrystals synthesized through wet chemistry hinders the practical applications due to the sensitivity to moisture, oxygen and UV light. To overcome these problems, perovskite quantum dots are synthesized in glasses through melt-quenching and subsequent thermal annealing. Perovskite nanocrystals with tunable size, tunable composition, and tunable emission range can be achieved through adjusting thermal annealing conditions, light irradiation conditions, and ion-exchange. Perovskite nanocrystals thus formed in the glass have photoluminescence efficiency as high as 70% and strong stability against water, UV light, and temperature. Potential applications of these glasses embedded with perovskite nanocrystals towards spectral conversions will be discussed.

**Keywords:** Perovskite nanocrystals, Spectral conversion, LSC, LEDs

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