Facile Synthesis Method of Lead-free Perovskite Nanocrystals for Efficient Optoelectronic Applications

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Metal halide perovskite materials without using lead elements have gained tremendous attention due to their environment-friendly processability and excellent optoelectronic property. Utilization of the non-lead perovskite nanomaterial is especially beneficial for material characterizations and device fabrications because it does not require multi-processes to form a favorable perovskite phase once the nanocrystal is well prepared in solution. Here we report a facile method for synthesizing lead-free inorganic perovskite nanocrystals based on the reprecipitation method. We characterize the crystal structure of the synthesized nanocrystals and correlated their morphology and optoelectronic properties. Finally, we utilized the luminescence property of the perovskite nanomaterial for light-emitting device applications.