

All-inorganic perovskite-based nanosystems: from material design to potential applications

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Abstract:

The past decade, metal halide perovskite nanocrystals have attracted great scientific and technological interest due to their promising application in diverse fields ranging from photovoltaics to lasing and LEDs. Despite the great success of organic metal halide perovskite material, several problems remain to be resolved such as their moisture, oxygen, light and heat intrinsic sensitivity. The replacement of the organic group with inorganic ions found that are more stable and some of these problems seems to be solved. In this work, we focus on the synthesis of new all-inorganic perovskite nanocrystals with various morphologies in solution form or directly grown on substrates. These synthesis methods are based on simple and low-cost room-temperature processes without using complex apparatus and inert gas flow. [1] Morphological and structural features, as well as their physicochemical properties of these materials will be presented. Furthermore, the potential utilization of these nanostructures in energy conversion and storage will be discussed. [2, 3]

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