

Lead iodide/lead bromide Axial Nanowire Heterostructure via Vapor-liquid-solid Method

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Lead halide perovskites have attracted attention as materials that outstanding optoelectronic properties, and they can be used to various applications such as photovoltaics, light-emitting diodes, and photodetectors. As an important precursor for the synthesis of perovskites, lead halide gains some additional interest. Recently, a study on the growth of lead halide nanowires by vapor-liquid-solid method has been published. This synthesis method provides one route to achieve heterostructures with the special advantage of being able to control the direction of charge transport with energy band edge engineering.

Here, we use the VLS method to prepare lead halide (i.e., $\text{PbI}_2/\text{PbBr}_2$) nanowires heterostructure. We observe $\text{PbI}_2/\text{PbBr}_2$ axial nanowire heterostructure that is synthesized by a simple method of modifying precursors. These research suggest that the possibility of a new type of lead halide nanowires as well as perovskite nanowires.