

Phase Transitions of Hybrid Organic-Inorganic Crystals

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Hybrid organic-inorganic crystals have attracted significant attention in the past a few decades owing to their enormous application potential in energy. Like their oxide counterparts, these hybrid organic-inorganic systems exhibit abundant phase transitions which can often lead to significant changes in the electrical, magnetic, and optical properties that are of vital importance for the design and fabrication of functional devices. However, the atomistic driving forces and underlying mechanism need to be well understood for these hybrid crystals. In this talk, I shall present our recent advances in the thermally and pressure-driven phase transitions and their microscopic mechanisms of some hybrid metal halides and metal-organic frameworks. At the same time, I shall discuss the symmetry alternation at the interface and corresponding atomic origin of some low-dimensional systems.

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