

Preparation and characterization of hypermaterials

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From the chemical point of view, hypermaterials contains mainly metallic constituents and, thus, most of them belong to the family of intermetallic phases. Various synthesis routes to this group of chemical compounds have been successfully applied from the whole spectrum of preparation methods in solid state chemistry. The applicability of each method is dependent on the elements forming the target material and phase-diagram defined thermodynamic properties, such as formation reaction and vapor pressure of components at the reaction temperature. Although it is straightforward for some systems to prepare a hypermaterial phase at certain composition, systematic investigations on their physical and chemical behaviour require more effort. This is reflected by the ongoing development of preparation and characterization techniques.

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