量子物理学・ナノサイエンス第 206 回セミナー

Multiple functionalities in pristine and substituted Mn_2NiGa driven by site ordering

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概　要

Ni-Mn-Ga compounds have drawn considerable attention in this millenium after the discovery of considerable magnetic field induced strain required for actuator applications. The prototype Ni_2MnGa in the family of Magnetic shape memory alloy (MSMA) family has been investigated in detail. Mn_2NiGa is a recently discovered member in the family which has a simple (Inverse) Heusler crystal structure.　However, due to a chemical composition and site ordering different from Ni_2MnGa, this material gives rise to interesting structure-property relationships. In this talk, I would discuss how the site ordering impacts phase stability and electronic, elastic and magnetic properties in pristine and transition metal substituted Mn_2NiGa. A comparison with Ni_2MnGa based compounds will establish the fascinating possibilities of Mn_2NiGa based systems exhibiting multiple functionalities like shape memory effect and high spin polarisation upon substitutions. The fundamental physics governing the properties will be discussed in detail.

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