

Electronic properties of a ferromagnetic shape memory alloy : Ni-Mn-Ga

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Invité par Fausto Sirotti

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Abstract:

Ni-Mn-Ga is a ferromagnetic shape memory alloy with highest known magnetic field induced strain of 10%. The shape memory effect in Ni-Mn-Ga can be driven by the magnetic field, which is faster and more efficient than temperature or stress driven shape memory effect. Ni-Mn-Ga is interesting because of its exotic properties like existence of both martensitic and ferromagnetic transitions, magnetoelastic coupling, magnetocrystalline anisotropy. From the variation of the Curie and martensitic transition temperatures with composition (x), we have determined the phase diagram of $\text{Ni}_{2-x}\text{Mn}_{1+x}\text{Ga}$. Ab-initio density functional calculations have been performed to explain the phase diagram. The calculated magnetic moments agree well with Compton scattering and magnetization studies. The behaviour of the valence and the conduction bands studied by photoemission and inverse photoemission spectroscopy will be discussed and compared with theory.

Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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