Abstracts
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Ordering Transitions and Effect of Order on Martensitic Transformation

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A2→B2→L21 ordering transitions in Au–Cu–Al alloy were investigated by a combination of thermal analysis, electrical resistivity and internal friction technique. Results show that A2–B2 ordering transition was accompanied by volume change and thermal effects, features of the first-order transformation. While B2–L21 ordering transition belongs to the second order transition, since only the change of Cp (heat capacity) was observed. Some interesting microstructures after different heat treatment were presented.
A modified BWG model was employed to analyze the chemical ordering sequence in Au–Cu–Al alloys. Based on the measured critical transition temperatures of A2/B2 ordering, the critical temperatures of B2/L21 ordering were calculated.
A metastable C and°phase of DO3 ordering was observed between 171.6 C in quenched°281.3 C/min.°Au7Cu5Al4 alloy followed by heating at 2 Martensitic transformations of corresponding ordering structures were investigated by DSC. It is found that both the DO3 and B2 ordering suppressed the martensitic transformation start (MS) temperature dramatically, contrary to the L21 ordering which favors martensitic transformation. The effect of order on martensitic transformation in quenched Au7Cu5Al4 alloy was discussed.
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Neutron studies in off-stoichiometric Ni-Mn-Ga Magnetic Shape Memory Alloys

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An short introduction to the structure and properties of Ferromagnetic Shape Memory Alloys will be given.
The Group of Magnetism and Magnetic Materials has performed single crystal and powder neutron diffraction experiments on off-stoichiometric NiMnGa alloys. These give the preferential site occupancy of the Mn and Ga atoms and the correlation with the magnetic moment measurements, within the framework of a very simple model of localized moments on the Mn atoms coupling either Ferro or Antiferro-magnetically each other. Recent polarized neutron diffraction experiments on single crystals allow to obtain the magnetic moment distribution and to assign the corresponding values to the localized and itinerant moments.
Besides, stroboscopic neutron diffraction measurements on NiMnGa/Polyurethane composites will be described. With this technique we are able to follow the variant reorientation during "on site" deformation cycles at 0.5 Hz. All measurements have been performed at the High Flux Reactor of the Institute Laue Langevin in Grenoble (France)
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