

Colloquium on Solid-State Physics

Date: Thursday, July 28, 2011

Time: 17.15 h
Coffee, tea and cookies at 17.00h in front of the lecture hall

Place: Hörsaal HS 3
Physik - Department
Technische Universität München



Seminar of the Collaborative Research Centre/Transregio TRR 80:

Structural and magnetic properties of thin Heusler films

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Ferromagnetic Heusler alloys, known for their ferromagnetic properties for a long time, have experienced a tremendous upsurge of interest after discovering in the early 1980s their half-metallic ferromagnetic properties, i.e. ferromagnets with full spin polarization at the Fermi level. Because of this peculiar band structure they are promising materials for applications in spintronic devices, such as spin filters, in spin injection/detection devices or in magnetic tunneling junctions. For spintronic applications thin epitaxial Heusler films are required with a high spin polarization at interfaces to other oxide, semiconductor or superconducting materials. Both the growth of the Heusler films and maintaining their magnetic properties is a challenge, as site disorder of the ternary alloy is detrimental for their spin polarization. Nevertheless, it turns out that the self organization of the ternary alloys upon annealing is a promising route for achieving high quality structural order and spin polarization in thin films.

Work performed together with K. Westerholt, J. Grabis, A. Bergmann, M. Vadala, D. Erb