Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Enhanced orbital magnetism in oxide free Fe50Pt50 nanoparticles probed by x-ray magnetic circular dichroism[1] MICHAEL FARLE, Universitaet Duisburg-Essen — X-ray absorption spectra at both the Fe and Pt L3,2 edges were measured on wet-chemically synthesized Fe50Pt50 particles with a mean diameter of 6.3 nm. The organic ligands and the oxide shell covering the particles in the as prepared state were removed by soft hydrogen plasma. After thermal treatment under hydrogen atmosphere of 5 Pa, the coercive field increased by a factor of 6. This indicates the formation of the chemically ordered L10 phase and is accompanied by an enhancement of the orbital magnetic moment at the Fe site by 275%. Changes in the frequency of oscillations in the extended x-ray absorption fine structure at the Pt L3,2 edges provide additional crystallographic evidence for the formation of the L10 phase.

[1]Supported by EU network "SyntOrbMag" and DFG, Sfb 445

Michael Farle
Universitaet Duisburg-Essen

Date submitted: 07 Dec 2005 Electronic form version 1.4