

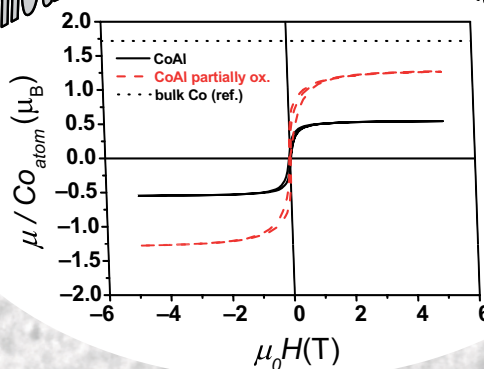
11/2010
2nd April Issue



EurJIC

European Journal of
Inorganic Chemistry

Magnetisation increase upon oxidation



Selective oxidation

CoAl nanoparticles

$\text{Co}(\eta^3\text{-C}_8\text{H}_{13})(\eta^4\text{-C}_8\text{H}_{12})$

50 nm

Cover Picture

Catherine Amiens et al.

β -CoAl and β -CoAl/Al Nanoparticles

WILEY-VCH

www.eurjic.org

A Journal of





EurJIC is co-owned by 11 societies of ChemPubSoc Europe, a union of European chemical societies for the purpose of publishing high-quality science. All owners merged their national journals to form two leading chemistry journals, the *European Journal of Inorganic Chemistry* and the *European Journal of Organic Chemistry*. Three further members of ChemPubSoc Europe (Austria, Czech Republic and Sweden) are Associates of the two journals.

Other ChemPubSoc Europe journals are *Chemistry – A European Journal*, *ChemBioChem*, *ChemPhysChem*, *ChemMedChem*, *ChemSusChem* and *ChemCatChem*.

COVER PICTURE

The cover picture shows the reaction path followed to produce bimetallic CoAl nanoparticles (background image). Organometallic precursors such as AlCp^* and $\text{Co}(\eta^3\text{-C}_8\text{H}_{13})(\eta^4\text{-C}_8\text{H}_{12})$ offer the unique advantage of being easily reduced under dihydrogen, thus enabling access to alloyed β -CoAl nanoparticles as evidenced by X-ray absorption and diffusion techniques. As expected, these nanoparticles are highly reactive towards oxygen. The reaction starts with the selective oxidation of Al, with simultaneous segregation of Co. Known in the bulk, this phenomenon is studied for the first time on the nanometer scale. It is clearly evidenced by SQUID measurements: an increase in the ratio of segregated Co atoms is accompanied by an increase in the magnetization of the nanoparticles. To passivate the system, excess aluminum must be decomposed on top of the CoAl nanoparticles. This study evidences the relevance of organometallic chemistry for nanoalloy engineering. Details are discussed in the Short Communication by C. Amiens et al. on p. 1599.

