

Experiment MA-2718, BM26

Title: Co site monitored at different steps of formation of Co-based urchin-like nanostructures

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Experimental conditions: Room temperature. XAS spectra measured in fluorescence mode with a multi-element Ge detector.

Samples:

Co-O-B nanostructured samples, prepared starting by plasma laser deposition. The deposited layer is annealed to promote urchin-like formation. The annealing process is stopped at different steps. After that, with a specific procedure, the particles that are forming urchins are taken out from the substrate and embedded in a polymer. The samples that we have measured are these particles, representing different steps of the urchin formation, embedded in the polymer.

Report

A SEM image of a Co-O-B urchin-like particle is shown (left figure). The EXAFS spectra from the particles embedded in the polymer (blue line in the two right figures) could be measured for all the samples. The EXAFS spectra are compared to the corresponding spectra measured on the full layer (red line in the two right figures). From the analysis the oxidized Co fraction in the particles could be monitored and this allows to detail the urchin formation process. A paper is in preparation.

