

Department of Inorganic and Physical Chemistry

Ghent University, Belgium

A postdoctoral research position is available in the area of (HR)-TEM analysis of multilayered electroceramic architectures. The duration of this research position is one year starting from February/March 2010. The research performed in the post-doctoral study is situated in the framework of an interuniversity attraction pole project: INANOMAT - Advanced complex inorganic materials by a novel bottom-up nanochemistry approach: processing and shaping.

In the research group, we develop sol-gel chemistry based, chemical solution deposition processes for the coating of flexible metal substrates with different ceramic buffer layers and finally superconducting top layers. Water-based precursor solutions are coated on the substrates by dipcoating or ink-jet printing and transformed into the desired, epitaxial phases by controlled heat treatment. We want to study the epitaxial growth, analyze the different phases present and optimize the morphology of our final products by carefully assessing the influence of the heat treatment and precursor solution composition on the structural properties of the different layers.

The research will focus on :

- study on diffusion of metal ions through the multilayers by STEM/EDX and EELS
- HR-TEM to identify the different phases/materials present and the epitaxy at the interface between the different multilayers
- optimization of sample preparation by ion milling or FIB.

Your profile:

Experience in TEM on ceramic materials

PhD in physics, materials sciences, chemistry, engineering

Applications :

Prof. I. Van Driessche

Krijgslaan 281 – S3

9000 Ghent

I.Vandriessche@ugent.be