
The ID01 beamline: a strain nanoscope for materials characterisation

Steven Leake^{*1}, Peter Boesecke¹, Hamid Djazouli¹, Sebastien Petitdemange¹, Edoardo Zatterin¹, Jiangtao Zhao¹, Marie-Ingrid Richard^{1,2}, Ewen Bellec^{1,2}, Clément Atlan^{1,2}, Michael Grimes², Corentin Chatelier², and Tobias Schulli¹

¹European Synchrotron Radiation Facility [Grenoble] – ESRF – The European Synchrotron, 71 Avenue des Martyrs, 38000 Grenoble, France – France

²University Grenoble Alpes – Université Grenoble Alpes, CEA Grenoble – France

Abstract

The ID01 beamline combines Bragg diffraction with imaging techniques to deliver a strain and mosaicity nanoscope for crystalline materials in their native or *operando* state(1). Here we present the most recent results from the three imaging modes enhanced by the recent upgrade of the ESRF – The European Synchrotron, currently the most brilliant x-ray source of its kind.

1) Scanning x-ray probes with a large field of view (200 micron) and high spatial resolution in 2D (30nm) combined with strain sensitivity (1E-6) and tilt sensitivity (1E-4) (2).

2) Full field diffraction microscopy with a large field of view (200 micron), high spatial resolution in 2D (100nm) and high temporal resolution (up to GHz) (3).

3) Bragg coherent diffraction for 3D imaging of sub-micron samples with high spatial resolution (< 10nm) combined with strain sensitivity (1E-4) and defect identification (4).

A summary of available sample environments will also be presented.

References

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^{*}Speaker