Development for *in situ* and *operando* investigation at XAFS@Elettra beamline

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X-ray Absorption Spectroscopy (XAS) is a powerful technique to probe local structure and electronic properties of materials. Moreover, XAS technique allows the investigation of the matter under controlled conditions (temperature, pressure, chemical atmosphere and potential applied to the material) performing *in situ* and *operando* experiments. The capability of XAS to characterize at atomic scale the device under working conditions allows to correlate the physicochemical properties of the matter or a device with their performance and functionality.
In this contribution the developments they are being implemented at XAFS beamline to improve *in situ* and *operando* capabilities will be summarized. The upgrades involve different aspects of the beamlines: (i) the control and the acquisition system of the beamline will be changed allowing acquisition in continuous mode; (ii) new detectors for measurements in fluorescence mode will be integrated at the beamlines; (iii) dedicated facilities for the sample environment will be installed including an infrastructure to handle reactive gas. All these upgrades will contribute to strength the capabilities of the beamline for the *operando* experiments available to all scientific community and in particular for the research in the field of energy related materials.

Short bio:
Giovanni Agostini is a scientist at Elettra synchrotron in Trieste where he coordinates the scientific activity of XAFS beamline. He gained experience in the characterization of material by different techniques, in particular X-ray absorption spectroscopy (XAS), and developing instrumentations working at different synchrotron facilities (ESRF, ALBA and Elettra) and research centers (University of Torino (Italy) and LIKAT in Rostock (Germany)). His scientific activity is focused on the characterization of the electronic and local structure of nanostructured and microporous materials by the combination of complementary techniques during *in situ* and *operando* experiments.