

## 3rd Workshop on the Simultaneous Combination of Spectroscopies with X-ray Absorption, Scattering and Diffraction Techniques



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### SNBL a dedicated beamline for combined XRD-XAFS-RAMAN

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The Swiss Norwegian Beamlines at the ESRF have been equipped with a permanent online Raman Spectrometer in June 2007. The Raman spectrometer serves two experimental stations operating in parallel. High Resolution Powder Diffraction, EXAFS combined with on-line Raman spectrometry has become routine. Many experiments are profiting from the possibilities for rapid changeovers from powder diffraction to EXAFS, facilitated by new X-ray optics which has been installed. The rapid in-situ developments did not compromise on the historical strengths of the beamline (HRPD and XAFS). To the contrary extreme high quality acquisitions before and after the in-situ experiments often underline the findings. Combining techniques only makes sense when samples are exposed to some external parameter (temperature, pressure etc.) The wide and growing interest within our user community in catalysis has led to the development of in-situ techniques at SNBL. A fully automated gas mixing system permits a wide variety of gas mixtures to be prepared and passed through the sample under different conditions of temperature and gas pressure while carrying out the synchrotron experiment. An on-line mass spectrometer is available for analyzing the products of the (catalytic) reaction. The beamline is almost continuously being further developed to enhance time and space resolution, sensitivity and selectivity.

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