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## Extreme condition research at ESRF

*Friday 30 August 2024 11:40 (20 minutes)*

Here we present the new experimental stations devoted to the studies of matter under extreme conditions at the X-ray diffraction beamline ID15b and the X-ray absorption beamlines BM23 and ID24-DCM that were recently refurbished within the ESRF –Extremely Brilliant Source (EBS) upgrade program. In comparison with the stations before the EBS upgrade, they exhibit outstanding performances in terms of sample positioning capabilities, acceptance of multi-detection systems and complex sample environments. In addition, significant improvements regarding the photon flux and focusing capabilities down to the submicron size have been achieved. The XAS stations are now coupled with the new ESRF double crystal monochromators that exhibit an exceptional beam position and energy stability and that permit quick micro-EXAFS measurements down to one EXAFS/second, and hyperspectral EXAFS mapping. In this contribution, we discuss the choices regarding the sample and detector stages and illustrate the potential of the new setups for extreme conditions studies based on selected preliminary results.

### I plan to submit also conference proceedings

No

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