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Inspired by users: big data tools at the Swiss-Norwegian Beamlines at ESRF

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The Swiss-Norwegian beamlines at the European Synchrotron Radiation Facility have now been in user operation for almost three decades. Over the last decade, the scientific activities on the beamlines have become more and more focused on solving problems in materials science and crystal chemistry, that also implies an advent of new users with little experience in synchrotron experimentation. Here we present an overview of the operational characteristics of the beamline software and the data tools developed for BM01 and BM31. The combination of large area detector Pilatus2M and flexible goniometer provides a very versatile diffraction platform for many types of X-ray diffraction and scattering experiments: powder diffraction, diffuse scattering, high-pressure experiments, surface diffraction and others.

The flexibility of the setup together with a large number of the experimental protocols requires a dedicated software for data acquisition and processing that has to be easy-to-use for beamline newcomers and, at the same time, must have a lot of advanced options for experts. An overview will be given to the SNBL data collection and processing pipeline: Pylatus (control software of the diffractometer), SNBL ToolBox (a set of tool for data reduction), Bubble (powder integration), Medved (data viewer) and a few other tools.

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