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Title: HEX: A new tool for microstructure analysis at the NSLS-2

Abstract:

When the need to analyze material structure of engineering components, high-energy X-rays are of great value as they allow us to penetrate dense metal with ease. Imaging and diffraction then become feasible tools to study the microstructure of components operating or being produced under standard conditions, without the need for destructive sample preparation. The high intensity of X-rays to become available at the HEX beamline will allow in-operando measurements and enable studying of materials during operation, forming or failure. Particularly additive manufacturing research can benefit from HEX with its large beam size for fast imaging and monochromatic light for time-resolved diffraction. The open architecture of the end station supports installation of large and complex processing equipment or of instruments for complementary analysis methods.