

Indian beamline at Photon Factory, high-energy accelerator research organization (KEK), Tsukuba, Japan

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Synchrotron X-ray sources play a vital role in the detailed structural characterisation of new materials and in advancing our understanding of structure–property relationships in advanced materials. Recognising the absence of intense X-ray synchrotron sources and the pressing nationwide demand for access to radiation sources to propel nanoscience and materials research forward, a national program was launched by Nano Mission, Department of Science and Technology, India. As part of this initiative, the Indian Beamline was established at the High-Energy Accelerator Research Organization (KEK) in Tsukuba, Japan, representing a flagship cooperative endeavour. This facility operates at 2.5 GeV with a storage ring current of 450 mA, providing around 4000 hours of user time annually across six different experiment types. The operational efficiency of this synchrotron facility, with an impressive ratio of actual user time to scheduled user time maintained at 96–98%, stands as a critical benchmark for the planning and execution of synchrotron-related experiments.

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