

## **Indian Beamline at Photon Factory – A multipurpose x-ray beamline facility**

M. K. Mukhopadhyay, Srihari velaga \*, S. Bhunia, K. S. R. Menon  
and M. K. Sanyal

Surface Physics Division, Saha Institute of Nuclear Physics, Kolkata, India

The high brilliance x-rays from the synchrotron sources have opened up a new direction to the research in material science and nanotechnology over the past two decades. Extensive use of synchrotron radiation has become a must for performing front-end research spanning both in basic science as well as applied research. This Indian beamline is conceived as a multipurpose beamline and the available facilities include diffraction experiments from powder at various sample environments as well as from single crystals, small angle scattering and reflectivity - diffuse scattering from solid and liquid surface / interfaces. We have recently installed low temperature cryostat facility where diffraction experiments down to 10K can be performed. At other extreme the high temperature setup allows the diffraction experiments up to 1200K from powders. We have also installed high pressure Diamond Anvil cell where diffraction experiments can be done at the sample pressure up to 30 GPa. The recently installed liquid surface spectrometer is the first of its kind at PF synchrotron and can give us better understanding of the behavior of protein and other hydrophobic/hydrophilic organic materials around water surface. All the facilities mentioned above are fully operational and we have started commissioning to the users in the beamline.

**Acknowledgment:** The Indian Beamline project at Photon Factory has been funded by Department of Science and Technology, Government of India with Saha Institute of Nuclear Physics as nodal institute. The authors would like to thank Prof. M. Nomura and other KEK staffs for their support in this development of the beamline.

\* Corresponding author.