Infrared Spectroscopy and Imaging Beamline at the Siam Photon Laboratory

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An infrared (IR) beamline has been designed, constructed and installed at the Siam Photon Laboratory, Thailand. The modified bending magnet chamber allowing large opening angles (both vertically and horizontally) has been designed in order to collect the infrared synchrotron radiation emitted from an edge and constant field radiation in the infrared wavelengths(1). All chambers, mirror holders and mechanical components have been in-house designed, fabricated and conditioned. A slotted mirror (M1) with water cooling system, located at 2.2 m from the source, is used to collect the near, mid- and far- IR in the wavelength between 1.5-100 μm.

The first four mirrors, located inside the tunnel, are used to collect, propagate and focus the extracted beam through a CVD diamond window (diameter 20 mm) located just outside the shielding wall. We have recently observed the IR beam after the diamond window.

A deviation chamber has been installed after the diamond window in order to split the IR beam into three quasi-collimated beams to allow them to propagate over a long distance. The three quasi-collimated beams may be recombined in any combination, allowing us to install IR experimental stations up to three stations. The current status of beamline installation and alignment will be demonstrated.

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[1] W. Pattanasiriwisawa, P. Songsiriritthigul, P. Dumas, in: Proceedings of the IP Conference, SRI 2009, 10th International Conference On Radiation Instrumentation, 1234, 371–374 (2010)