Joint DESY and University of Hamburg Accelerator Physics Seminar

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(16:00 in Room 459/30b)

The Challenge to Measure Both Extremely Small and Large Beam Sizes via Optical Monitors at KEK

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Abstract

This talk is about recent results of optical monitor developments for measurements of extremely small and large beam sizes in accelerators at the KEK. Synchrotron Radiation interferometers using visible synchrotron radiation had been used for small beam sizes down to 5 μm. We developed a new technique, the “unbalanced incident method”, to extend the range down to 3 μm. At the other hand, for extremely large beam sizes (5cm in one sigma) such as in recent high intensity proton accelerators, we developed an optical profile monitor using OTR in the J–PARC. Also we started to design an OTR monitor for the beam transport line between the 3.5 GeV RCS and the 50 GeV main ring. Since the opening angle of OTR from a 3.5 GeV proton is very large (we need 500 mrad acceptance), this is another challenge for the optical design.

J.Roßbach (Univ. HH) and M.Vogt (MFL).