Joint DESY and University of Hamburg Accelerator Physics Seminar

Tuesday, 29.10.2013

(16:00 in Room 459/30b)

The Metrology Light Source — Status and Applications

Jörg Feikes

MLS / HZB

Abstract

The Physikalisch–Technische Bundesanstalt (PTB), the German national metrology institute, has set up in close cooperation with the Helmholtz–Zentrum Berlin (HZB, formerly BESSY) the 630 MeV electron storage ring metrology light source (MLS). This electron storage ring is in regular user operation since April 2008 and is dedicated to synchrotron–radiation–based metrology and technological developments in the far–IR/THz, IR, UV, VUV and EUV spectral range. The MLS has a double–bend–achromate lattice structure, injection is from a 105 MeV racetrack microtron. The electron energy can be ramped to any value from 105 MeV up to 630 MeV and the electron beam current covers the range from one stored electron (1 pA) up to 200 mA. The MLS is the first electron storage ring optimized for the generation of coherent synchrotron radiation, based on a electron bunch shortening mode. The talk covers machine physical aspects of the MLS operation and will also give a survey of some experimental applications using its radiation.

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