Joint DESY and University of Hamburg Accelerator Physics Seminar

MONDAY, 10.07.2017

(14:00 in Room 459/30b)

Bright Sources for Accelerators

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BNL

Abstract

Modern accelerator applications are becoming more demanding on the particle source. This is particularly true of free–electron lasers (FELs) and ultrafast electron diffraction; for FEL's, a factor of 5 reduction in the emittance of the LCLS would dramatically increase its reach into the hard X–rays, more than doubling the usable photon energy. We have reached the point where the physics of the photoemission process and the material properties of the photocathode limit the ultimate brightness that can be achieved. Luckily, the very light sources that stand to benefit from improvements in this area are well equipped to help us engineer better photocathodes.

After a brief introduction to particle sources and the important figures of merit, this talk will focus on addressing issues such as roughness and surface contamination which affect photocathode performance. We will look at a variety of photocathodes, from semiconductors to superconductors, and how to improve them using the tools of modern material science.

NOTE THE UNUSUAL DATE AND TIME

W.Hillert, (Univ. HH), I.Agapov (MPY) and M.Vogt (MFL).