

ABSTRACT
JOINT INSTRUMENTATION SEMINAR KICK-OFF
5 FEBRUARY 2010

ROBERT KLANNER (UNI HAMBURG)

Introduction & purpose of the seminar series

JOACHIM MNICH (DESY)

“Challenges, current developments, and future possibilities for detectors in High Energy Physics”

This talk, together with the talk from my colleague Heinz Graafsma will serve to trigger a discussion, which shall be continued and examined in depth in the course of a new series of seminars, the Joint Instrumentation Seminar.

I will review the relevant parameters for a “typical” HEP detector and the present technological solutions. While the HEP landscape is very vast, I will concentrate on examples from running detectors at the energy frontier (at LHC) and from prototype detectors for the precision frontier (at the future LC).

The link and overlap of these technologies with those required in the photon science world will be the aim of the upcoming seminars in this venue.

HEINZ GRAAFSMA (DESY & XFEL)

“Challenges, current developments, and future possibilities in X-ray Detection”

The new light sources, in particular the Free-Electron Lasers, present severe challenges for the X-ray detectors. In particular, the short intense pulses, certainly when combined with a 4.5 MHz repetition rate, call for conceptually different detectors than the ones that have been used until now. But the challenges do not only come from the FELs, equally challenging are the new storage ring sources like PETRA-III.

Recently, solid-state based pixel detectors using specially designed readout chips have given an enormous improvement in X-ray detection possibilities at synchrotron sources, showing the strength of custom designed detectors.

In my presentation, I will shortly present the detector challenges imposed by the new sources. This will be followed by an overview of ongoing developments, in order to meet these challenges. At the end I will discuss some of the exciting new technologies that can be used for future detector developments.