KSETA block course: October 21 – 23, 2015

Prof. Dr. Carl Haber

(Lawrence Berkeley National Lab, USA)

Silicon Detectors: Principles and Technology

Modern tracking systems, for particle physics and related fields, are often based upon large arrays of silicon sensors. These systems are complex and involve advanced applications of micro-electronics, precision low mass mechanical and cooling technology, and high density electronic packaging. Special measurement and fabrication methods are required to construct and calibrate them. Finally they must function in a high radiation environment. This lecture course consists of a broad survey of all the technical issues which much be faced in the design, construction, and operation of these tracking systems. The course will conclude with a discussion of future directions and challenges. The lectures will be aimed at students entering the field or those who have worked in a very specific application and seek a general overview.

21.10.2015	**15:00 – 17:00 h**
22.10.2015	**09:00 – 12:00 h**
23.10.2015	**09:00 – 12:00 h**

All lectures will take place at KIT Campus South, building 30.28, seminar room 220

Carl Haber is a Senior Scientist in the Physics Division at Lawrence Berkeley National Laboratory. He has worked extensively in the development and construction of precision tracking systems for high energy physics for most of his career. In the USA he participated in the Collider Detector at Fermilab (CDF) experiment where this first application of silicon detectors to a hadron collider was made. Since 1995 he has been a member of the ATLAS collaboration at the CERN LHC where he continues to work on the next generation of large silicon detector arrays. He has also made contributions to scientific methods applied to the preservation of historic sound recordings. He is a Fellow of the American Physical Society, the Guggenheim, and MacArthur Foundations.