detector seminar

SPEAKER: VASEY, F. (CERN)

TITLE: **Silicon Photonics for High Energy Physics Applications, Myth or Reality**

DATE: Fri 16/09/2016 11:00

PLACE: 6-2-024 - BE Auditorium Meyrin

ABSTRACT

Silicon Photonics harnesses the potential of mature CMOS microelectronics processing technology to fabricate photonic integrated circuits in silicon. Since about a decade, it has generated a lot of excitement and hype, promising to co-integrate data processing and communication functions into one chip or chipset. It has resulted in some commercial successes but also in some resounding failures, reminding us of the difficulties associated with ramping up a new technology in a very dynamic and competitive context.

The High Energy Physics community, after the successful large scale deployment of silicon sensor technology and projecting from its exclusive reliance on silicon microelectronics for front end data processing, cannot ignore the advent of a possible new silicon building block for data transfer. It cannot either avoid associating it to the futuristic perspective of an all-silicon module.

In this seminar Silicon Photonics technology with a data communication perspective will be described and compared to more traditional means of optical data transport, such as directly modulated lasers. The on-going efforts at CERN to model and characterize the radiation hardness of the technology will be reviewed and the results obtained so far will be summarized. Finally, the applicability of Silicon Photonics to High Energy Physics will be discussed, highlighting the potentials and challenges this technology is facing in our environment.

Organised by: Alessandro Marchioro (EP-ESE)