

## MAPS with energy measurement abilities, from spectroscopy to particle identification

Jerome Baudot

IPHC - Universite de Strasbourg

Monolithic active pixel sensors (MAPS) are permeating more and more scientific applications. For high-energy physics, their usage in vertexing/tracking focus obviously on position measurement and their development mostly target better timing or higher radiation-tolerance. For these reasons, current realisations exploit only binary output for each pixel. Regarding photon detection ranging from infrared light to soft X-rays, available MAPS make use of analogue information but as a counting capability, assuming a given quanta energy.

In this seminar, we will introduce recent technological advances, which allows MAPS to sense reliably the energy deposited. Results on prototypes will show the status currently reached for energy-resolved MAPS. Then, we will turn to early applications including spectroscopy and particle identification. Considerations on the read-out architecture and integration, both key-aspects for pixelated sensors will also be discussed and current implementations described. Supported by the rapid evolution of the CMOS pixel sensor technologies, our conclusion will provide hints on the expected improvements both for energy resolution and architecture performances.