

## Séminaire LAL

### **ATTENTION : heure inhabituelle**

**Vendredi 12 mai 2017 de 15h00 à 16h30**

#### ***Yasuo Arai (KEK)***

##### ✓ *SOI Monolithic Pixel Detector Technology*

We have been developing monolithic pixel detectors by using a Silicon-On-Insulator (SOI) technology. The SOI technology uses bonded wafer of two silicon wafer sandwiching a thin oxide layer. They can have fully-depleted sensing region and CMOS readout circuits in a pixel. Although there were several difficult issues in the SOI pixel process, we proved to have solved these issues by developing new technologies such as buried well and double SOI wafer/process. We showed less than 1 $\mu$ m position resolution is available in a vertex detector, and less than 15 electron noise level in a X-ray detector. The process technologies and several examples of SOI detectors are presented.

#### ***Takeshi Tsuru (Kyoto University)***

##### ✓ *X-ray SOIPIXs for the FORCE mission*

We are developing X-ray SOIPIXs (Silicon-On-Insulator pixel detector) for the focal plane imagers of a future Japan-lead X-ray observatory FORCE (Focusing On Relativistic universe and Cosmic Evolution), aiming at broadband (1-80 keV) imaging spectroscopy with high angular resolution (<15"). The X-ray SOIPIXs have an event trigger output function implemented in each pixel that offers microsecond time resolution and enables reduction of the non-X-ray background that dominates the high X-ray energy band above 5–10 keV. The thick depletion layers with back illumination offers wide band coverage of 1–40 keV. In the seminar, we will report on the recent progress in the X-ray SOIPIXs development and the introduction of the FORCE mission.

***Salle 101*** - Bât. 200, Orsay

*Thé et café seront servis 15 mn avant le séminaire*

*Organisation : Reisaburo Tanaka (LAL) – [seminaires@lal.in2p3.fr](mailto:seminaires@lal.in2p3.fr)*

*LAL web : <http://www.lal.in2p3.fr>*

*Indico: <https://indico.lal.in2p3.fr/category/31/>*