**Institut de recherche sur les lois fondamentales de l'univers**
SÉMINAIRE

******

**Jeudi 4 décembre 10h30**

Bât 141, p 123

**Ultra-fast, low noise fully differential front-end electronics**

# Georges Pascovici

Université de Cologne (Germany)

We present some solutions for a modular front-end electronics (FEE) dedicated for a large variety of segmented detectors (DSSD, Segmented-Ge, MRPC, MWPC, SED etc) available either with single ended or bipolar output signals. The solutions for FEE are foreseen with simultaneous: -very low noise energy channels and -ultra fast timing channels. The present developments are based on previous fast charge sensitive amplifiers (CSP) developed at IKP-Cologne with discrete components. The solutions for the add-in ultra fast timing channels have been developed with HEMT- GaAs transistors and with fully differential high performance: -amplifiers (very low noise and 200 ps transient time) and -ultra-fast comparators (10 ps deterministic jitter, 0.2ps random jitter) both fabricated using the high speed SiGe process.