ID de Contribution: **11** Type: **Non spécifié**

Sampling the signal from timing detectors for Totem at LHC

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Totem and CMS have developed sensors for timing measurements in the forward region.
Two different sensor technologies are actually employed, sCVD diamond and UFSD (Ultra Fast Silicon Detectors).
In both cases we have signals with edge time in the range 0.5-1 ns. In the joint CT-PPS detector, used in standard LHC run, the signals are readout by means of a fast discriminator (NINO) coupled to a high precision TDC (HPTDC). For a special low-luminosity run foreseen in late 2018 the
SAMPIC chip will be instead used, integrating the SAMPIC mezzanine card in our readout motherboard. As tested in 2015 in a real data taking with the LHC beam, the use of a fast sampler will allow to achieve the best timing performance(few tens of ps). I will show the preliminary results obtained with the SAMPIC readout chain. Moreover I will describe how the raw data are formatted and matched with the L1 trigger signal in an external FPGA to cope with DAQ requirements. For the future high luminosity LHC run it will be necessary to implement an efficient trigger handshake system within the chip, in order to sustain input rates up to 5 MHz per channel.

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