Contribution ID: **28** Type: **not specified**

Flourescence measurements of CMOS sensors

Wednesday 22 November 2017 15:10 (20 minutes)

Fluorescence measurements are one option to investigate silicon sensor properties [1]. The idea is to deploy an X-ray source pointing on a target material and leading to the emission of monochromatic X-rays. This allows to measure charge spectra and the calibration of sensors. In the presentation details on a setup recently installed will be shown and details on the commissioning given. Second, measurement results of monolithic active pixel sensors will be presented. The TowerJazz investigator chip [2] has been developed in a technology which is one option for the Phase-2 upgrade of the pixel detector of the ATLAS experiment. Measurements to calibrate it and determine its gain and energy resolution will be shown for different sensor types.

[1] L.-D. Pohl et al., Obtaining spectroscopic information with the ATLAS FE-I4 pixel readout chip, Nuclear Instrum. Meth. A788 (2015), 49.
[2] H. Pernegger et al., First tests of a novel radiation hard cmos sensor process for depleted monolithic active pixel sensors, Journal of Instrumentation 12 (2017) P06008.

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Session Classification: CMOS