



Contribution ID: 24

Type: **Oral contribution**

Caliste-MM, a new soft X-ray spectro-polarimeter based on gas detector with outer and contactless electronics

Tuesday, 13 October 2015 08:45 (20 minutes)

Performing X-ray polarimetry of astrophysical sources is a topic of growing interest, with only a few flying experiments dedicated to it so far. For soft X-rays sources detection from 1 keV to few tens of keV, the best technique certainly consists in using the photoelectric effect, which is the dominant phenomenon at those energies in gaseous detectors. One of the main issues of such detectors is their reliability in space as gaseous detectors and their associated front-end electronics are sensitive to sparks caused by cosmic rays. To overcome this limitation, we investigate the opportunity of building a new spectro-polarimeter with outer and contactless radiation hard readout electronics, placed outside the gas chamber. To perform this, we used a Micromegas detector with a resistive anode deposited on a ceramic plate, the so-called Piggyback Micromegas. The signal is then transmitted by capacitive effect to the outer electronics. The readout electronics in question inherits from Caliste-HD, a fine pitch 3D detector module initially designed for semi-conductor applications. In this talk, we present the different parts of our experimental set-up as well as recent results obtained by illuminating our prototype with a 55-Fe source. In addition to the optimization of the detector's parameters, we also present the first spectrum of a soft X-ray gaseous detector with outer and contactless electronics, and the first evidence of polarimetric possibility with such detector, making a step forward in the field of soft X-rays spectro-polarimeter.

Primary author: Mr SERRANO, Paul (CEA)

Co-authors: Dr ATTÍÉ, David (CEA/IRFU); Dr FERRER-RIBAS, Esther (CEA/IRFU); Dr JANNEAU, Fabien (CEA/IRFU); Dr LIMOUSIN, Olivier (CEA/IRFU); Dr PAPAEVANGELOU, Thomas (CEA/IRFU)

Presenter: Mr SERRANO, Paul (CEA)

Session Classification: Contributed talks

Track Classification: New Developments in MPDGs