

Development of a GridPix X-ray polarimeter

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In our group there are several gaseous detectors in development based on a highly granular pixel ASIC (Timepix/Timepix3) and a MicroMegas gas amplification stage (InGrid). The MicroMegas is aligned with the pixel structure so that one grid hole is directly above one pixel. The combination of the Timepix and the InGrid is called GridPix. Its advantage is its high granularity combined with low noise which gives the possibility of high resolution tracking and single primary electron detection.

To build an X-ray polarimeter based on a GridPix one uses the correlation of the polarisation plane and the emission angle of photoelectrons. By tracking the photoelectrons with the GridPix one can identify their emission angle and reconstruct the polarisation plane of the incoming photons.

I will present the working principle of a GridPix X-ray polarimeter as well as measurements from recent testbeams. Furthermore I will give an outlook on our future plans for the development of such a detector.

Funding information

Primary author: Mr GRUBER, Markus (University of Bonn (DE))

Co-authors: Dr KAMINSKI, Jochen (University of Bonn (DE)); Prof. DESCH, Klaus (University of Bonn (DE)); Ms RICHARZ, Leonie (University of Bonn (DE))

Presenter: Mr GRUBER, Markus (University of Bonn (DE))

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