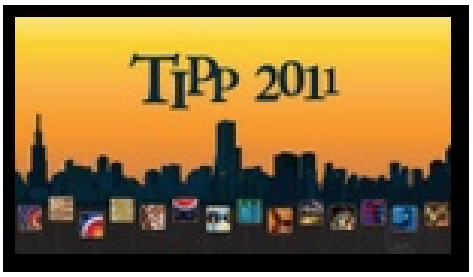


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# Development of a UV/X-ray imaging device based on large area gas photo-multiplier.

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A new type high spatial resolution radiation detector based on UV scintillators + gaseous imaging device is presented. In the last decades, gaseous photo-multipliers with ultraviolet sensitive CsI photocathodes have been tested. In addition, these days, large area micro pattern gaseous detectors, such as Micromegas, GEM, and μPIC have been developed. These devices can provide a low cost large area UV photon detector with position sensitivity. The UV imaging detector itself can be applied to material analysis researches and to liquid Ar/Xe scintillators for astro-particle physics . Furthermore, if combined with UV scintillating crystals, it can be a hard X-ray imaging device which compensates the low detection efficiency of the gas detectors; thus we are developing both CsI based position sensitive gaseous photo-multipliers and Fluoride crystal UV scintillators.

The prototype UV detector consists of 10 cm x 10 cm size of uPIC and GEM, and a transmissive/reflective CsI photocathode layer. 2GEMs and a uPIC were used for the charge amplification, which allows to suppress the avalanche-induced photon and ion feedback and provide the high gain operation. The readouts are 400um-pitch strips.

We have already reported the imaging properties of this prototype detector, such as in JINST 4 (2009) P11006. Recently, we have succeeded in developing a high luminosity UV scintillators and optimized the electric fields in photo-electron multiplication, so the detection efficiency of the device is much improved.

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