



Contribution ID: 32

Type: Poster

## UCN detection with $^6\text{Li}$ doped glass scintillators

*Tuesday, 12 October 2010 17:00 (0 minutes)*

Precision experiments at the high intensity UCN sources of new generation either planned or under construction around the world, call for the development of new UCN detectors with higher counting rate capabilities. In this context, several studies including solid state semiconductors, gas detectors as well as scintillator detectors, have recently been reported [1-4]. For the nEDM experiment at PSI, we have developed fast detectors based on  $^6\text{Li}$  doped glass scintillators (GS).

A novel detector, made of a  $^6\text{Li}$  depleted GS30 glass stuck to the front of a  $^6\text{Li}$  enriched GS20 glass, has been tested. With such a combination, the edge effects, inherent to low energy neutron detection, are suppressed. As a result, a clear separation between the gamma and the neutron contributions is observed. The rate capability of the GS scintillators is in order of a few 10<sup>5</sup> UCN/s limited by the photomultiplier. In order to be able to count up to a few 10<sup>6</sup> UCN/s, a multidetector made of nine channels has been carried out. A new FASTER acquisition system has been developed to handle such high counting rates. The first tests performed at the ILL PF2/TEST beam line with the whole system are successful and are reported here.

**Primary author:** Mr LEFORT, thomas (University of Caen)

**Presenter:** Mr LEFORT, thomas (University of Caen)

**Session Classification:** Poster Session

**Track Classification:** Advanced detector technologies