



Contribution ID: 90

Type: Poster

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Tuesday, 13 October 2015 16:20 (0 minutes)

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A MicroMegas detector based on microbulk technology with an embedded XY strip structure was developed, obtained by segmenting both the mesh and the anode. This results in a very low-mass device with good energy resolution capabilities. Such a detector is practically “transparent” to neutrons, being ideal for in-beam neutron measurements. It will be used as a quasi-online neutron beam monitor and profiler at neutron Time-Of-Flight facilities, as the n_TOF facility (CERN, Geneva), GELINA (IRMM, Geel) and NFS (GANIL, Caen). The development of such a low mass and high radiopurity detector offers new possibilities for the measurement of neutron induced charged particle reaction cross sections, as well as the angular distributions of the emitted particles.

The amplification area of 60x60 mm² is separated in 58+59 strips. The detector data acquisition system is based on the AGET - reduced CoBo technology [1]. Appropriate front-end cards have been developed for the protection of the AGET chips, the voltage distribution and the readout of the strips. The whole setup showed good energy resolution and the potential for good spatial resolution and was installed at the n_TOF facility at CERN [2, 3]. The beam profiles from both experimental areas of the facility will be presented.

References

- [1] GET, General electronics for TPC, ANR proposal / GET-QA-000-0005, AGET Data Sheet.
- [2] C. Rubbia et al., A high Resolution Spallation driven Facility at the CERN-PS to measure Neutron Cross Sections in the Interval from 1 eV to 250 MeV, CERN/LHC/98-002-EET (1998).
- [3] <http://public.web.cern.ch/public/en/research/NTOF-en.html>.

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Session Classification: Poster session & coffee break

Track Classification: New Developments in MPDGs