

High performance MeV-GeV gamma-ray astronomy with a time projection chamber

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gamma-ray astronomy suffers from the sensitivity gap between the energy ranges for which Compton telescopes and pair telescopes are efficient.

This blank part of the SED of the cosmic sources that are active at high energy hinders the understanding of their nature. In particular the π^0 bump that is dreamt to be signing the hadronic interactions in the cosmic accelerators that produce the highest energy cosmic rays is not easily observed.

We will describe the development in progress of a thin gaseous active target, a time projection chamber, as a high performance pair telescope for gamma-ray astronomy and polarimetry in the MeV - GeV energy range.

In particular the characterization of a prototype in a data-taking campaign performed recently on the 1.7 - 74 MeV gamma-ray beam at LASTI (U. of Hyogo) will be described.

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