

## A comprehensive analysis of polarised $\gamma$ -ray beam data with a HARPO demonstrator

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The HARPO is a design concept of the gaseous TPC aiming for a high precision telescope and polarimeter for cosmic

$\gamma$ -rays especially in the energy range from the pair-production threshold up to the order of 1 GeV, where current  $\gamma$ -ray telescope has a sensitivity drop and no polarimetry exists due to the multiple scattering.

In order to investigate the feasibility, we built a HARPO demonstrator and performed a beam test campaign with a polarised  $\gamma$ -ray at the NewSUBARU accelerator in Japan in 2014. Our earlier studies showed promising results as a polarimeter even before performing analysis optimization.

We are finalizing the polarimetry study by optimizing analysis and also extending our study to the angular resolution as its telescope performance.

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