

## Two-photon physics at KLOE-2

Thursday 30 September 2021 12:30 (20 minutes)

KLOE-2, the continuation of the KLOE experiment at the Frascati  $\phi$ -factory, completed its data-taking by acquiring about  $5 \text{ fb}^{-1}$  at the  $\phi$  meson peak.

One of its distinctive feature is the possibility to study  $e^+e^- \rightarrow \gamma^*\gamma^*e^+e^- \rightarrow \pi^0e^+e^-$  processes by tagging final state leptons with two stations installed in both arms of the DAΦNE beam pipe.

The aim is to perform the high precision measurement of the  $\pi^0$  width to test low-energy QCD dynamics.

The High Energy Tagger (HET) is a scintillator hodoscope whose counting rate is dominated by very low angle radiative Bhabha scattering events without any associated signal in the KLOE detector. The measurement of the effective low angle radiative Bhabha cross section per scintillator is used to monitor detector performance and infer acceptance $\times$ efficiency of the HET.

The  $\pi^0$  production from two-photon fusion is tagged by requiring the coincidence between the HET detector and the KLOE calorimeter when two clusters are reconstructed for one of the DAFNE bunch. The background is measured from events, continuously recorded in a time window where KOE and HET data acquisitions do not overlap.

The measurement of the low angle radiative Bhabha cross section and last results on the  $\gamma^*\gamma^* \rightarrow \pi^0$  analysis will be reported.

### What is your topic?

Anomalous Magnetic Moment of the muon

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