

# Photon identification in the ALICE photon spectrometer PHOS with charged-particle veto detector CPV

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PHOS is one of the two electromagnetic calorimeters of ALICE. It is designed for high precision measurements of direct photon and neutral meson spectra and their correlations in high and low multiplicity environments. These measurements rely on a high purity photon spectrum. PHOS consists of four modules of  $\text{PbWO}_4$  crystals with a charged-particle veto (CPV) detector installed in front of it. CPV is a multi-wire proportional chamber with pad readout. The first of three CPV modules was put into operation during LHC Run 2.

Fine granularity of PHOS allows photon identification based on the transverse shape of the shower developed in the detector. We discuss variables which can be used in the method of shower shape identification and the impact it has on the purity of the photon spectrum. Another criterion is the neutrality of the particle detected. It can be found either by extrapolating tracks reconstructed by the central tracking system or by using the CPV information. We will discuss the efficiency of the charged-particle track reconstruction and photon identification in the CPV. After presenting its performance in low multiplicity pp collisions at  $\sqrt{s} = 13$  TeV and high multiplicity Pb-Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV we compare both methods and discuss the impact on the purity of the photon spectrum.

**Primary author:** Mr KONDRATYUK, Evgeny (Institute for High Energy Physics of NRC Kurchatov Institute (R))

**Presenter:** Mr KONDRATYUK, Evgeny (Institute for High Energy Physics of NRC Kurchatov Institute (R))

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