The Photon Spectrometer of the ALICE Experiment at LHC

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The photon spectrometer (PHOS) in ALICE is designed to measure photons, and to reconstruct π^0's and η's via their 2γ decay branch[1]. Detection of direct photon emission is considered the best means to determine the temperature of the initial phase of the heavy ion collision. The extraction of the thermal direct photon signal is a primary goal of the PHOS detector[2]. However, the physics capabilities of PHOS with respect to the measurement of hard processes has been studied extensively in the past two years. The measurement of γ and π^0 spectra will extend to about 100 GeV/c in transverse momentum. It is also expected that PHOS detector will provide Level 0 trigger information to trigger on, e.g. hard scattering in which a jet has been produced.

In this contribution we present the PHOS R&D with particular emphasis on the readout chain and report on beam test results of a 256 channel prototype as well as on simulations on the performance of PHOS as a trigger sub-detector.

References

[1] ALICE Collaboration, Technical Proposal, CERN/LHCC/95-71.
[2] ALICE Collaboration, Technical Design Report, CERN/LHCC/99-4.