A Large-Area Anode-Pad MICROMEGAS Chamber as a Pre-Shower Detector for Photon Identification in Relativistic Heavy Ion Collisions

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Abstract

Searching in the photon spectrum the signature for the formation of a thermalized plasma of gluons and quarks is one of the main challenges of the ALICE experiment. In this talk, we will present how the identification capabilities of the photon spectrometer (PHOS) of ALICE could be substantially improved by adding a pre-shower detector, PPSD, consisting of a passive converter sandwiched by two gas chambers. We will show how the PPSD could improve the purity of the measured photon spectrum and would determine the photon vertex position in high multiplicity events. The basic element of the PPSD is a large-area anode-pad micromegas chamber which has been developed at Subatech. Results of the beam test of our PPSD prototype will be shown.

Preprint submitted to Elsevier Preprint *20 December 2000*