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R&D for the high momentum particle identification upgrade detector for ALICE at LHC

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The Very High Momentum Particle Identification (VHMPID) detector has been proposed as upgrade for the ALICE experiment at LHC to extend charged hadron track-by-track identification in the momentum range 5-25 GeV/c. It is a RICH counter with focusing geometry using pressurized perfluorobutane (C4F8O) as Cherenkov radiator. Three options are currently being investigated for the photon detector: a MWPC with CsI photocathode, a triple Thick GEM counter with top element coated with CsI and a commercial micro-channel plate with bialkali photocathode (Photonis Planacon XP85012). We will discuss the results of beam tests performed on RICH prototypes using both liquid C6F14 radiator (in proximity focusing geometry for reference measurements) and for the first time pressurized C4F8O gaseous radiator. In particular we will present studies of a CsI based gaseous photon detector equipped with a MWPC having adjustable anode-cathode gap, aiming at the optimization of the chamber layout and performance in the detection of single photoelectrons.

quote your primary experiment

ALICE

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