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Upgrade of the HADES RICH photon detector with H12700 MAPMTs *

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The RICH detector of the HADES experiment is designed for efficient electron identification (electron momenta up to few hundred MeV/c) in relativistic heavy ion collisions, and successfully in operation since 1999 at the SIS18 accelerator facility, GSI, Darmstadt, Germany. It is based on a gaseous photon detector with a reflective CsI cathode deposited on the MWPC pad plane.

The CBM experiment at the future FAIR facility in Darmstadt will install a RICH detector utilizing 1100 Hamamatsu H12700 Multianode Photomultiplier tubes.

In a joint effort the HADES RICH photon detector will be replaced by a subset of these MAPMTs together with a new FPGA-TDC based readout chain resulting in a significant improvement of $e+e^-$ pair reconstruction efficiency for near future measurement campaigns.

The talk will give an overview on the status and plans of the HADES RICH upgrade project, and show simulation results on the expected detector performance after the upgrade. The new readout chain based on the DiRICH front end module will be presented, and first results from prototype tests will be shown.

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Registered

Yes

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