Contribution ID: **24**   Type: **Poster**

Design and R&D of RICH detectors for EIC experiments

Monday, 5 September 2016 15:00 (30 minutes)

An Electron-Ion Collider (EIC) has been proposed to further explore
the strong force and QCD, focusing on the structure and the interaction of
the gluon-dominated matter.
A generic detector R&D program (EIC PID consortium) for the particle
identification in EIC experiments was formed to explore technologically
advanced solutions for that scope.
In this context two Ring Imaging Cherenkov (RICH) have been proposed: a
Modular RICH detector which consists of an aerogel radiator, a Fresnel lens, a mirrored
box, and pixelated photon sensor; a dual-radiator RICH, consisting of an aerogel
radiator and CF4 gas in a mirror-focused configuration.
We will present the simulation of the detector geometry configurations,
together with an estimation of the expected performances.
A prototype of the Modular RICH detector is scheduled to be tested at Fermilab
in April of 2016. The detector performance from this beam test and
optimizations for the EIC environment will be also discussed in this presentation.

Registered

Yes

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Session Classification: Poster Session A

Track Classification: Novel Cherenkov imaging techniques for future experiments