

11th International Workshop on Ring Imaging Cherenkov Detectors (RICH2022)



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The RICH detector of the AMS-02 experiment aboard the International Space Station

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The Alpha Magnetic Spectrometer (AMS) is a high-energy particle physics magnetic spectrometer installed on the International Space Station (ISS) in May 2011, successfully operating and taking data since then. The goal of the experiment is to carry out precise measurements of cosmic rays in the energy range from GeV/n to TeV/n. AMS includes a Ring Imaging Cherenkov (RICH), which provides a precise measurement of the particle velocity and its charge. The AMS RICH layout follows a proximity focusing design with two radiators: at the center sodium fluoride tiles surrounded by silica aerogel tiles ($n = 1.05$). The challenges and the experience gained operating the detector in space for more than 11 years will be presented. The impact of the RICH detector in the AMS physics program will be highlighted and the most recent results on light isotopes in cosmic rays (H, He, Li and Be) will be shown.

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