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The Cherenkov radiator system of the High Momentum Particle Identification detector of the ALICE experiment at CERN-LHC

jeudi 6 mai 2010 10:00 (1 minute)

The aim of this talk is to present the design, the implementation and the operational modes of the Liquid Circulation System (LCS) built to circulate, purify and monitor the liquid perfluorohexane (C₆F₁₄) in the ALICE HMPID. The HMPID RICH uses C₆F₁₄ as Cherenkov radiator medium circulating in twenty-one quartz trays. The LCS features a pressure-regulated closed circuit, ensuring the C₆F₁₄ highest transparency to ultraviolet light. Intrinsically safe working conditions are obtained thanks to a novel liquid distribution “cascade” system. Moreover the system is protected against anomalous working conditions by a dedicated control system which operates it in both automatic and manual mode, locally and remotely, safeguarding the quartz radiator vessels. The LCS is isolated from the external environment by means of aerial lines where anhydrous argon flows in order to avoid the contact of the liquid with air, to allow pressure equilibrium between all elements and to convey the C₆F₁₄ vapour toward a cold trap station.

The LCS has been fully commissioned over the last two years and proved to meet all requirements thus enabling HMPID to perform on cosmic ray data as by design and to successfully collect the first data during the start of the LHC operation in November 2009.

Please indicate “poster” or “plenary” session. Final decision will be made by session coordinators.

plenary

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