

Options of RICH detectors based on silica aerogels for high momenta range

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Nowadays several projects of future colliding beam experiments are considered in the world. Among them are CEPC (Circular Electron Positron Collider) in China and FCC (Future Circular Collider) at CERN (Switzerland). To perform experiments on flavour physics at energy range of the projects an excellent particle identification up to momenta of 30 GeV/c is required. Several concepts of RICH detectors were considered and evaluated with help of GEANT4 simulation: FARICH (Focusing Aerogel RICH) based on multilayer aerogel with maximal refractive index 1.008, RICH with Fresnel lens based on aerogel with refractive index 1.008, RICH based on transparent aerogel fibres with refractive index 1.008. Results of simulation are presented. Some results of beam tests at the BINP performed to validate GEANT4 simulation are shown. Requirements to position-sensitive photon detectors are formulated and some technical solutions and availabilities are discussed as well.

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