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The ARICH detector at Belle II experiment

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We will present overview of Aerogel Ring Imaging CHerenkov counter (ARICH) which is developed as a particle identification detector in next generationB-factory experiment, the Belle II. The ARICH consists of aerogel radiator and photo sensor. When charged particle goes through the radiator, it emits Cherenkov light to the direction which depends on the particle mass. Using this dependance, we identify the particle by reproducing the ring image with high sensitive photon sensor array. We develop new photon sensor named Hybrid Avalanche Photo Detector (HAPD) to collect a small number of Cherenkov photon distributed in large area effectively. We set up a part of ARICH detector and perform beam tests using electron and hadron beam line at KEK, CERN and DESY. From the obtained results, we expect that it is possible to separate kaon and pion by 4 sigma deviation level if we use this system. To evaluate the effect of radiation for HAPD in long period experiment, we perform radiation hardness tests using 60Co gamma-ray source and neutron beam line. Mass production of HAPD and electronics has been started and ARICH will be constructed from this year. Installation to the Belle II detector will be completed in 2015.

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