Contribution ID: **393** Type: **Poster**

Hamamatsu MPPC S11834 as a detector of Cherenkov photons

Silicon photo multipliers are promising candidates to replace
the photomultiplier tubes in Ring Imaging Cherenkov counters. Their main advantages are high gain, low operational voltage, insensitivity to magnetic fields, robust and compact design. Their big disadvantage for single photon detection is their high dark count rate, which is of the order of 0.1-1 MHz/mm^2. We have however already measured and demonstrated that 1mm x 1mm SiPMs (Hamamatsu MPPC S10362-11-100P) can be used a sensor of single photons if the acquisition time window is narrow enough to reject most of the background hits. A progress in the last several years has made available the SiPMs with much lower background per unit area, which enables the use of SiPM with larger pads and increase the sensor geometrical acceptance. We have studied a module based on a Hamamatsu MPPC S11834 8x8 SiPM array of 3 mm x 3 mm SiPMs. To increase the geometrical efficiency the 5mm x 5mm $\rightarrow$ 3mm x 3mm quartz light collectors were used. In the contribution, a bench and beam tests of the module will be presented.

Primary author: Dr PESTOTNIK, Rok (Jozef Stefan Institute)

Co-authors: TAHIROVIC, Elvedin (J); KRIZAN, Peter (University of Ljubljana); Dr KORPAR, Samo (Uni Maribor)

Presenter: Dr PESTOTNIK, Rok (Jozef Stefan Institute)

Track Classification: Sensors: 1d) Photon Detectors