

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



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## Measurement of the photomultiplier efficiency and the mirror reflectivity of the RICH detector of the NA62 experiment at CERN

The number of hits per ring is the convolution of many factors: Cherenkov photon emission, mirror reflectivity, the probability of absorption and diffusion in the radiator, probability of photon transmission in the quartz window, photomultiplier (PM) quantum efficiency, the readout efficiency. Since this number is relatively small even for rings with  $\beta=1$  and hits are uniformly distributed along the ring, it is not possible to know whether a single PM covered by the ring was hit by a photon or not. Hence it is not possible to measure the absolute PM efficiency. However, it is possible to measure the relative efficiency on a statistical basis if the position and radius of the Cherenkov rings are precisely inferred by the information coming from other detectors. The measurement of the relative efficiency of the PMs of the NA62 RICH performed with the data collected in 2017 will be presented. A similar method, once the presence of a Cherenkov photon is detected, can be used to measure the relative reflectivity of the mirrors as a function of the photon position on the mirror surface. Preliminary results of this study will also be presented.

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