

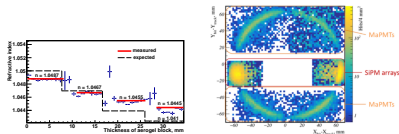
WP 5.6/ BINP

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CREMLINplus Kick-off Workshop, 19-20 February 2020.

- 4-layer focusing aerogel were tested with one SiPM array 4×4 pixels with size 3×3 mm².

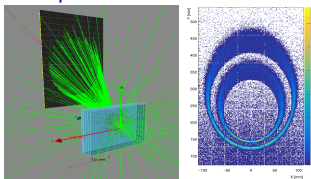


Resolution of Cherenkov angle

$\sigma_{\Theta_c} \approx 10$ mrad for single detected photon was obtained. The number of detected photons in full ring $N_{ph} \approx 39$ are expected. Such results could provide the μ/π -sep. at the level of more than 3σ at the 1.5 GeV/c

$$(N_{\sigma} = \frac{\Delta\Theta_c^{\mu/\pi}(1.5\text{GeV}/c)}{\sigma_{\Theta_c}/\sqrt{N_{pe}}} = \frac{6.6}{10/\sqrt{39}} = 4.1\sigma).$$

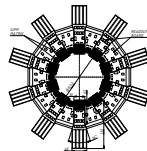
- The full FARICH simulation in G4 has been developed.



- It was shown that improvement of aerogel refractive index profile could improve the separation by 1.5 times.

Plans for 2020

- To produce several aerogel samples with better coincidence of refractive index profile with expected one.
- To create FARICH prototype based on SiPM arrays with full ring detection capabilities.



- To implement full FARICH G4 simulation in SCT software package to provide SCT parametric simulation program by actual PID parameters depending on FARICH system configuration.
- To perform common beam test of FARICH and FDIRC prototypes at the BINP testbeam facilities (this is optional issue and it could be moved on the next year).
- To compare the SiPM arrays from different manufacturers (SensL, Hamamatsu, KETEK) at the beam tests with FARICH prototype.