Calculated time – Measured time

A.A

DIRC weekly meeting 07/12/2017

Outlook

- Test beam 2017: bar, 3layer spherical lens, grease, study id 332, 7 GeV/c
- Optimizing (Calculated time Measured time) cuts

Calculated time – Measured time

Calculated time= photon propagation time inside the bar + photon propagation time inside the prism from LUT Measured time = photon propagation time from generation to detection

Normalize "BG"



Blue curve proton tagged (beam data) Light gray curve (simulation) Magenta curve (simulation, true path inside the prism) Dark gray curve (simulation BG) Red curve data - simulation BG

Normalize "peak"



Blue curve proton tagged (beam data) Light gray curve (simulation) Magenta curve (simulation, true path inside the prism) Dark gray curve (simulation BG) Red curve data - simulation BG

Normalize "peak"



Blue curve proton tagged (beam data) Light gray curve (simulation) Magenta curve (simulation, true path inside the prism) Dark gray curve (simulation BG) Red curve data - simulation BG

3 Sigma of the Gaussian fits



Black curve proton tagged (beam data) Magenta curve (simulation) Red curve (simulation, true path inside the prism) DIRC weekly meeting 7 /12/ 2017

Next Step

- Cherenkov angle values vs polar angle
- Cherenkov angle correction
- Separation Power and SPR

DPG abstract DIRC@GlueX

The upgrade of the GlueX experiment at Jefferson Lab with a DIRC (Detection of Internally Reflected Cherenkov light) counter will significantly improve the particle identification (PID) capabilities in the forward region of the detector by providing clean π/K separation for momenta up to 4 GeV/c.

The GlueX DIRC combines four bar boxes from the decommissioned BaBar DIRC detector with new compact photon cameras based on the SuperB FDIRC concept.

Geant₄ simulations were used to design the focusing photon camera. Two reconstruction algorithms were developed to optimize the hadronic PID performance.

We will discuss the status of the DIRC detector and the latest achievements in the reconstruction.