

GlueX DIRC Commissioning Analyses

A.A

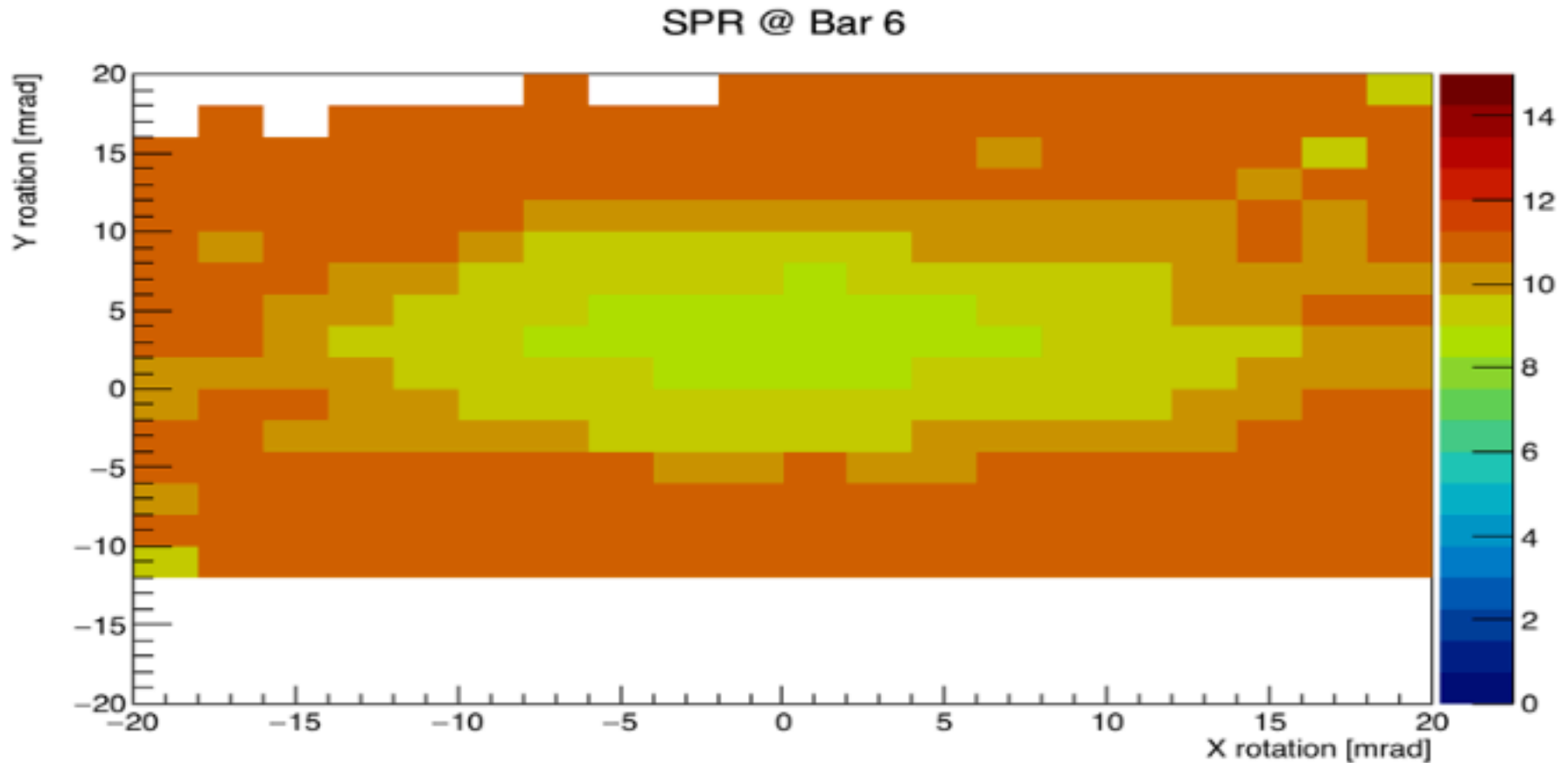
1 Aug 2019

Weekly DIRC Meeting

Outline

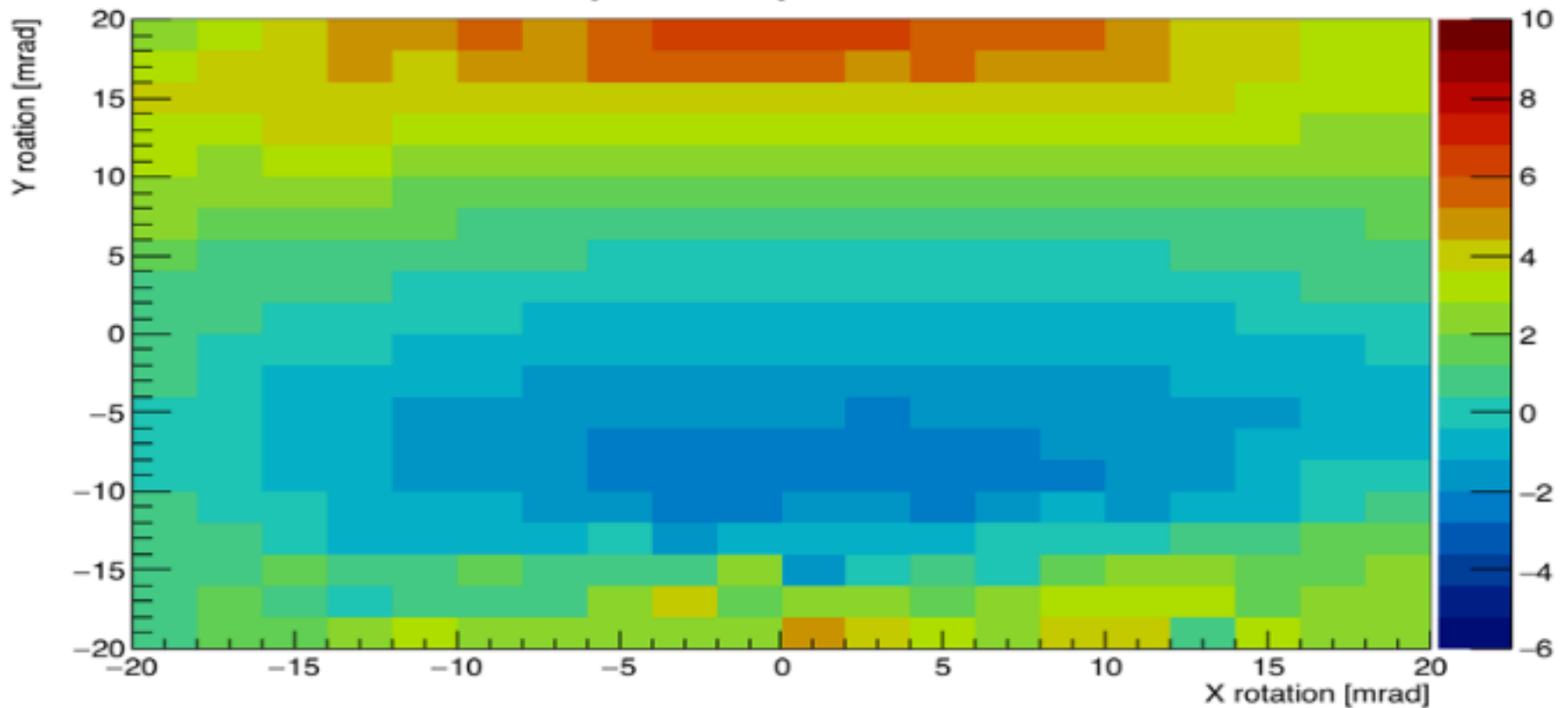
- Momentum Direction Correction (SPR method)
- Correction Comparisons
 - Cherenkov Shift (D/R/All)
 - Correlation between photon time and Cherenkov Shift
 - SPR (D/R/All)
 - Correlation between photon time and SPR
- Next Step

Per track SPR



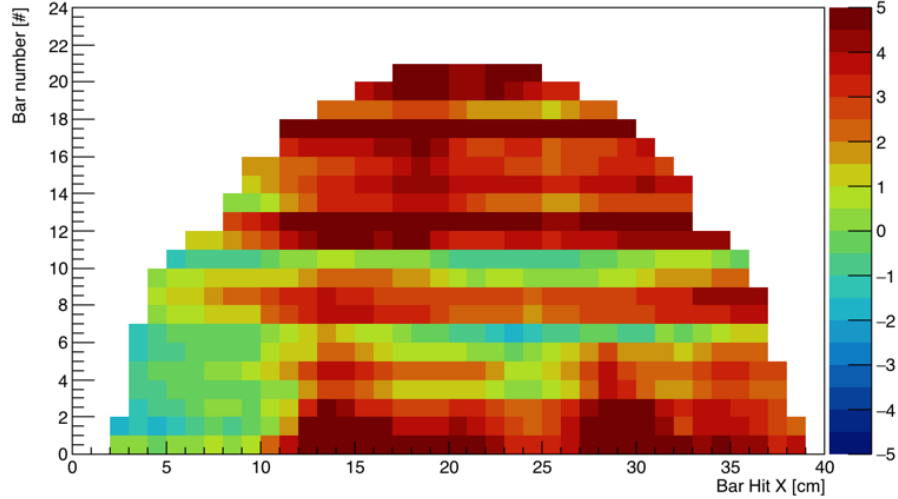
Per track Cherenkov Shift

Mean Value of $\theta_c^{\text{Measured}} - \theta_c^{\text{Expected}}$ distribution @ Bar 6



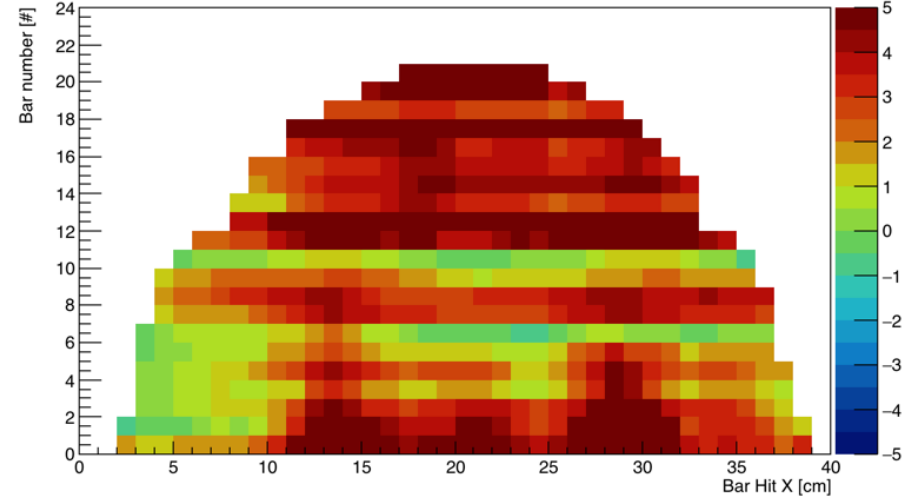
Shift Survey Correction Study

θ_c Shift [mrad]



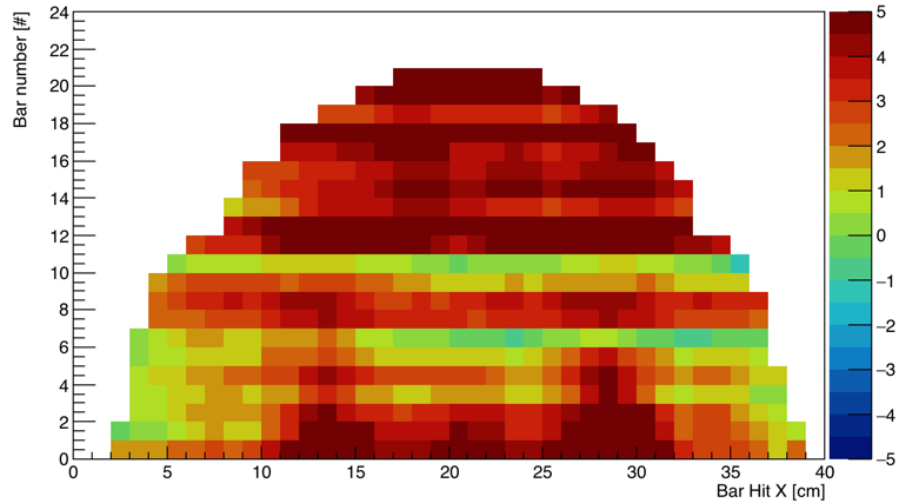
without correction

θ_c Shift [mrad]



survey correction

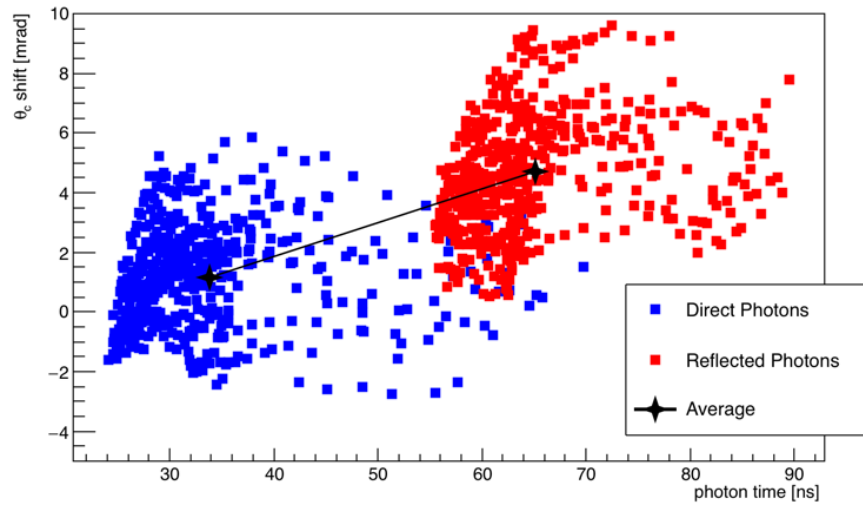
θ_c Shift [mrad]



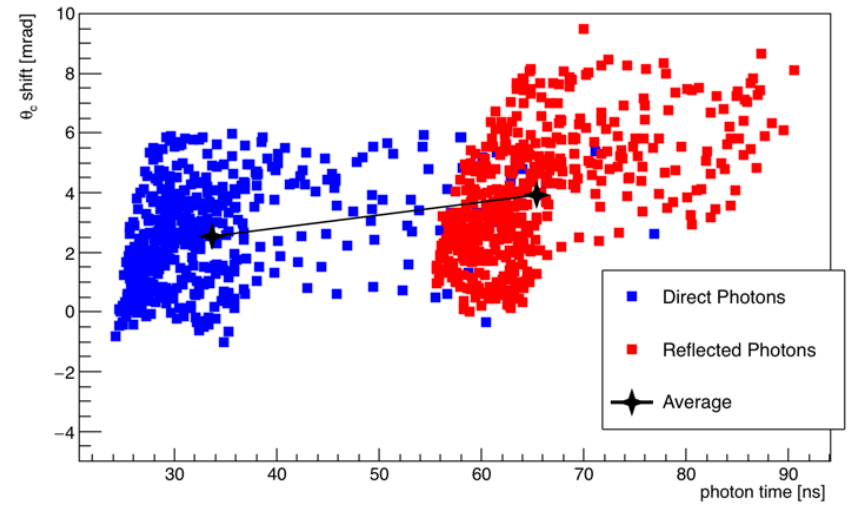
Momentum rotation correction

Cherenkov Shift vs photon time

correlation between cherenkove shift and photon time



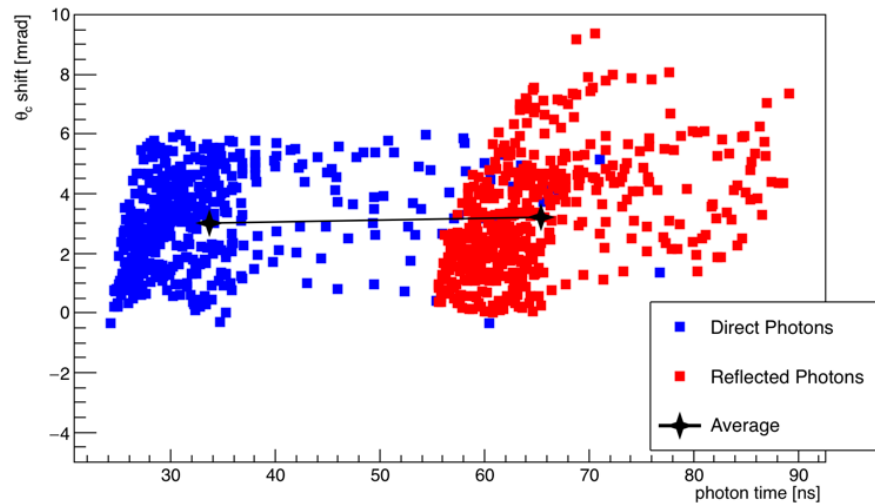
correlation between cherenkove shift and photon time



without correction

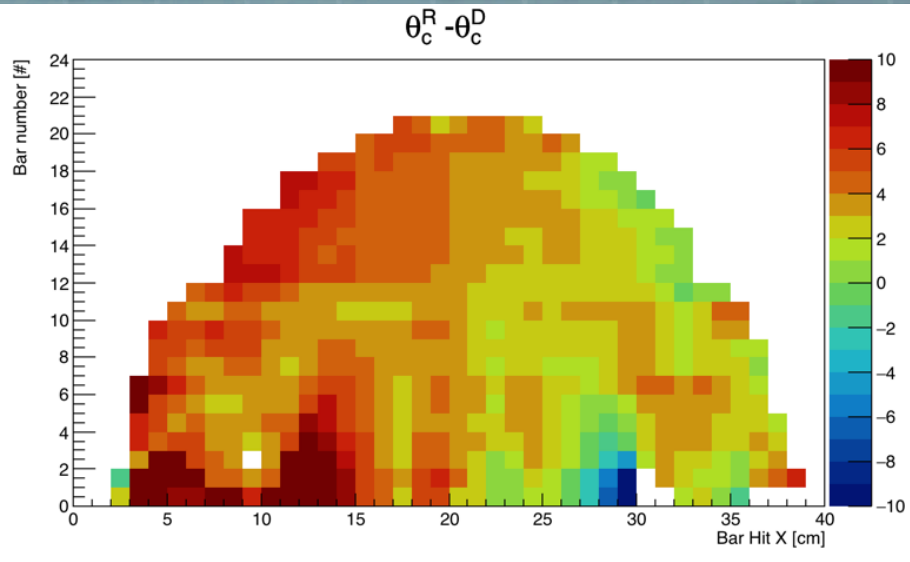
survey correction

correlation between cherenkove shift and photon time

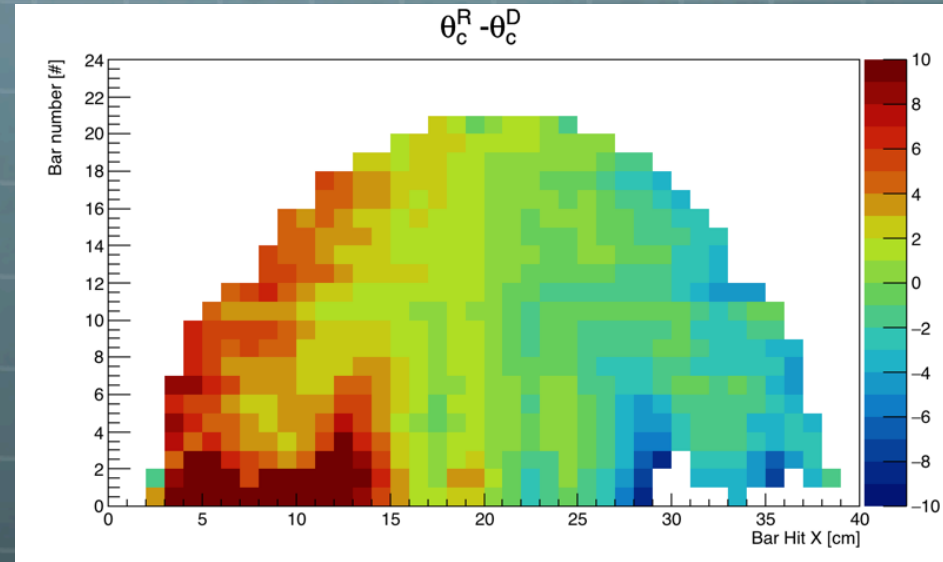


Momentum rotation correction

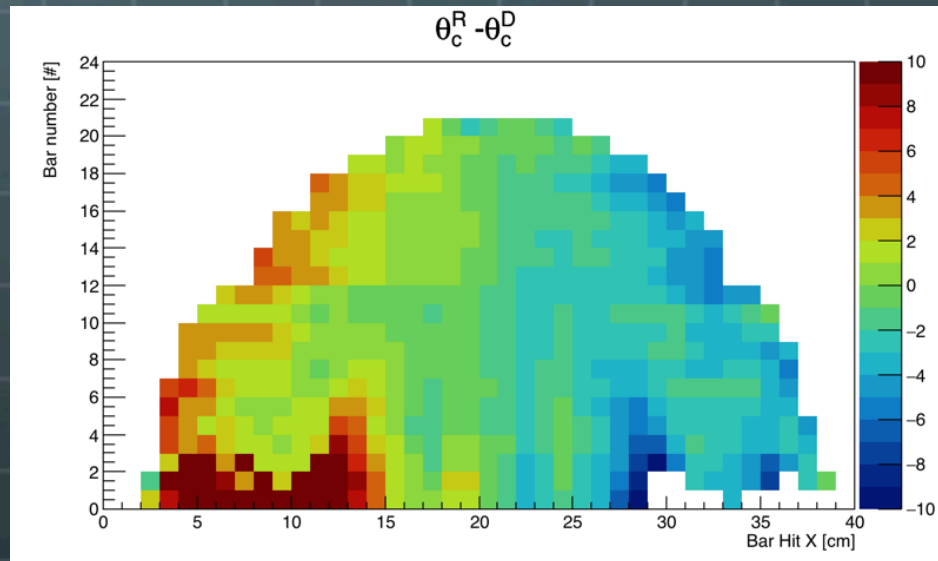
Cherenkov Reflected - Direct



without correction

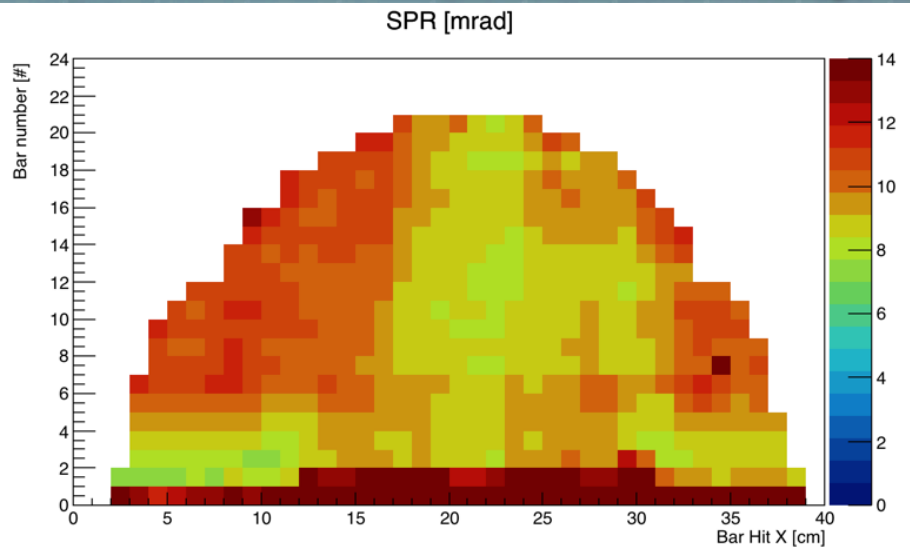


survey correction

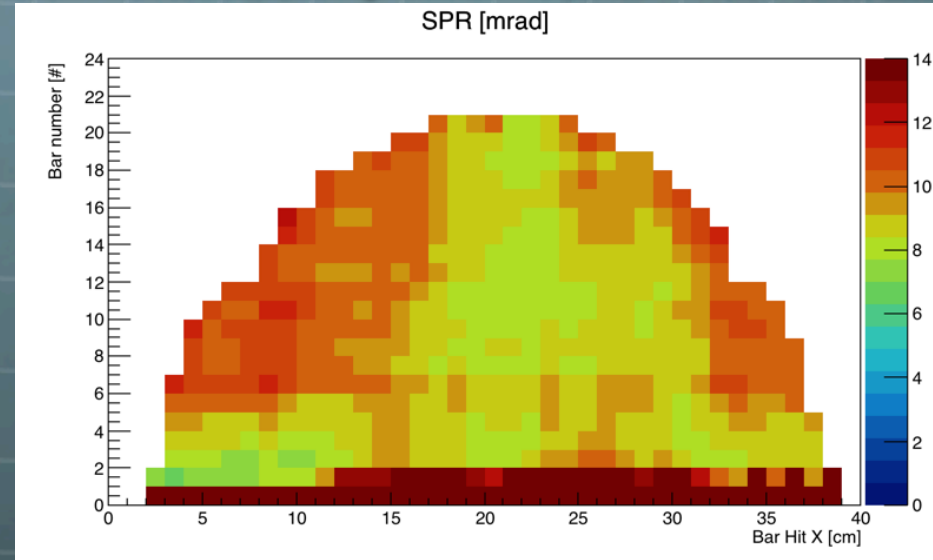


Momentum rotation correction

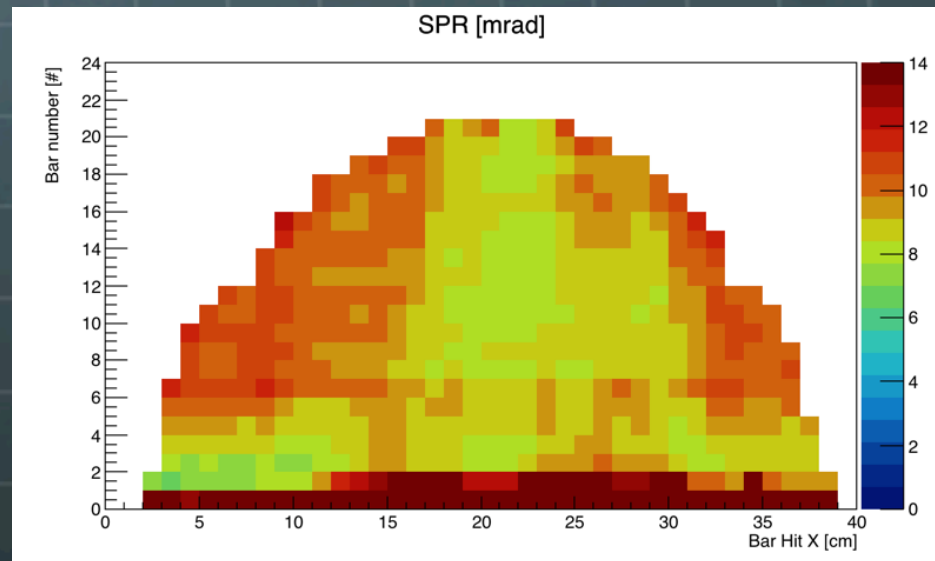
SPR Survey Correction Study



without correction



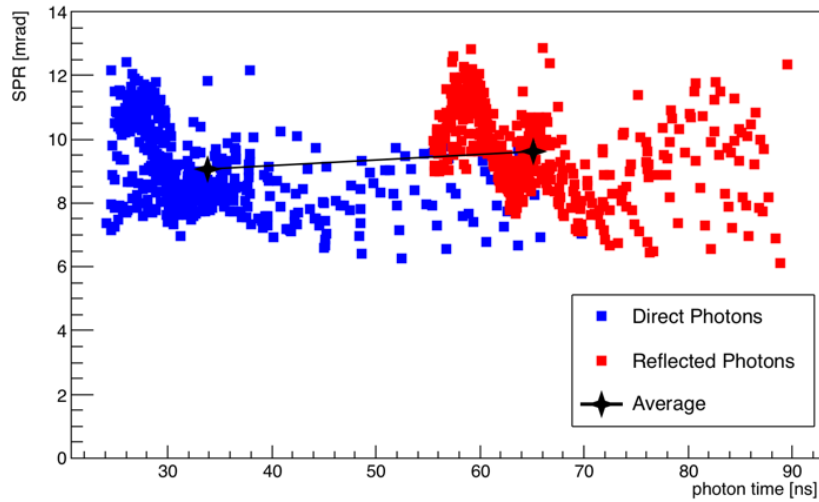
survey correction



Momentum rotation correction

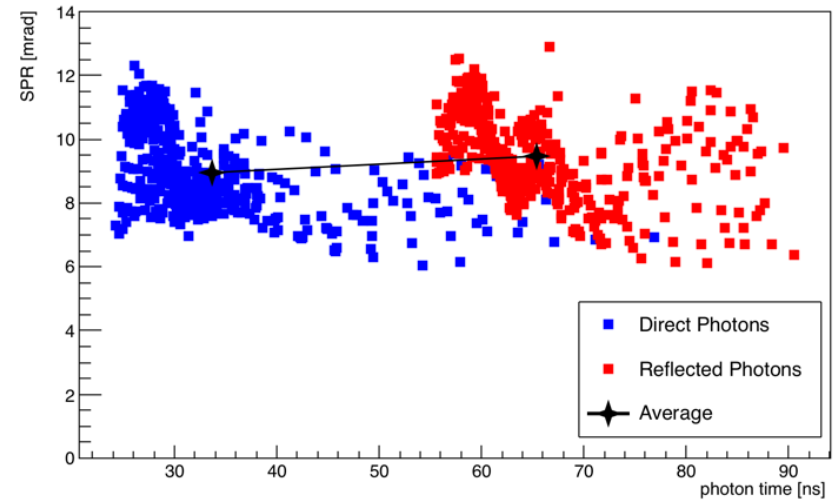
SPR & Photon Time

correlation between SPR and photon time



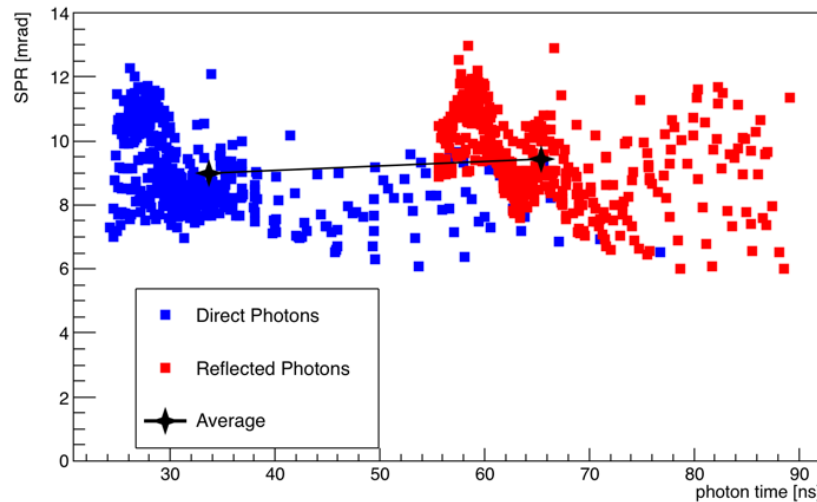
without correction

correlation between SPR and photon time



survey correction

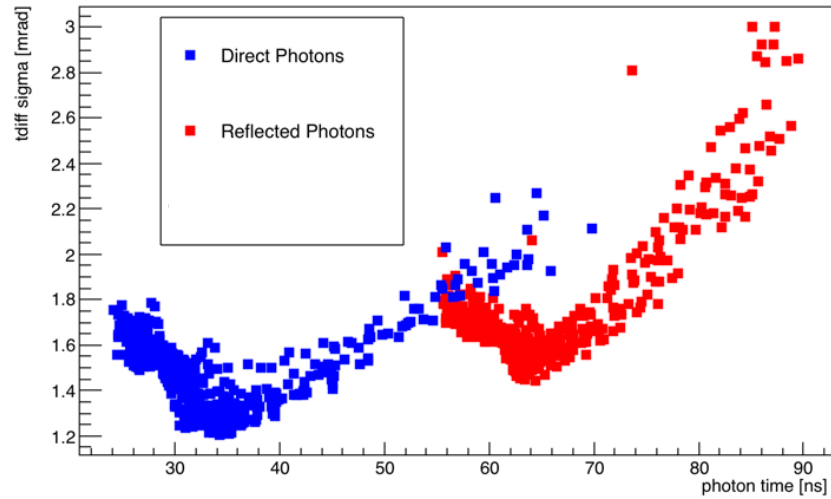
correlation between SPR and photon time



Momentum rotation correction

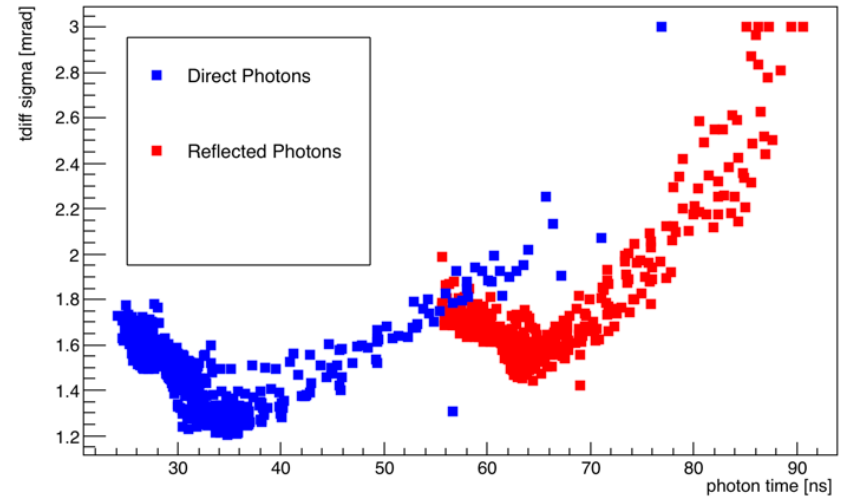
Time Difference Sigma vs Photon Time

correlation between tdiff sigma and photon time



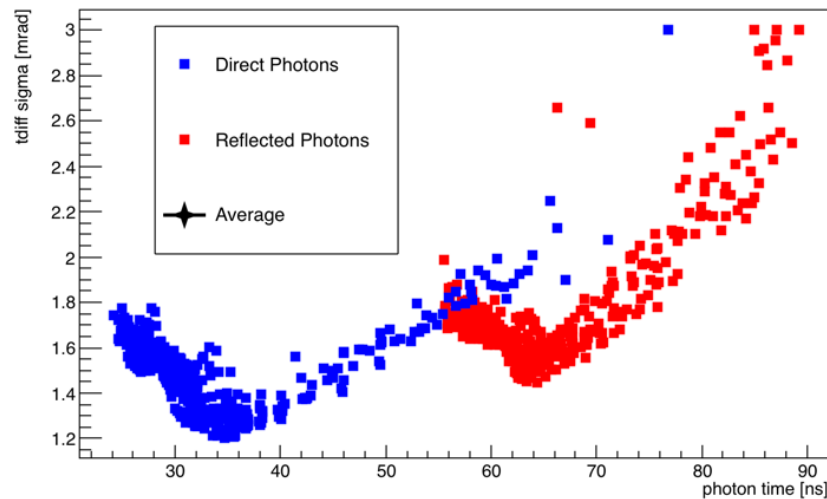
without correction

correlation between tdiff sigma and photon time



survey correction

correlation between tdiff sigma and photon time



Momentum rotation correction

Next Step

- 🌐 **Apply Momentum Direction Correction**
- 🌐 **Apply Cherenkov angle Correction [per Bar per X bin per Direct/Reflected flag] since no correlation between the shift neither (yield nor SPR nor momentum)**
- 🌐 **Calculate Separation power**
- 🌐 **Calculate Tracking Resolution Map**