

uBooNE code - Support #24562

SCE systematic uncertainty on LEE analyses

06/24/2020 07:34 PM - Tingjun Yang

Status:	Closed	Start date:	06/24/2020
Priority:	Normal	Due date:	
Assignee:		% Done:	0%
Category:		Estimated time:	0.00 hour
Target version:			
Description			
Davio showed a rather large impact of the SCE systematics on the reconstruction numu energy spectrum: https://microboone-docdb.fnal.gov/cgi-bin/private/RetrieveFile?docid=31245&filename=Detector%20Systematics%20Beyond%20Nu2020%20v3.pdf kbeidmkelcginli.png			
In the PeLEE technote: https://microboone-docdb.fnal.gov/cgi-bin/private/RetrieveFile?docid=27738&filename=PeLEE-TN-041120.pdf&version=10 Table 16 in page 63 summarizes the impact of different systematic effects on the Reconstructed neutrino energy in the 1eNp0π sample: systable.png SCE is one of the dominant effects.			
David made the following figure with more statistics than in the technote: reco_e_05172020_SCE_1eNpBDT_nueall.png which still shows relatively large variations.			
David also made detailed studies on the SCE on PeLEE analysis: https://microboone-docdb.fnal.gov/cgi-bin/private/RetrieveFile?docid=30088&filename=SCE_DetSys_Investigation.pdf&version=1 The study was done using the same events in the CV and SCE samples. The SCE introduces a 2% bias in the energy reconstruction: scesmearing.png			
Ryan also studied many systematic effects on the numu selection. Here is the impact of SCE: SCEPeLEEnumu.png			

History

#1 - 10/20/2020 01:36 PM - Tingjun Yang

- Status changed from New to Closed

Files

File Name	Size	Date	Owner
kbeidmkelcginli.png	260 KB	06/24/2020	Tingjun Yang
systable.png	99.9 KB	06/24/2020	Tingjun Yang
reco_e_05172020_SCE_1eNpBDT_nueall.png	34.5 KB	06/25/2020	Tingjun Yang
scesmearing.png	109 KB	06/25/2020	Tingjun Yang
SCEPeLEEnumu.png	41.6 KB	06/25/2020	Tingjun Yang