

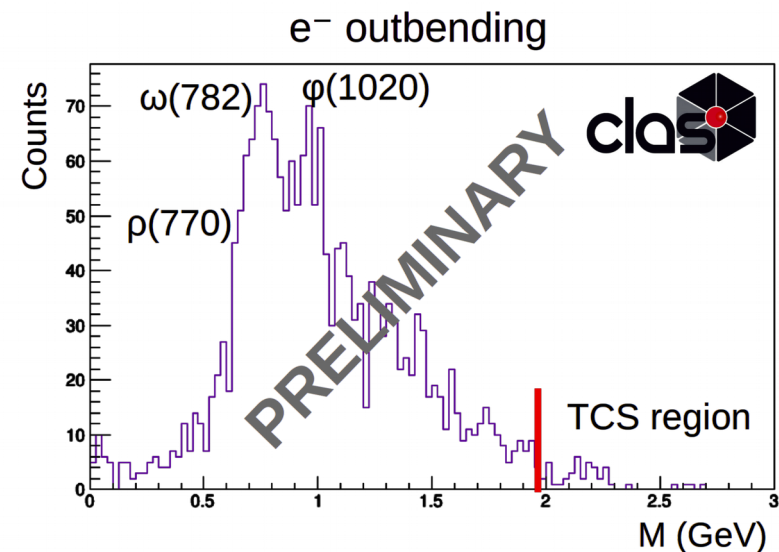
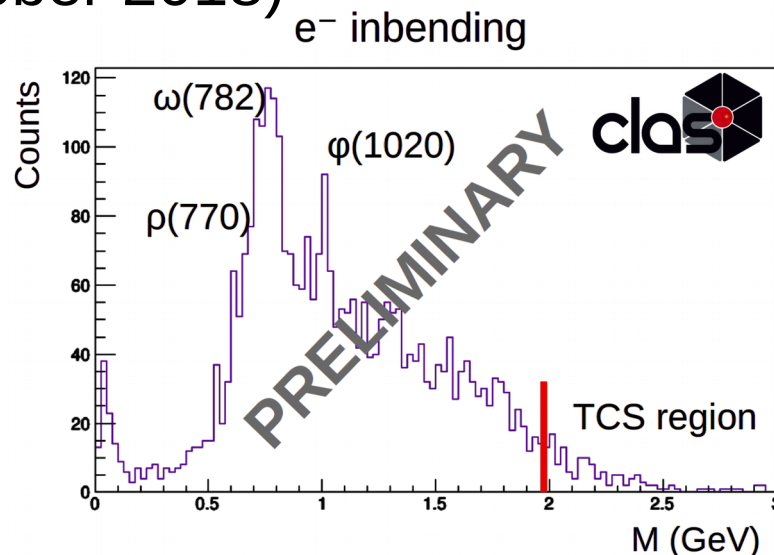
Time-like Compton Scattering path forward

CLAS Collaboration Meeting 13/16 November 2018

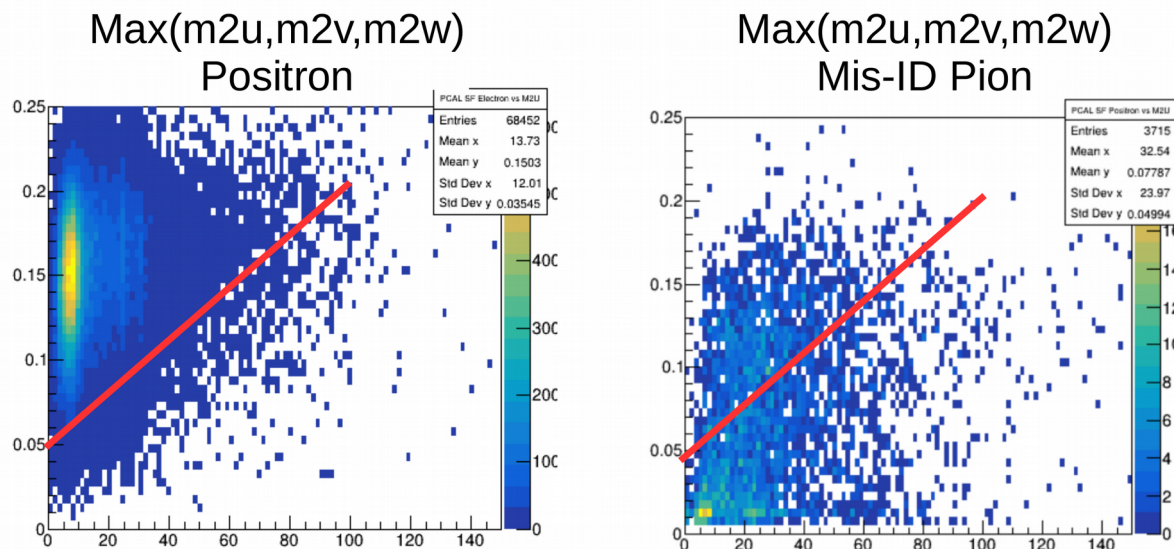
- Reaction of interest

$$ep \rightarrow epy \rightarrow epy^* \rightarrow e^+e^-p(e)$$

- Exclusive reaction. Photo-production is ensured by applying cuts on not-detected scattered electron and real photon.
- Cross section ratio and beam spin asymmetry to be extracted
- First lepton pair spectrum shown at DNP meeting (23-27 october 2018)



- **More statistics is the critical point**
- Best possible tracking efficiency : two leptons in the FD, a proton in the CD, missing mass cuts
- Best possible calibration in Calorimeter and TOF for PID : time based PID is critical in the CTOF for $p < 2.5$ GeV, Calorimeter helps cleaning pion contamination at PID level for $p > 5$ GeV



This cut only :

66 % of Mis-ID Pions Rejected
2,9 % « Good » Positron lost

- Logarithm weight in Calorimeter cluster algorithm might improve lepton/pion separation power → To be investigated
- $\pi^+\pi^-$ pair contamination will be studied using $ep \rightarrow e\pi^+\pi^-(p)$ and $ep \rightarrow e\pi^+(n)$ from data
- Simulation needed for acceptance calculation → to be performed at University of New Hampshire computing farm