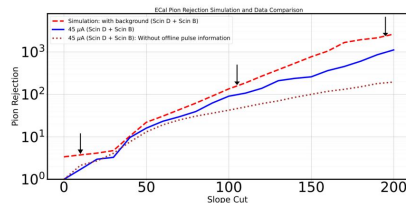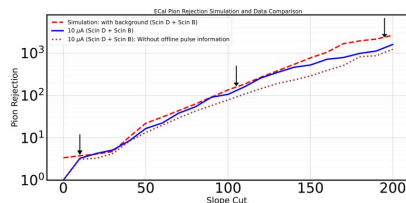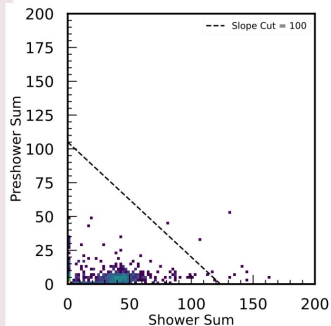# Rejection/Efficiency Trends

Classical Cuts

PID Performance

Charged Pion Samples: TS2 events with:
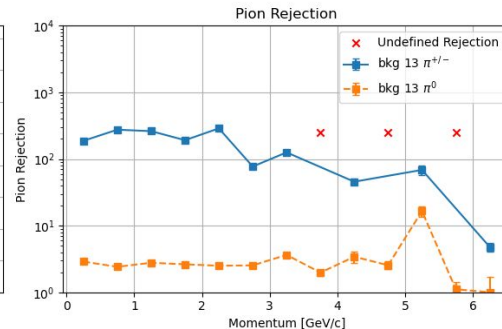
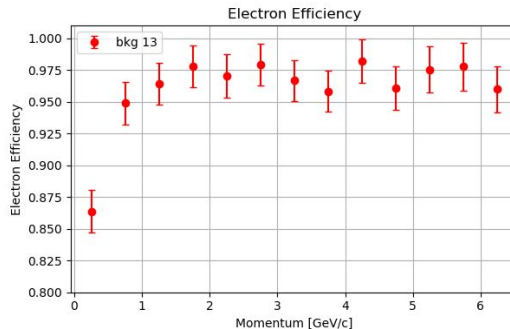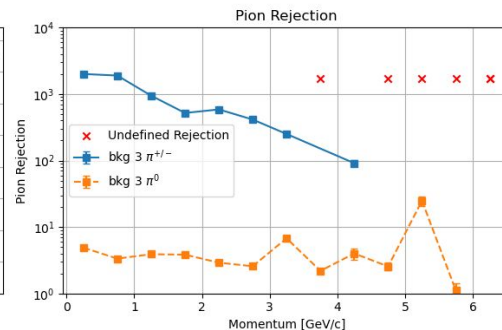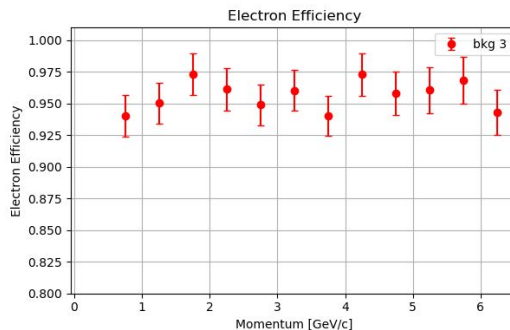- CerSum<100
- SC-C>500
- LASPD-T(B)>10

A "slope cut" is then applied to study pion rejection of ECal

- Arrows in the figure correspond to a 95% electron efficiency for electrons in ranges of (0-1), (1-2), and (2-3) GeV, as determined by simulation
- The three curves are: simulation, data with waveform "cleaning", and data without waveform "cleaning"

ML-PID Model

Classical/ML Comparison

- Additionally to the training cuts, when computing the classical classification an additional ShowerSum (>= 45) and PreShSum (>= 4) were added.
- Electron event are selected and their momentum is binned, then for all pion momentums in that bin, we try to find pion rejection values corresponding to an electron efficiency of 95%.

PID Performance

Charged Pion Samples: TS2 events with:

- CerSum<100
- SC-C>500
- LASPD-T(B)>10

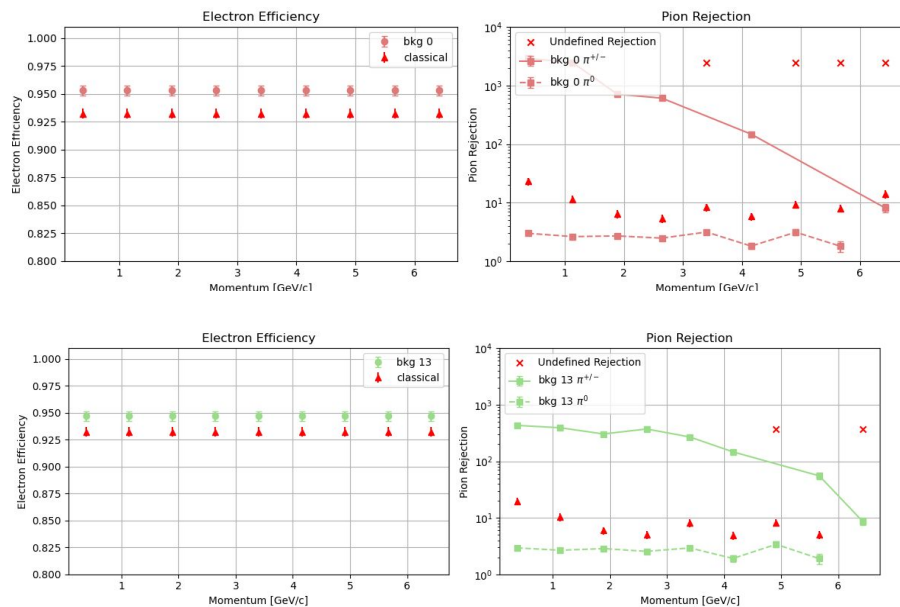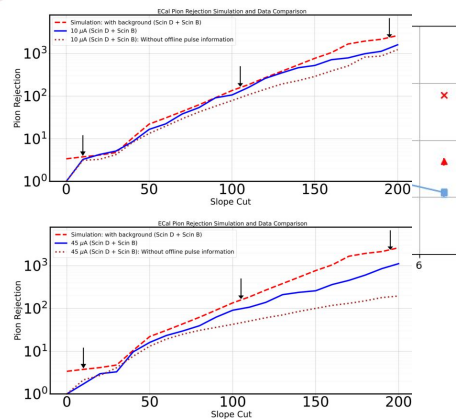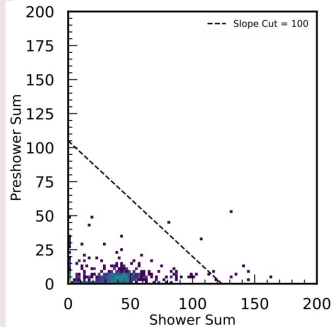A "slope cut" is then applied to study pion rejection of ECal

• Arrows in the figure correspond to a 95% electron efficiency for electrons in ranges of (0-1), (1-2), and (2-3] GeV, as determined by simulation

• The three curves are: simulation, data with waveform "cleaning", and data without waveform "cleaning"