



October campaign: Single-particle simulation and SciGlass Barrel ECal

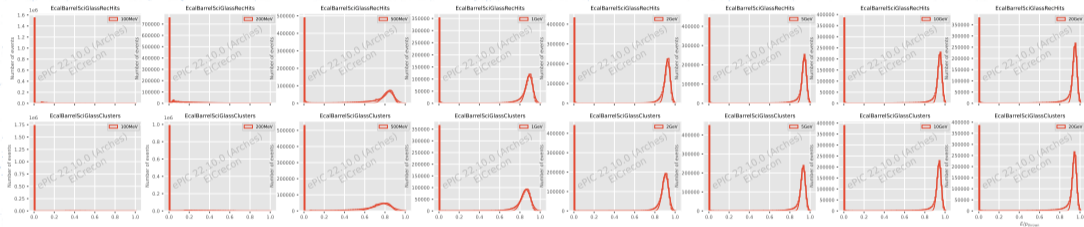
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University of Kentucky

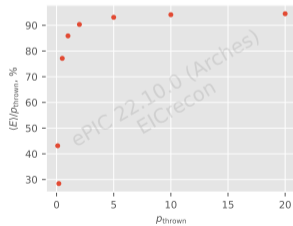
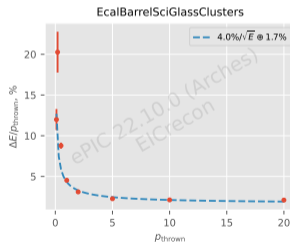
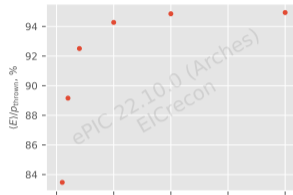
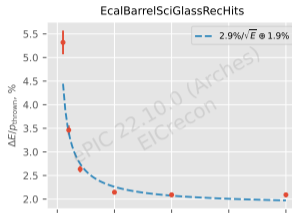
October campaign

- » Particle species are e^- and π^-
- » $p_{\text{thrown}} = 100 \text{ MeV}, 200 \text{ MeV}, 500 \text{ MeV}, 1 \text{ GeV}, 2 \text{ GeV}, 5 \text{ GeV}, 10 \text{ GeV}, 20 \text{ GeV}$
- » Three polar angle ranges: $3 - 50^\circ$, $45 - 135^\circ$ and $130 - 177^\circ$
- » Reconstruction with Gaudi+Juggler (Athena) and with JANA2+EICrecon (ePIC)
- » Two ePIC detector configurations "Arches" and "Bruce Canyon" with geometry tag 22.10.0
- » **Certain combinations of energies and angles are currently missing**
Reported on Mattermost
Re-run with 22.11.0 in progress

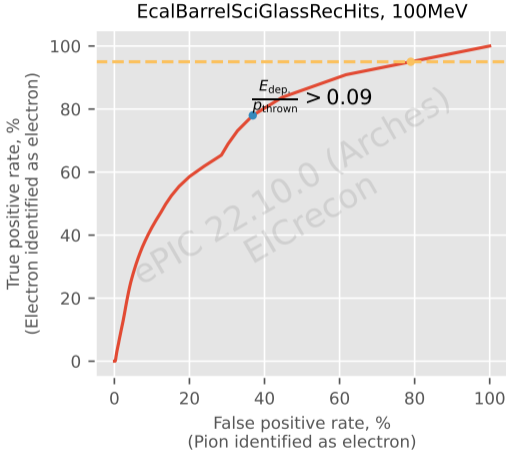
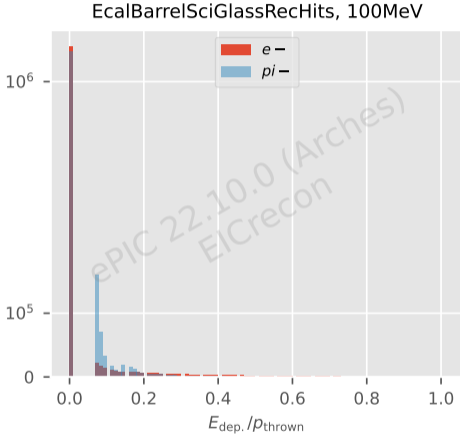
E/p for electrons



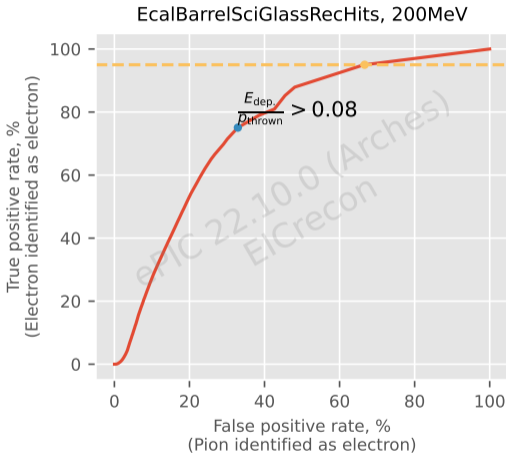
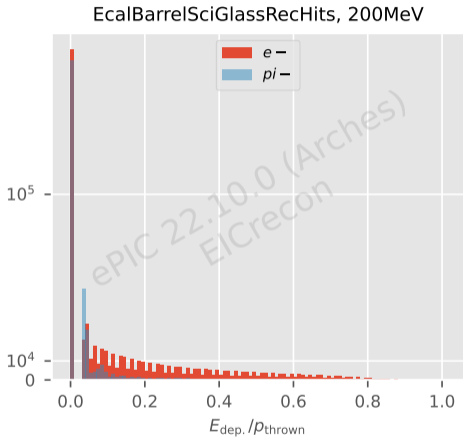
Resolution and energy efficiency



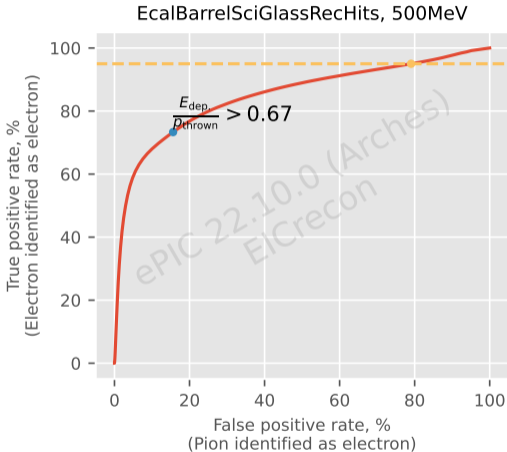
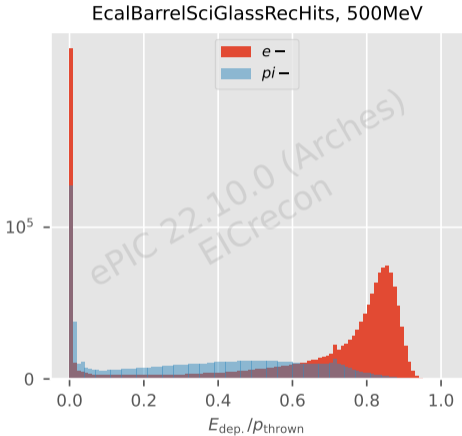
Electron/pion discrimination at 100MeV



Electron/pion discrimination at 200MeV

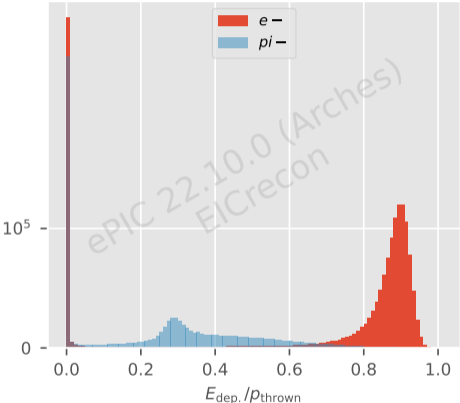


Electron/pion discrimination at 500MeV

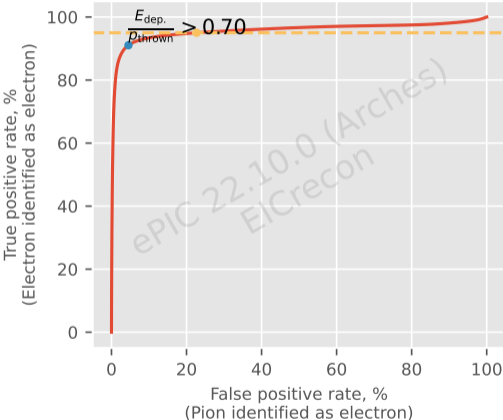


Electron/pion discrimination at 1GeV

EcalBarrelSciGlassRecHits, 1GeV

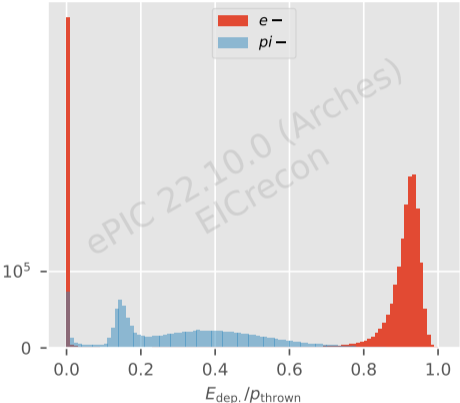


EcalBarrelSciGlassRecHits, 1GeV

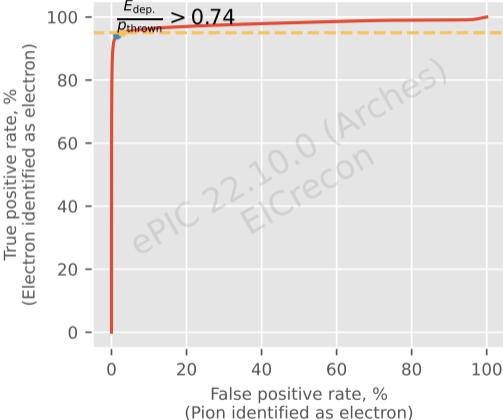


Electron/pion discrimination at 2GeV

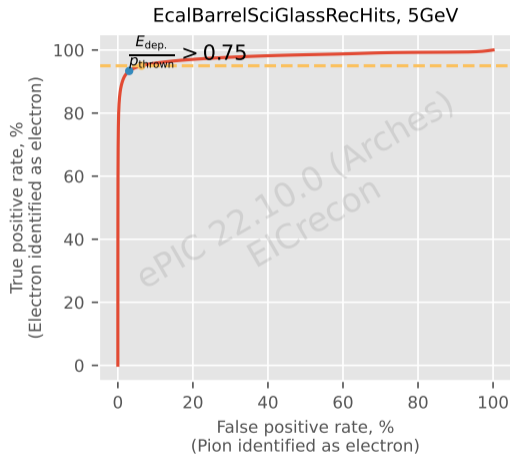
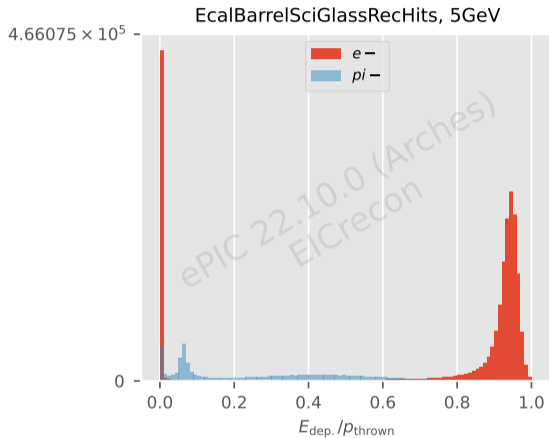
EcalBarrelSciGlassRecHits, 2GeV



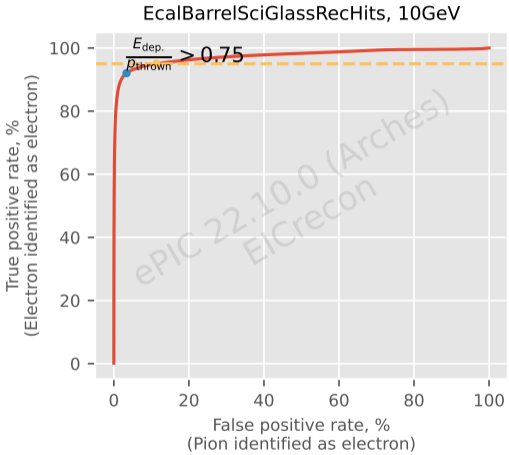
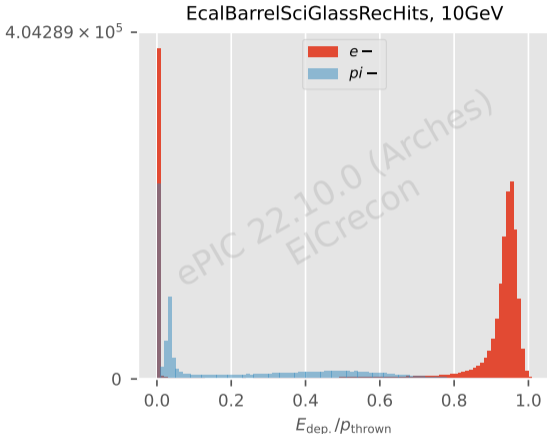
EcalBarrelSciGlassRecHits, 2GeV



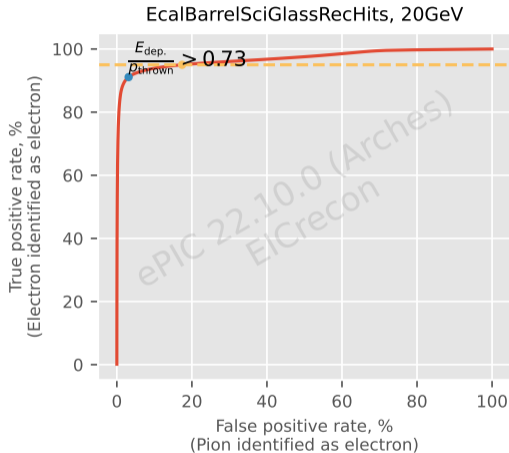
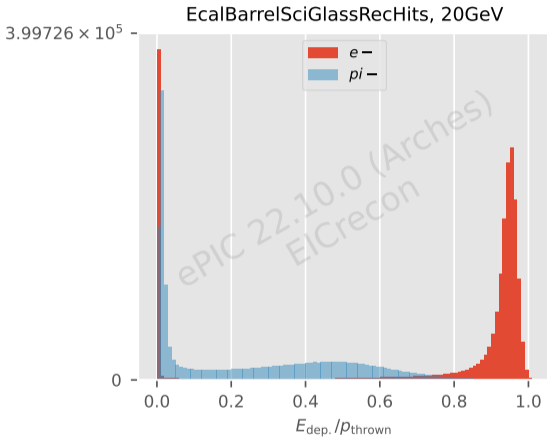
Electron/pion discrimination at 5GeV



Electron/pion discrimination at 10GeV



Electron/pion discrimination at 20GeV



Pion rejection factors

