Physics signal with SCT Simulation

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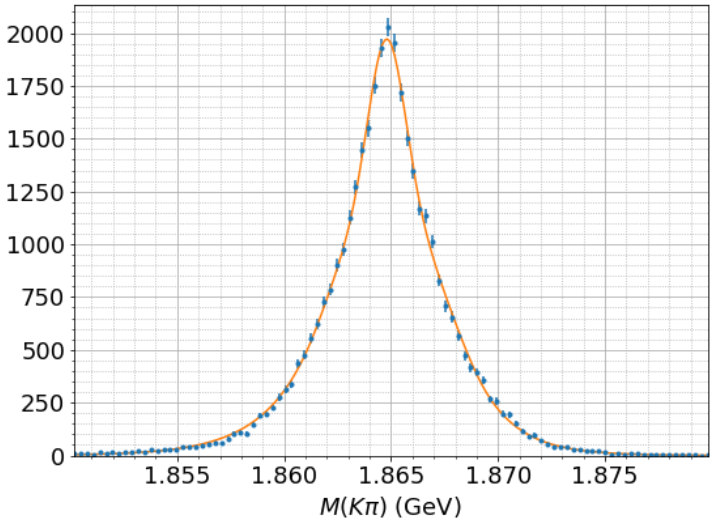
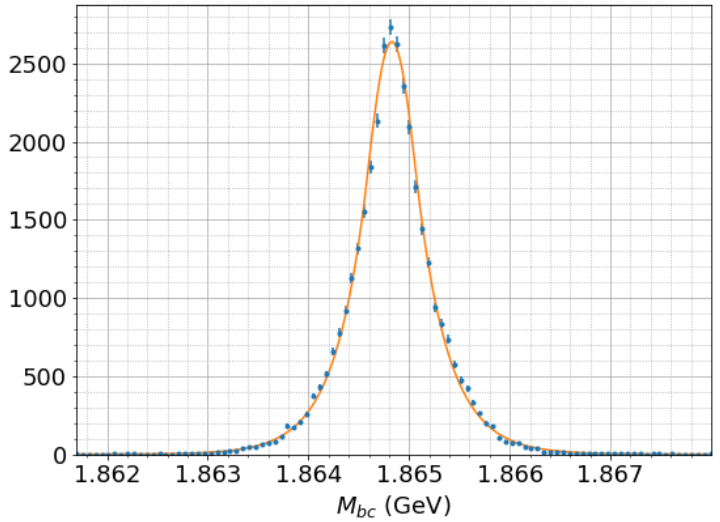
$\psi(3770) \to D^0\overline{D}^0,\ D^0 \to K^-\pi^+$

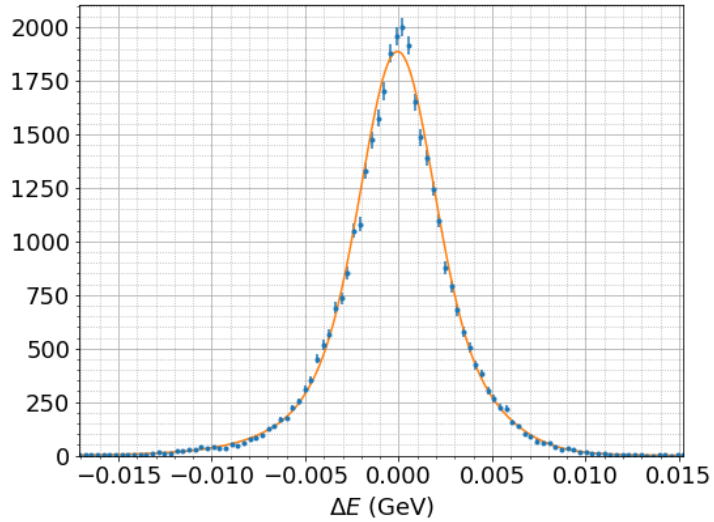
$\Delta E \equiv E_{K\pi} - E_{\text{beam}}$, $M_{\text{bc}} \equiv \sqrt{E_{\text{beam}}^2 - p_{K\pi}^2}$



$\text{RMS}(M_{K\pi})) = 3.05$ MeV



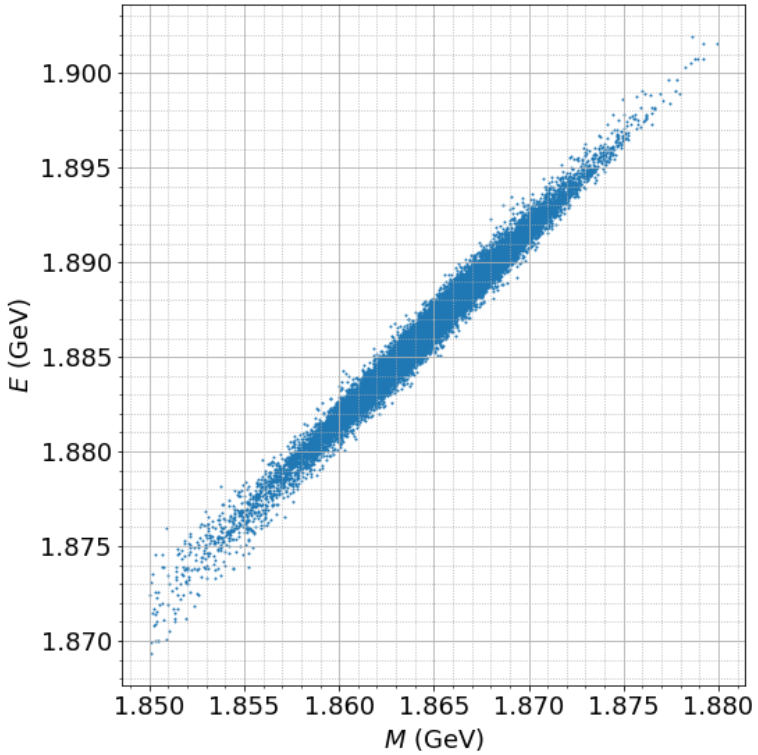
$\text{RMS}(M_{\text{bc}})) = 0.45$ MeV

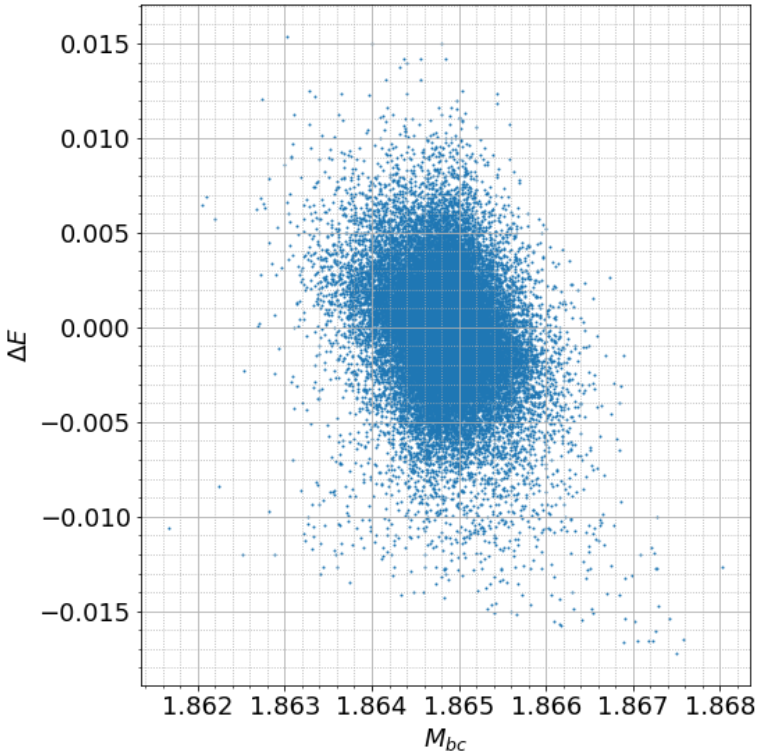


$\text{RMS}(\Delta E)) = 3.10$ MeV

$\psi(3770) \to D^0\overline{D}^0,\ D^0 \to K^-\pi^+$

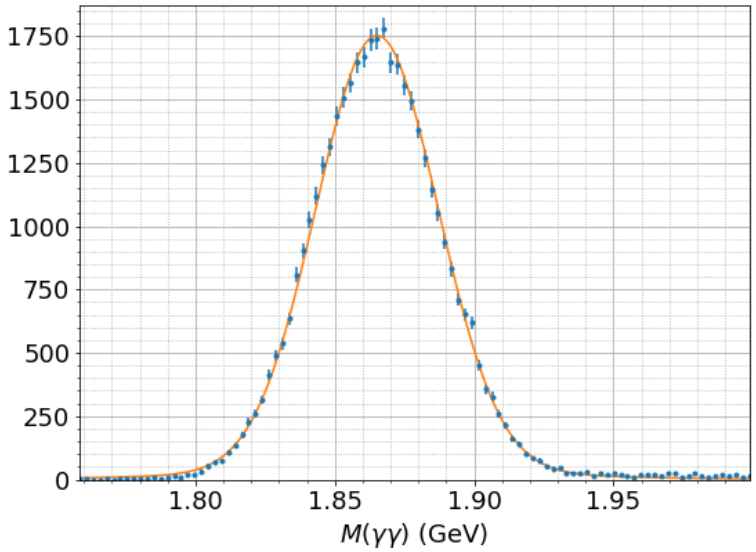
$\Delta E \equiv E_{K\pi} - E_{\text{beam}}$, $M_{\text{bc}} \equiv \sqrt{E_{\text{beam}}^2 - p_{K\pi}^2}$



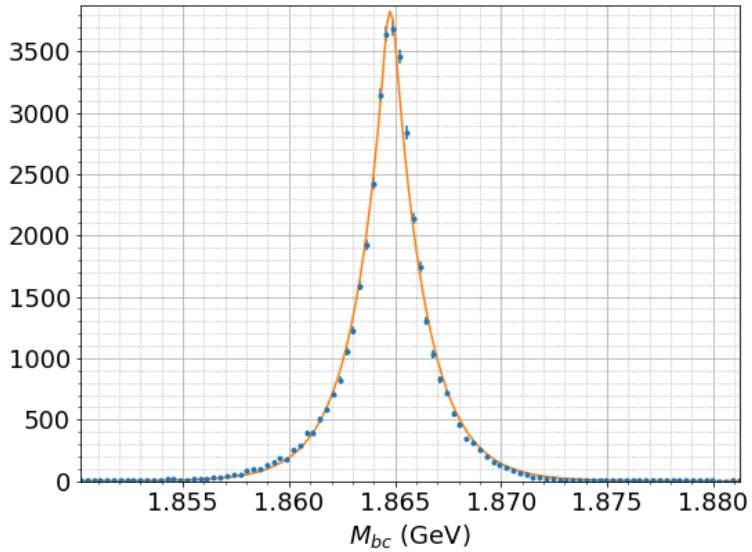


$\psi(3770) \to D^0\overline{D}^0,\ D^0 \to \gamma\gamma$

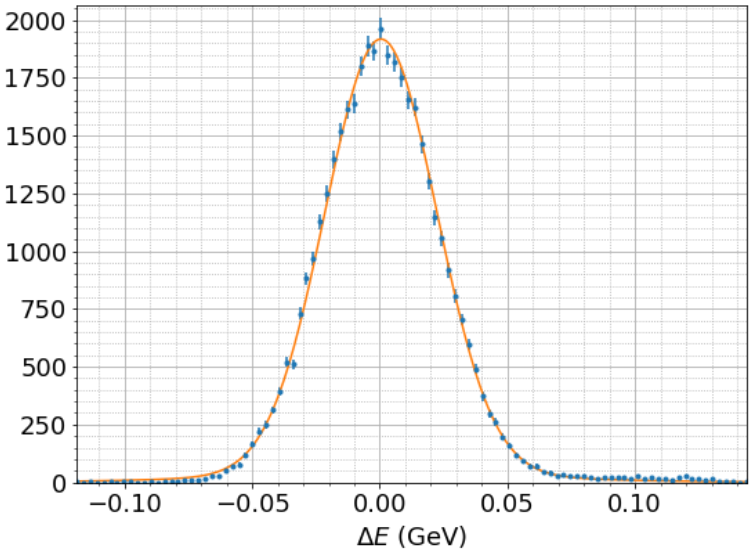
$\Delta E \equiv E_{K\pi} - E_{\text{beam}}$, $M_{\text{bc}} \equiv \sqrt{E_{\text{beam}}^2 - p_{K\pi}^2}$



$\text{RMS}(M_{K\pi})) = 25.85$ MeV



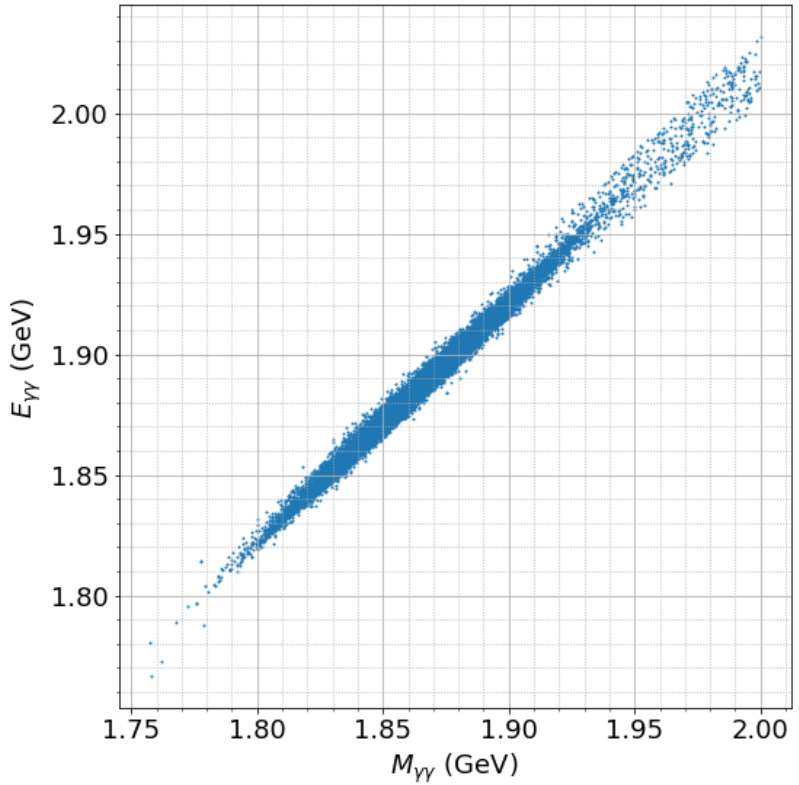
$\text{RMS}(M_{\text{bc}})) = 11.10$ MeV

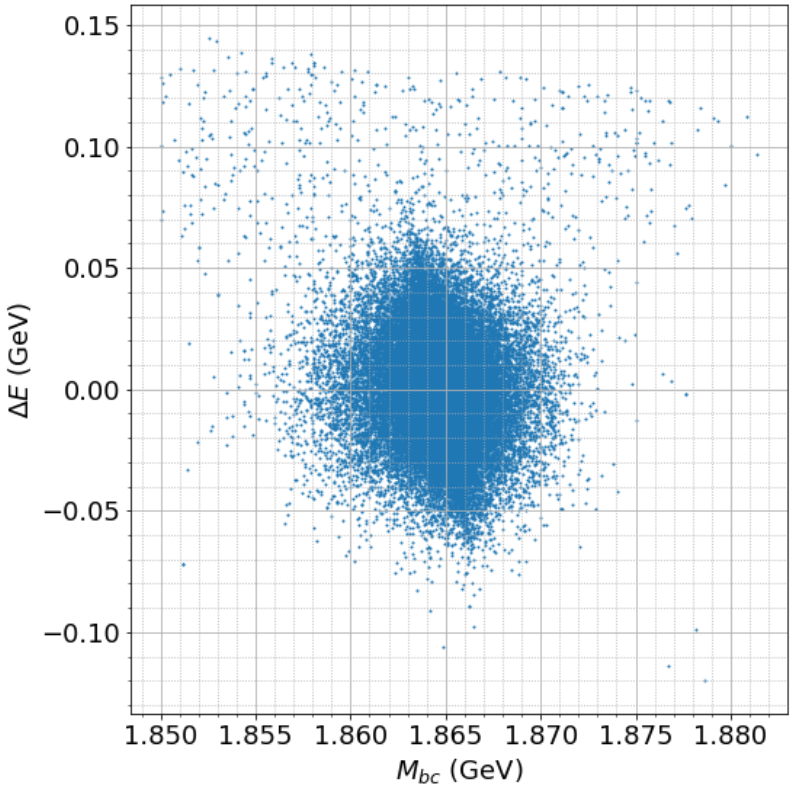


$\text{RMS}(\Delta E)) = 27.05$ MeV

$\psi(3770) \to D^0\overline{D}^0,\ D^0 \to \gamma\gamma$

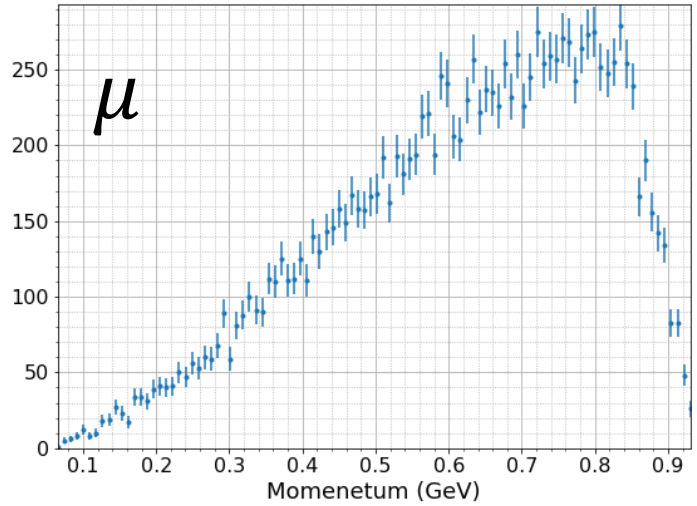
$\Delta E \equiv E_{\gamma\gamma} - E_{\mathrm{beam}}$, $\quad M_{\mathrm{bc}} \equiv \sqrt{E_{\mathrm{beam}}^2 - p_{\gamma\gamma}^2}$

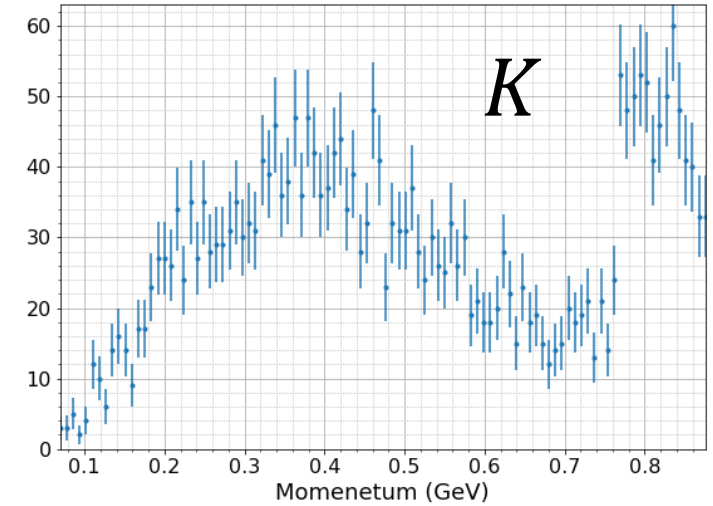


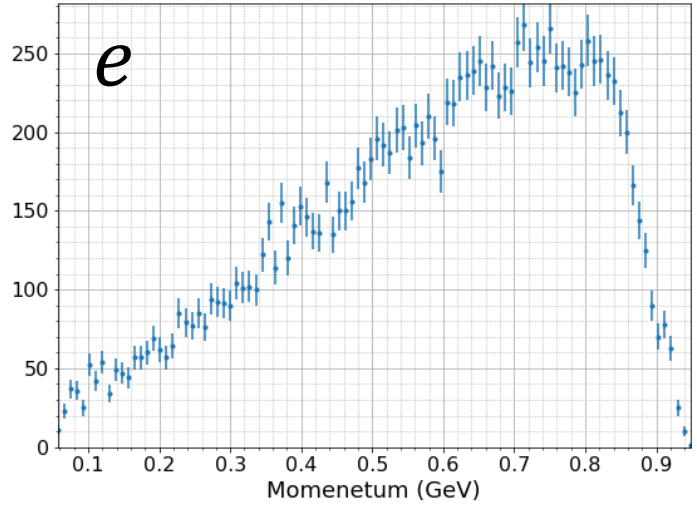


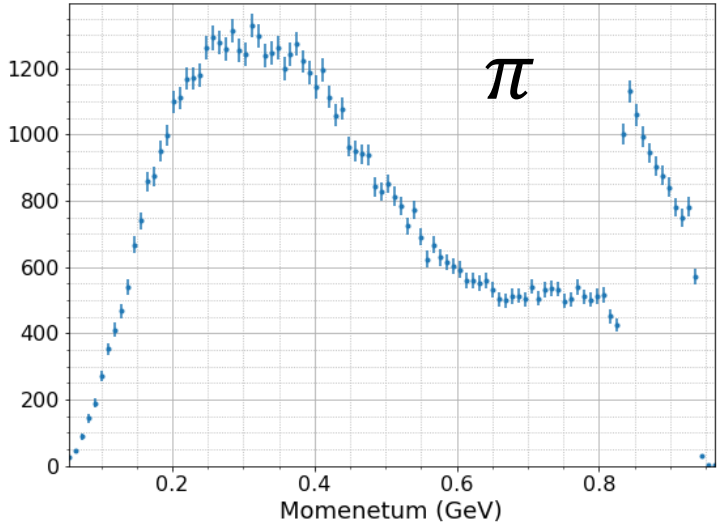
$e^+e^- \to \gamma^* \to \tau^+\tau^-$ @ $\sqrt{s}/2 = 1.78$ GeV

Single track spectra



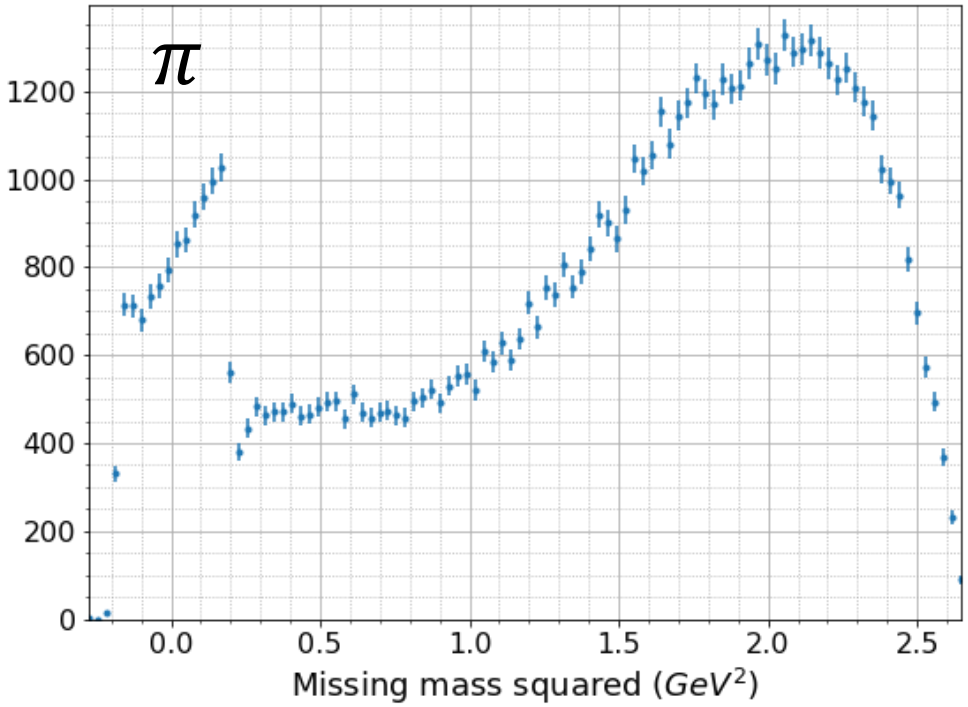


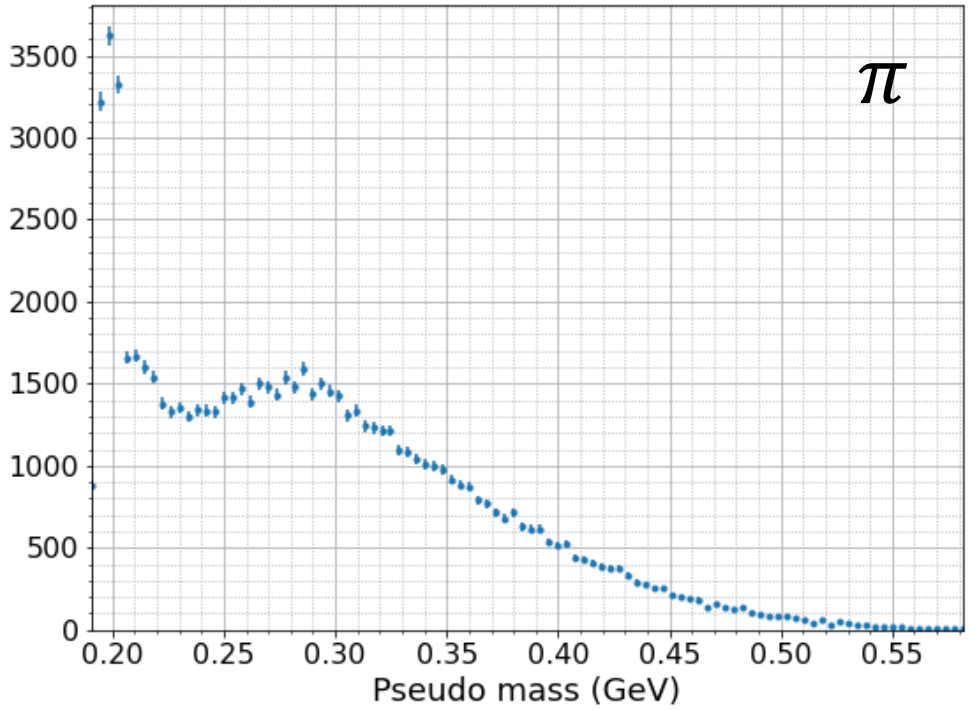




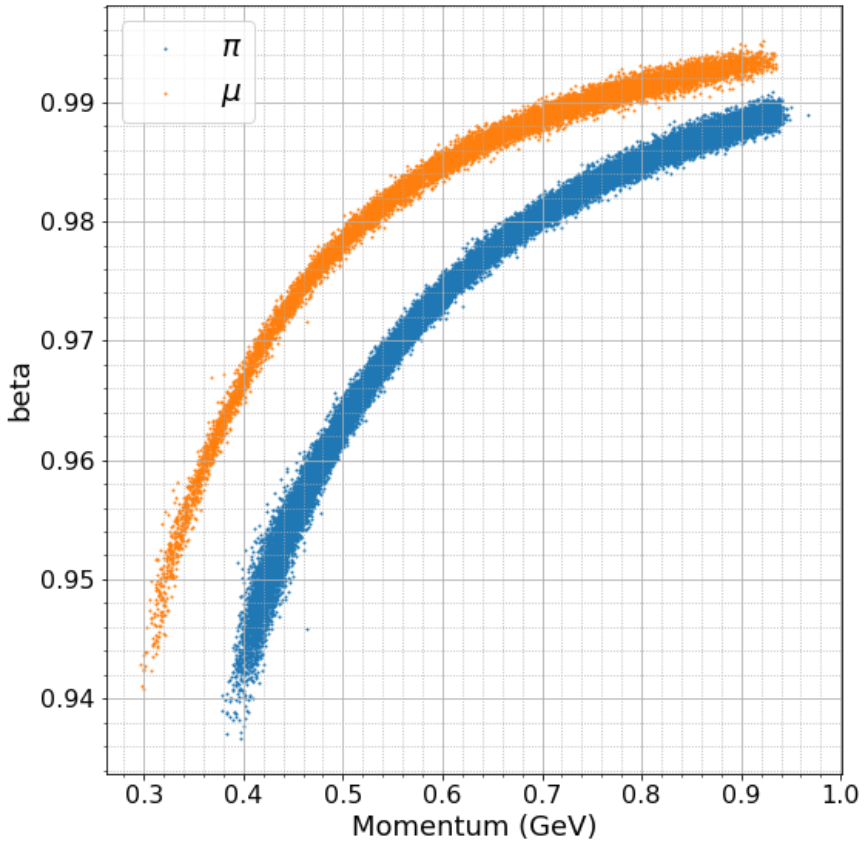
$e^+e^- \to \gamma^* \to \tau^+\tau^-$ @ $\sqrt{s}/2 = 1.78$ GeV

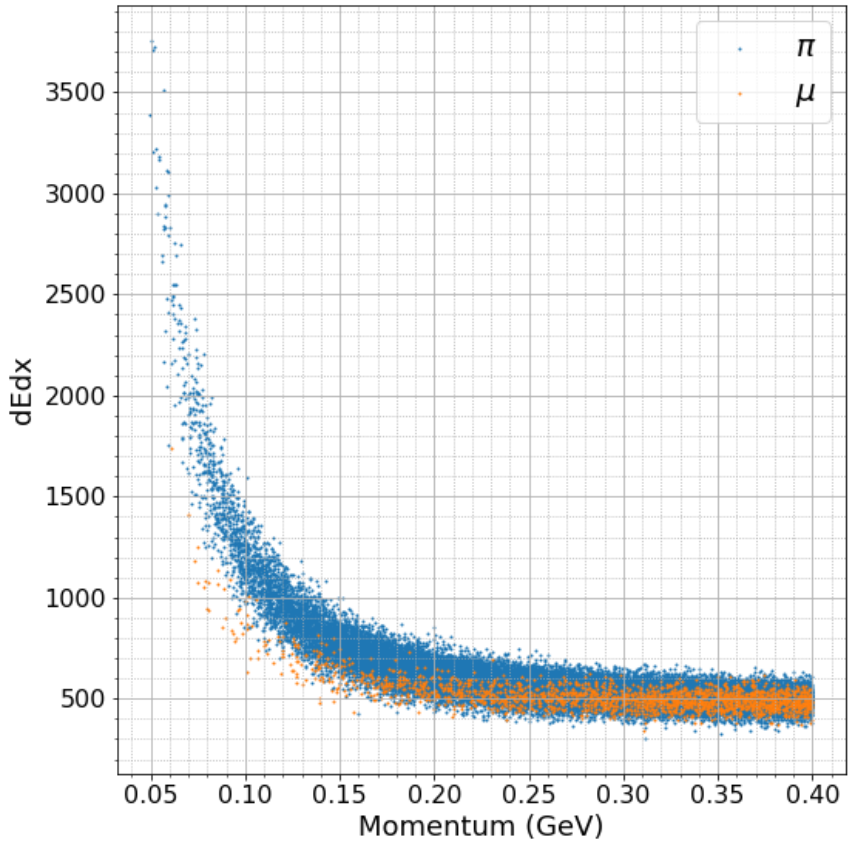
$$\mathrm{mm}^2 \equiv E_{\mathrm{beam}}^2 - 2E_{\mathrm{beam}}E_h, \quad m_p \equiv \sqrt{m_h^2 + 2(E_{\mathrm{beam}} - E_h)(E_h - p_h)}$$



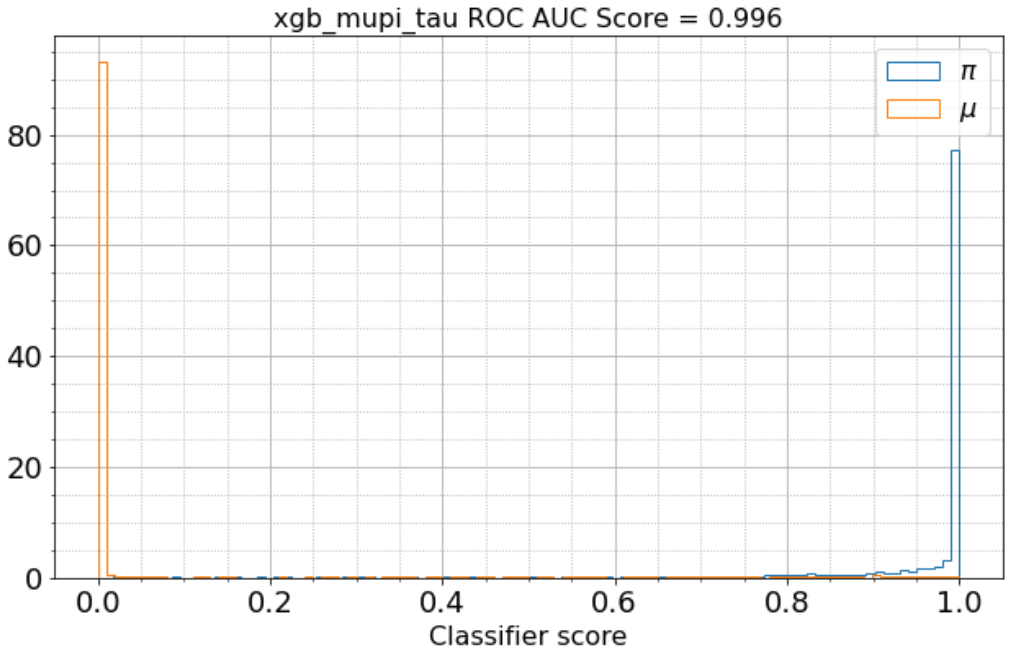


π/μ Classification I





π/μ Classification II



Momentum	Accuracy	π efficiency	μ efficiency	μ precision
$>$ 350 MeV	99.977%	100.00%	99.96%	100.00%
$<$ 300 MeV	83.37%	95.46%	32.09%	62.50%