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Determination of Low Energy $\pi \to e\nu$ Electromagnetic Tail via Multivariate Cut Analysis EMIL FRLEZ, University of Virginia, PEN COLLABORATION — The PEN experiment at the Paul Scherrer Institute aims to measure the leptonic decay $\pi^+ \to e^+\nu(\gamma)$ branching ratio with $5 \cdot 10^{-4}$ relative uncertainty. Electromagnetic shower leakage for 70 MeV monoenergetic positrons in the pure Csi electromagnetic calorimeter is of the order of 2 % for $E_{CALO} < 50\,\mathrm{MeV}$ and presents an important systematic uncertainty. We have explored a set of cuts via multivariate analysis to determine the best algorithm for extracting the almost background-free set of π_{e2} tail events.

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