Appendix E:
Data versus Monte Carlo Plots

Chapter 4 describes the Monte Carlo program used to correct the data to full acceptance. This Appendix contains supplementary plots that document the event-generation process in the Monte Carlo.

Figures E.1 and E.2 compare the length distributions observed in the data with those generated by the structure-function Monte Carlo after cross-section cuts are applied.

Figures E.3 through E.8 show the muon momentum resolution functions used to smear the generated muon momentum at the front face of the toroid spectrometer, *EMUFFG*, as described in Chapter 4.

Figures E.9 through E.30 compare the distributions of kinematic quantities observed in the data and simulated by the Monte Carlo after structure-function cuts. Figures E.9 through E.19 compare the E744 data against the Monte Carlo events generated using the E744 flux files and calibration constants; Figures E.20 through E.30 compare the E770 data against the Monte Carlo events generated using the E770 flux files and calibration constants.

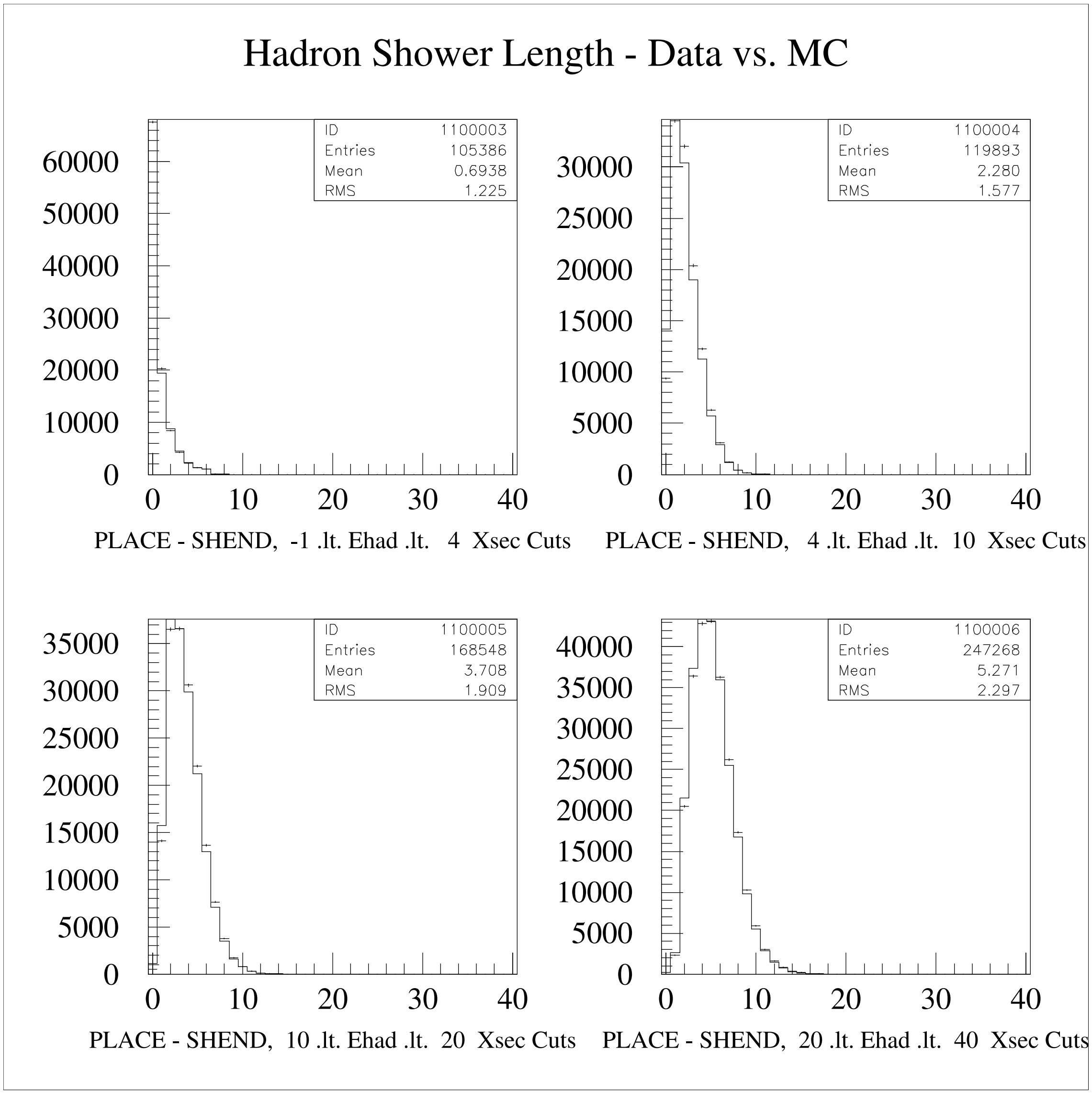

Figure E.1: Data and Monte-Carlo hadron shower length distributions for $-1 < E_{HAD} < 40\ GeV$. It is possible to measure a value of E_{HAD} less than zero due to the muon restricted energy-loss subtraction; see Section 3.?.

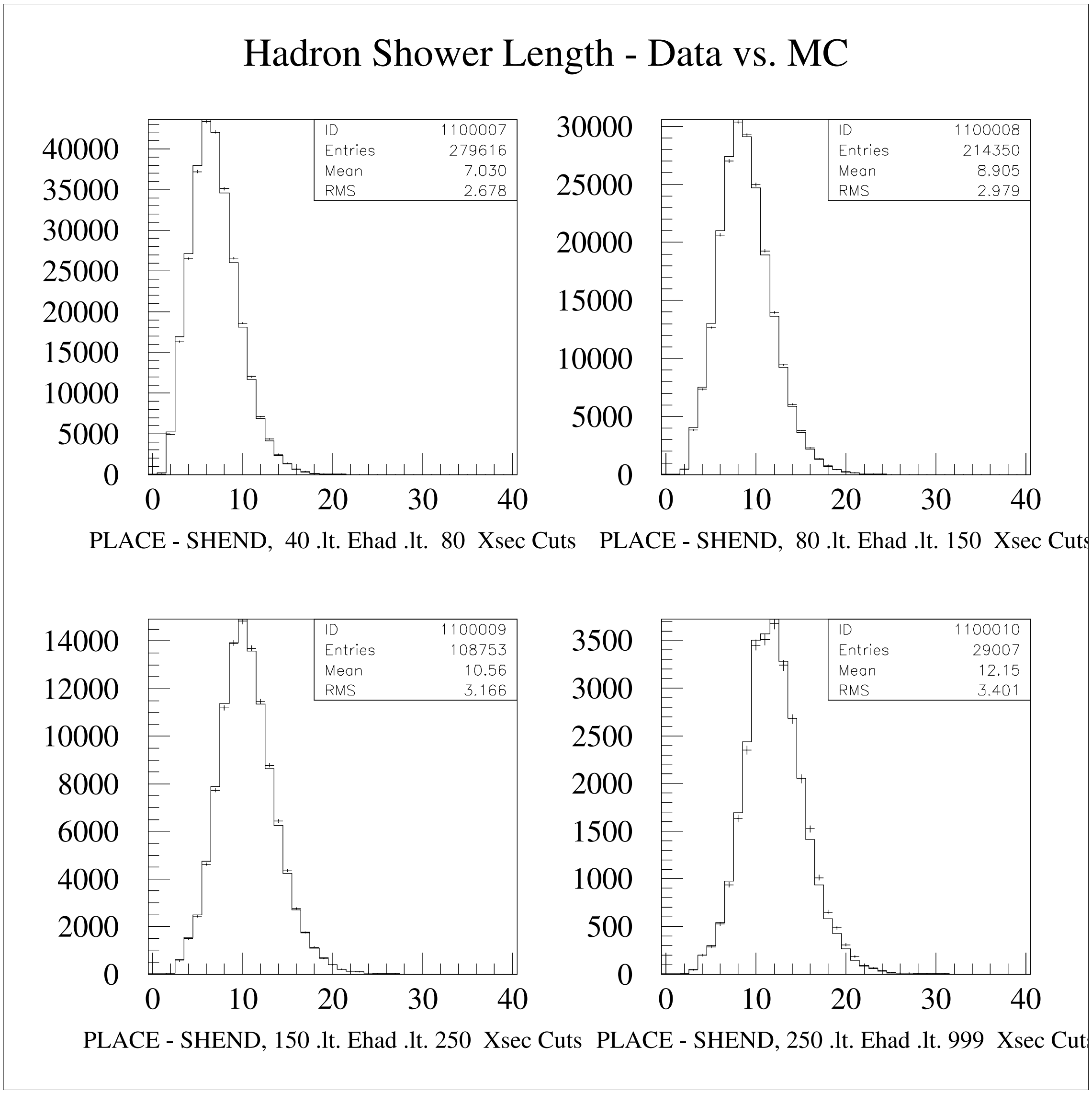

Figure E.2: Data and Monte-Carlo hadron shower length distributions for $E_{HAD} > 40\ GeV$.

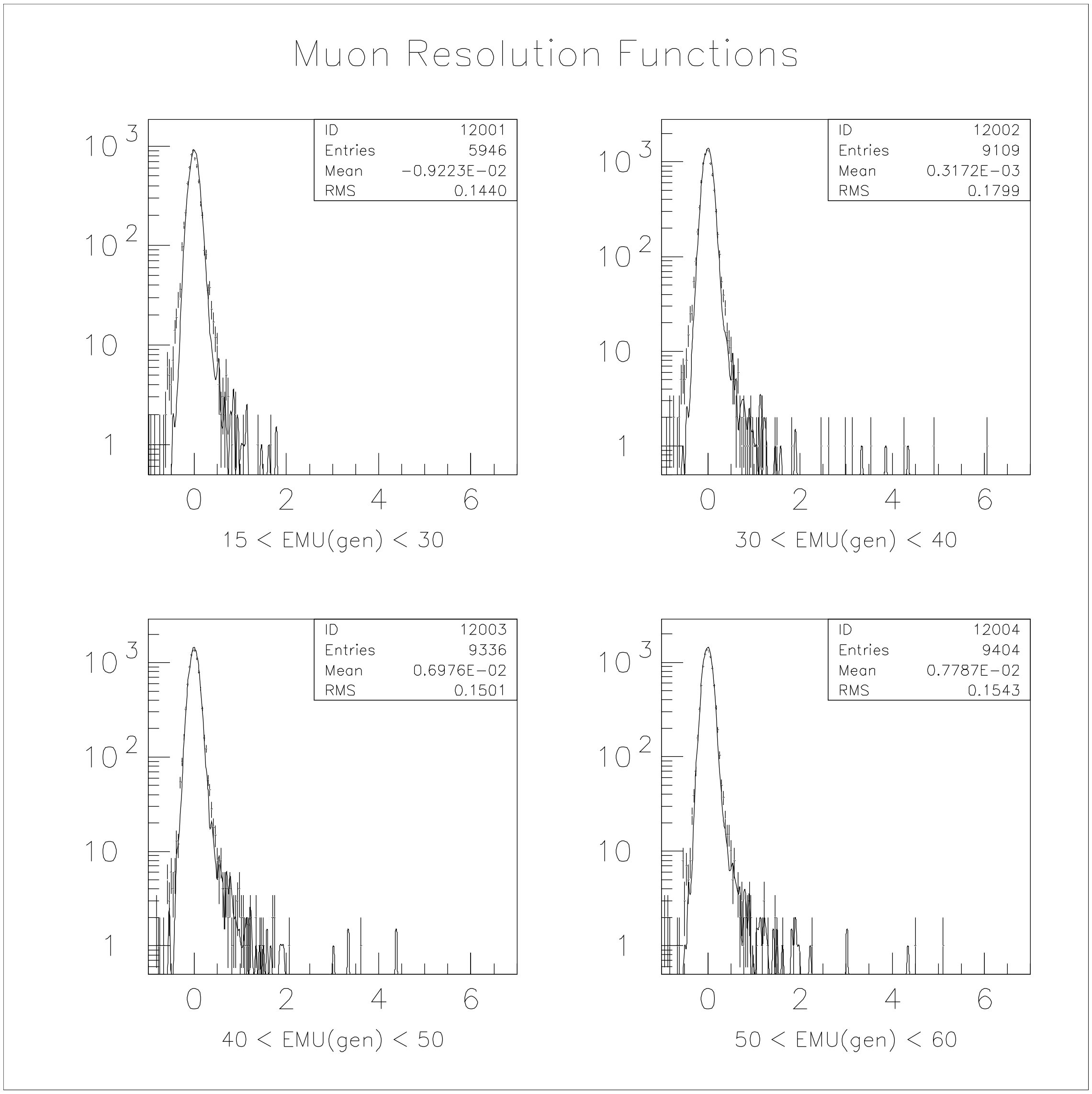

Figure E.3: Resolution functions $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right)/\left(1/p_{gen}\right)$ for $0 < E_\mu < 60\ GeV$.

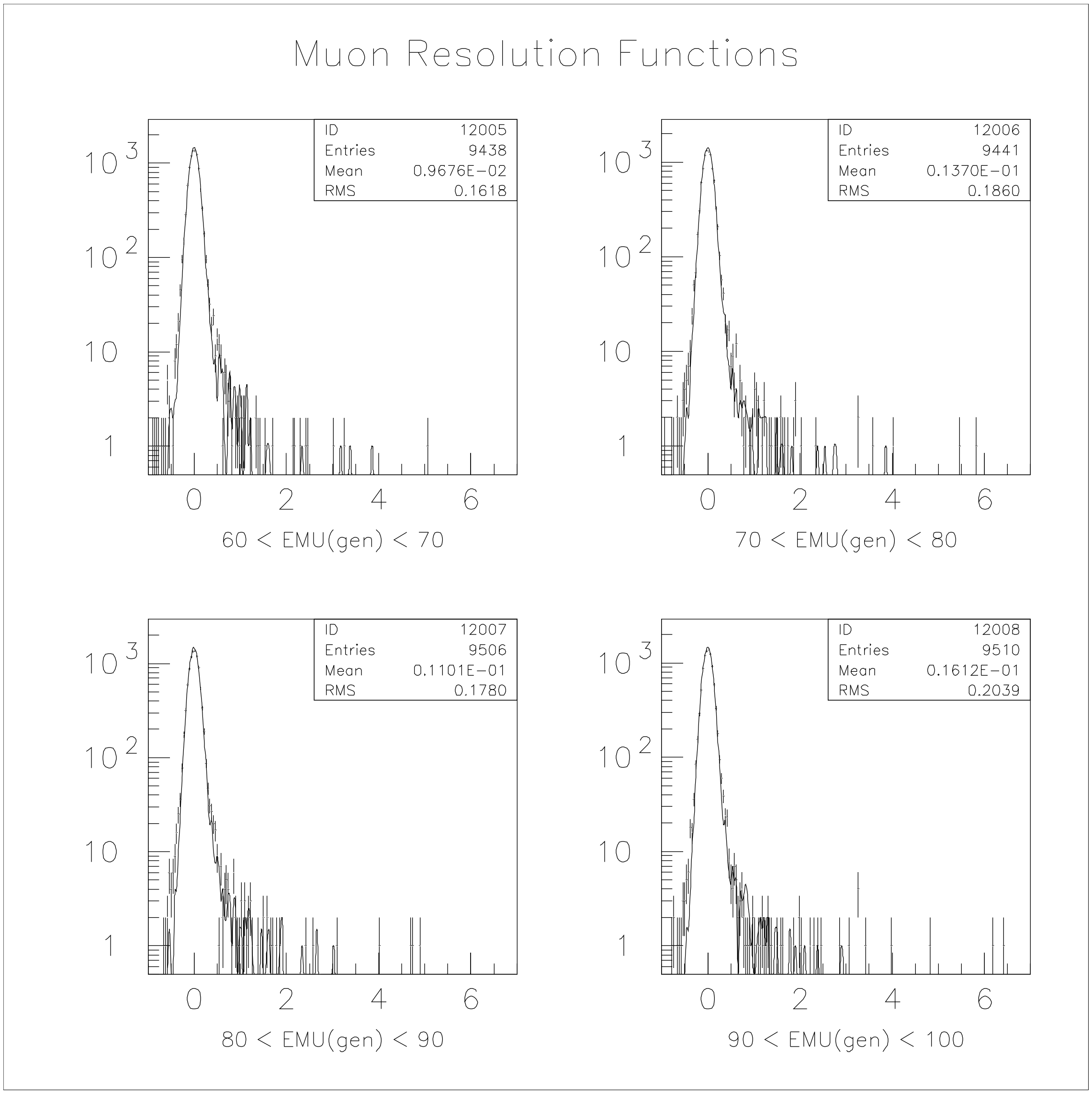

Figure E.4: Resolution functions $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right)/\left(1/p_{gen}\right)$ for $60 < E_{\mu} < 100$ GeV.

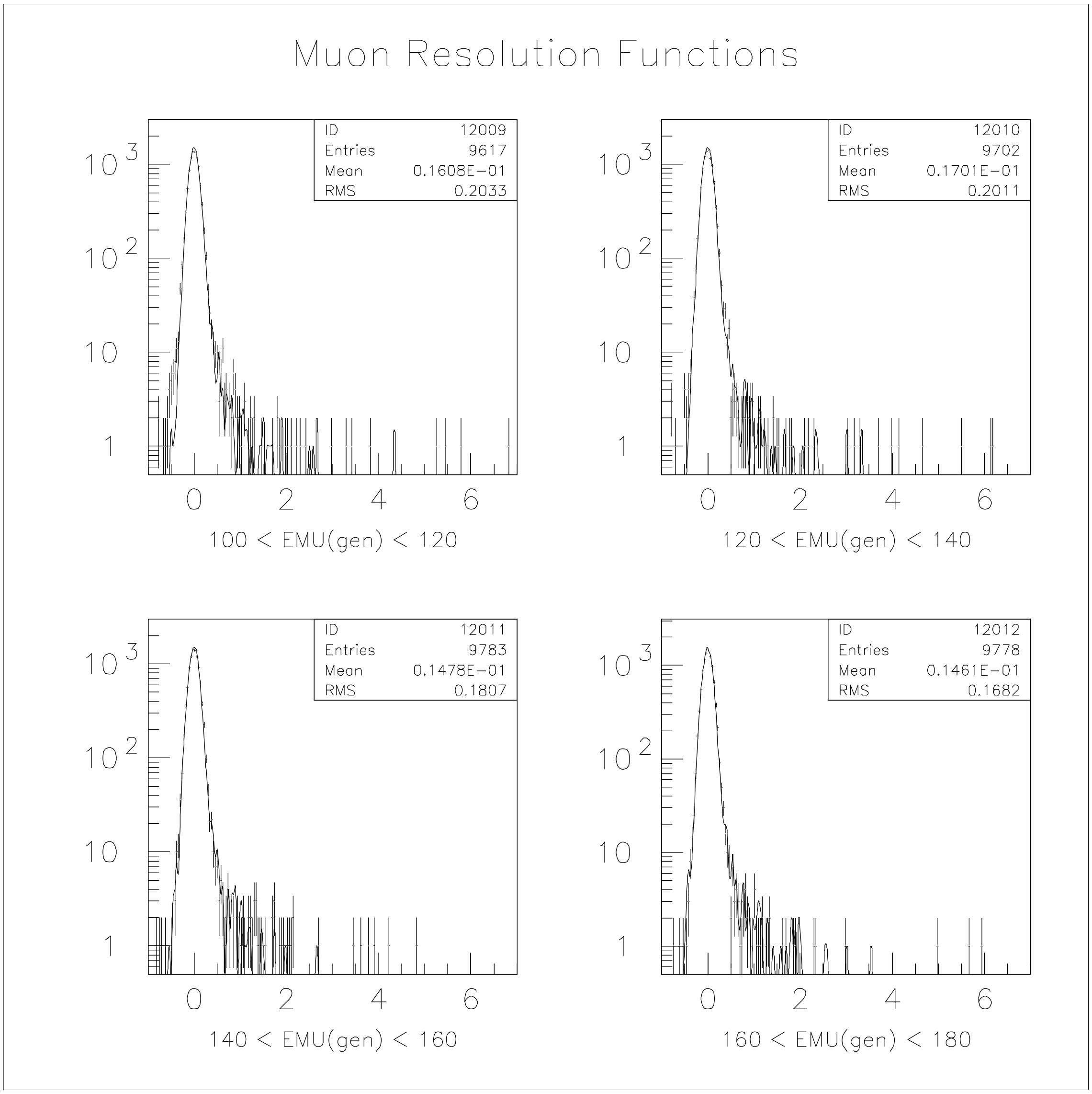

Figure E.5: Resolution functions $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right)/\left(1/p_{gen}\right)$ for $100 < E_\mu < 180\ GeV$.

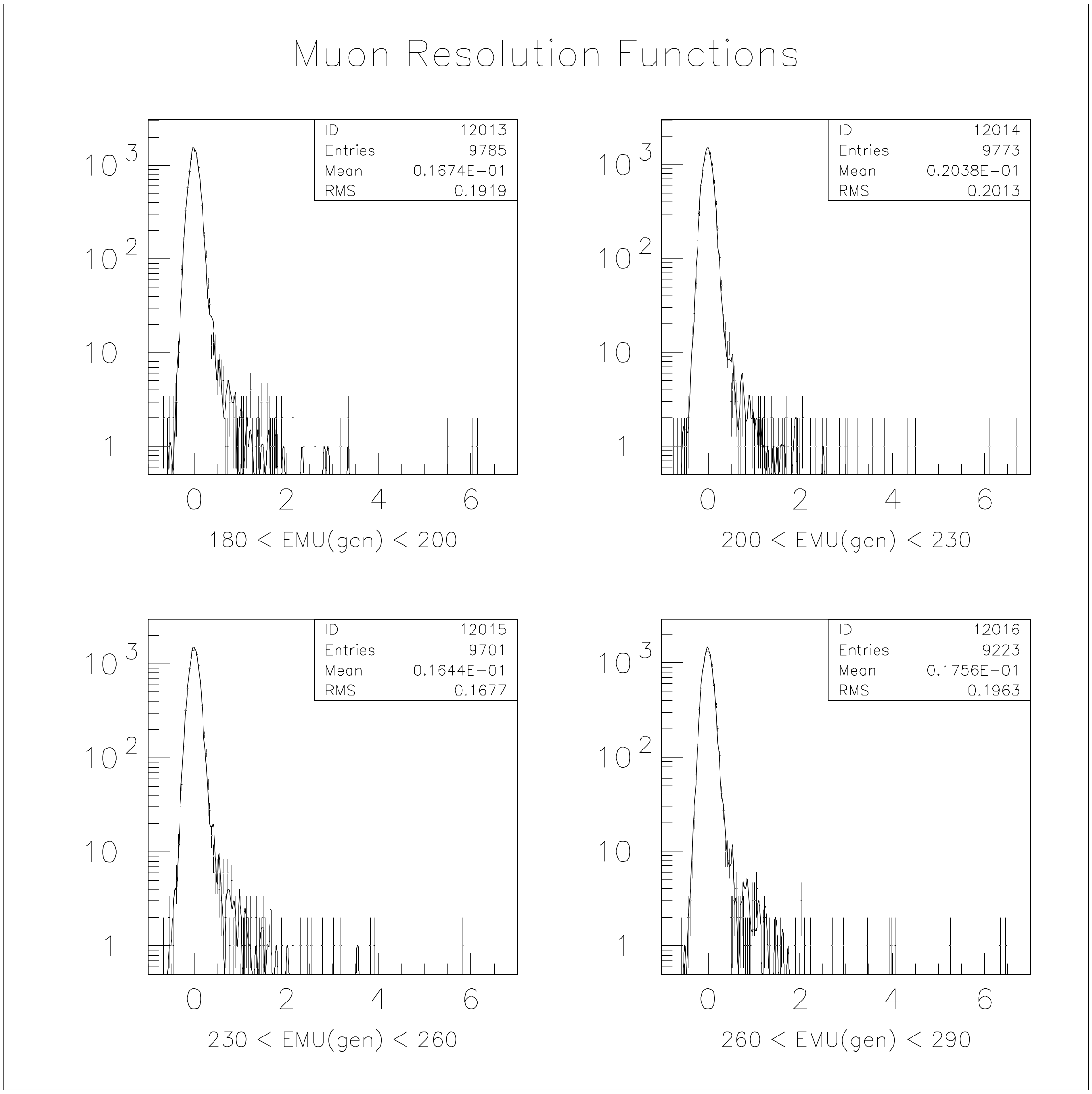

Figure E.6: Resolution functions $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right) / \left(1/p_{gen}\right)$ for 180 < E_μ < 290 GeV.

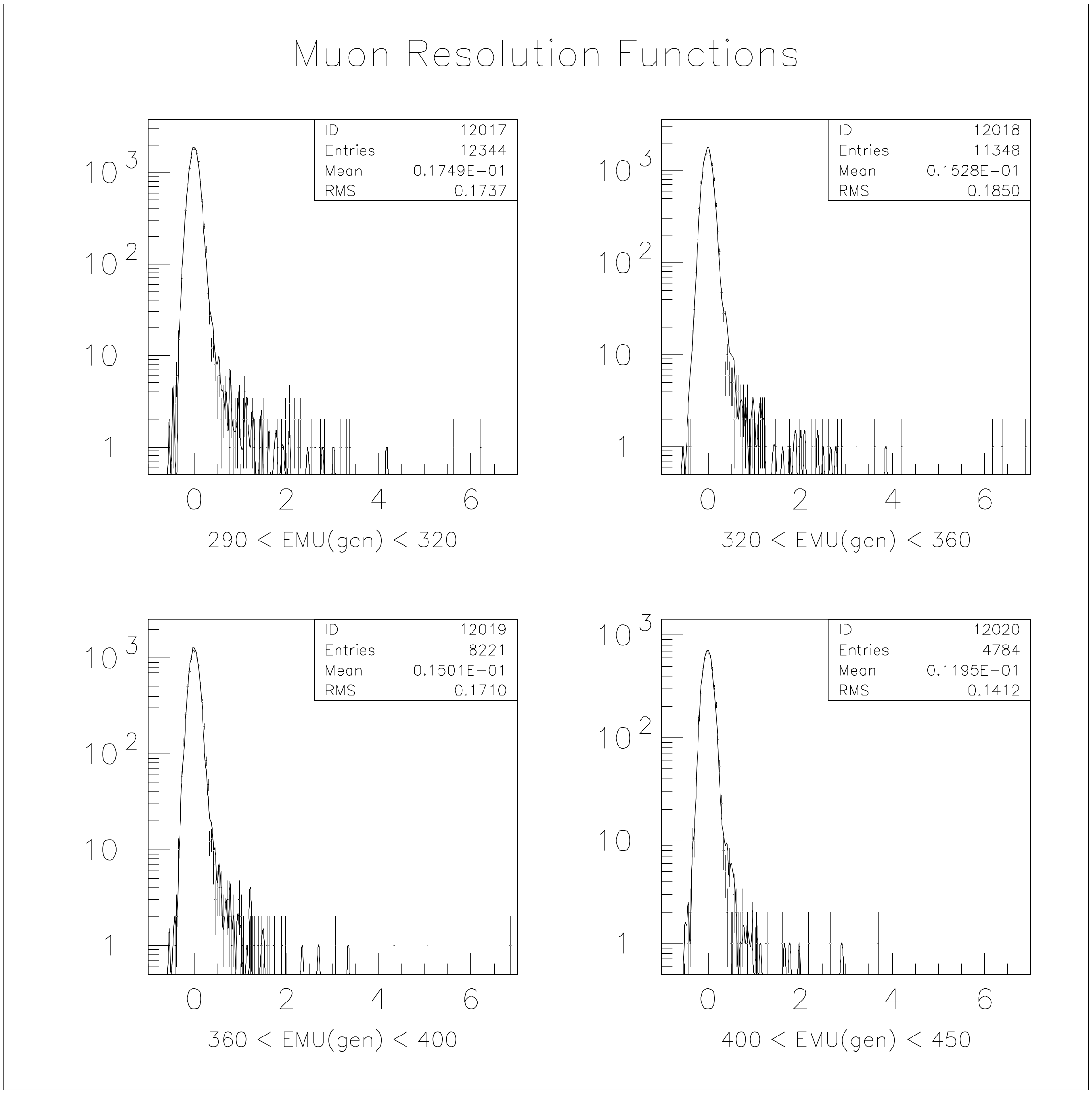

Figure E.7: Resolution function $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right) / \left(1/p_{gen}\right)$ for 290 < E_μ < 450 GeV.

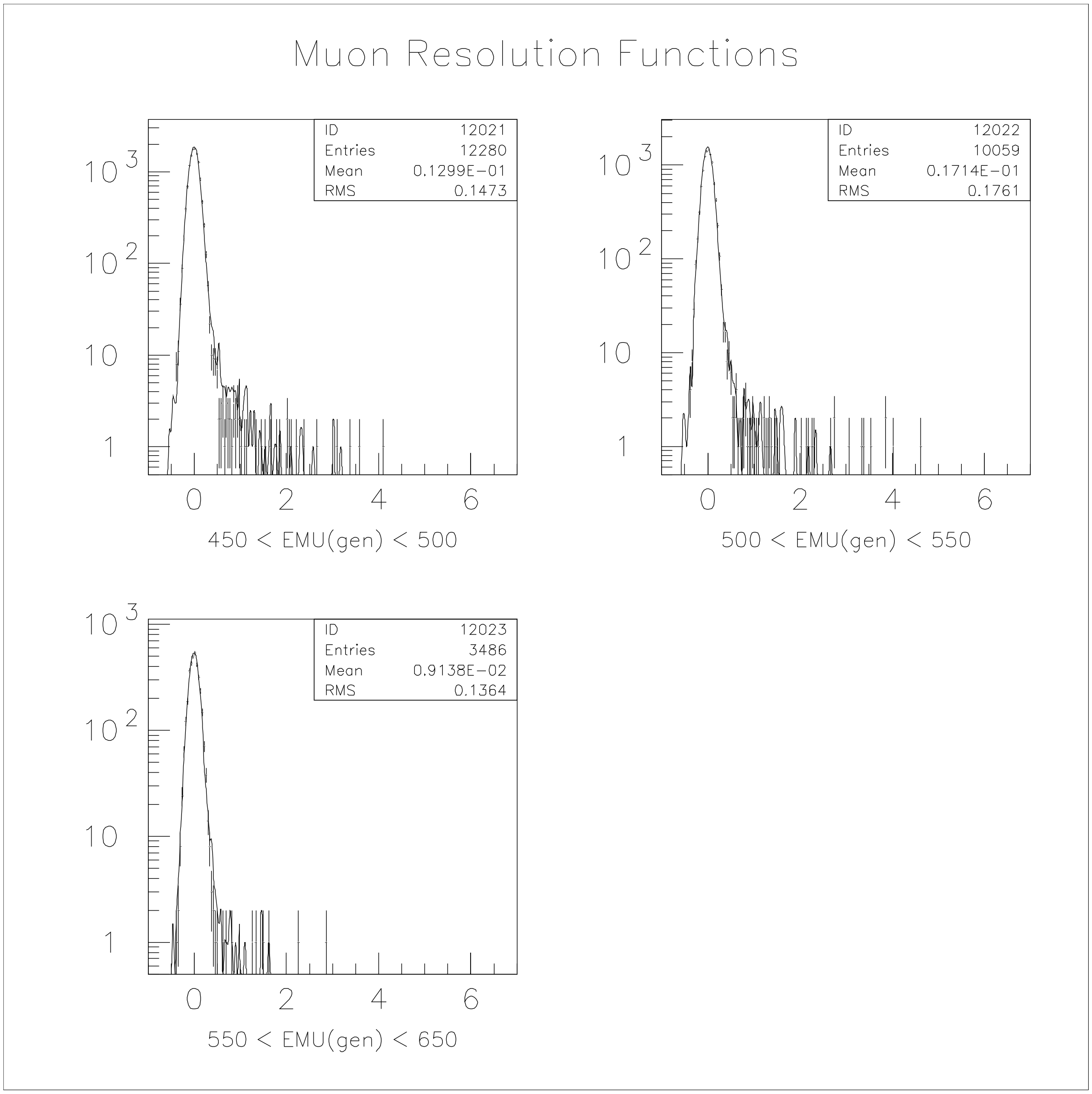

Figure E.8: Resolution functions $\mathcal{F} = \left(1/p_{meas} - 1/p_{gen}\right) / \left(1/p_{gen}\right)$ for $E_\mu > 450\ GeV$.

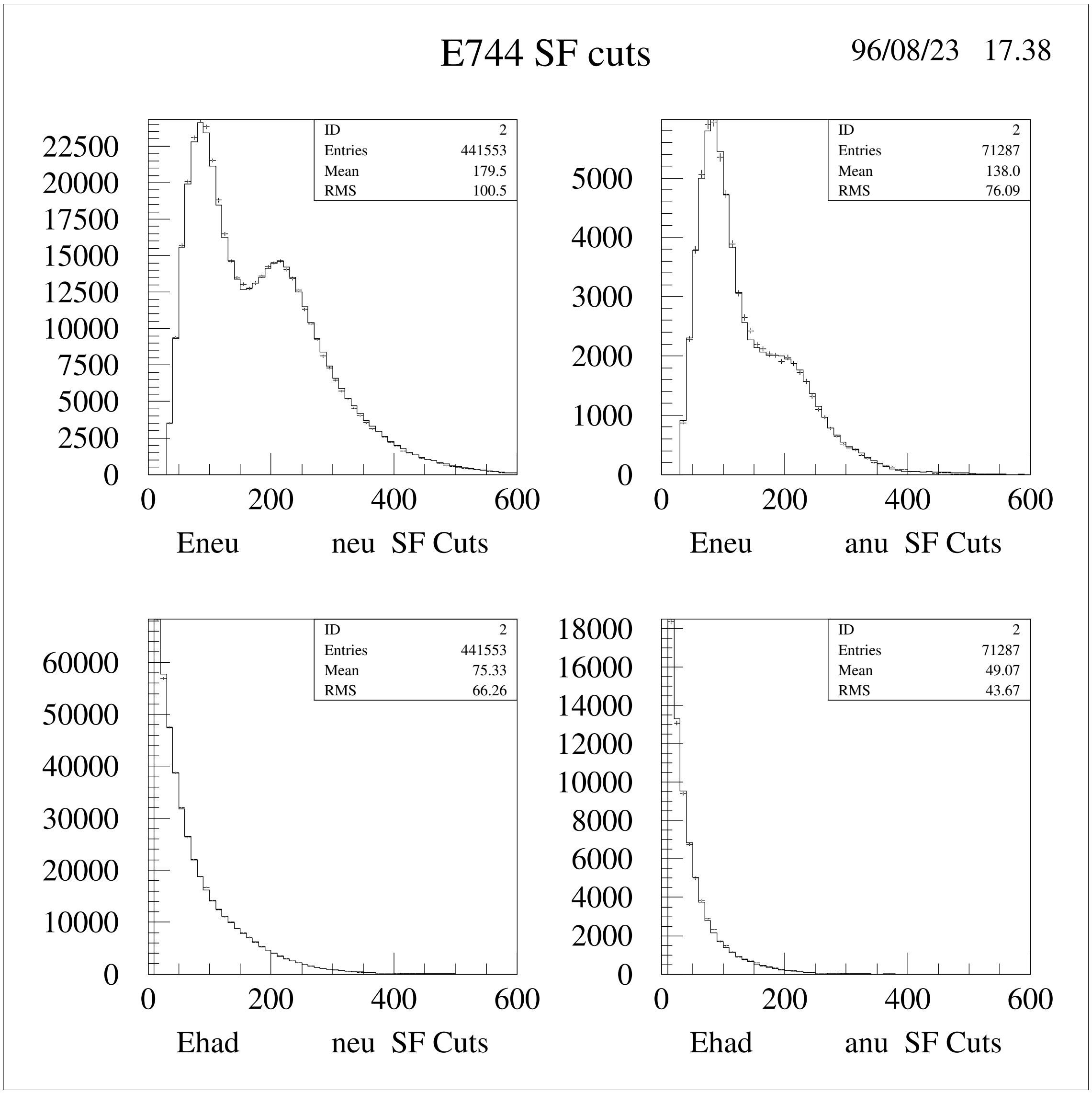

Figure E.9: E744 data versus Monte Carlo for the variables E_{ν} and E_{HAD}.

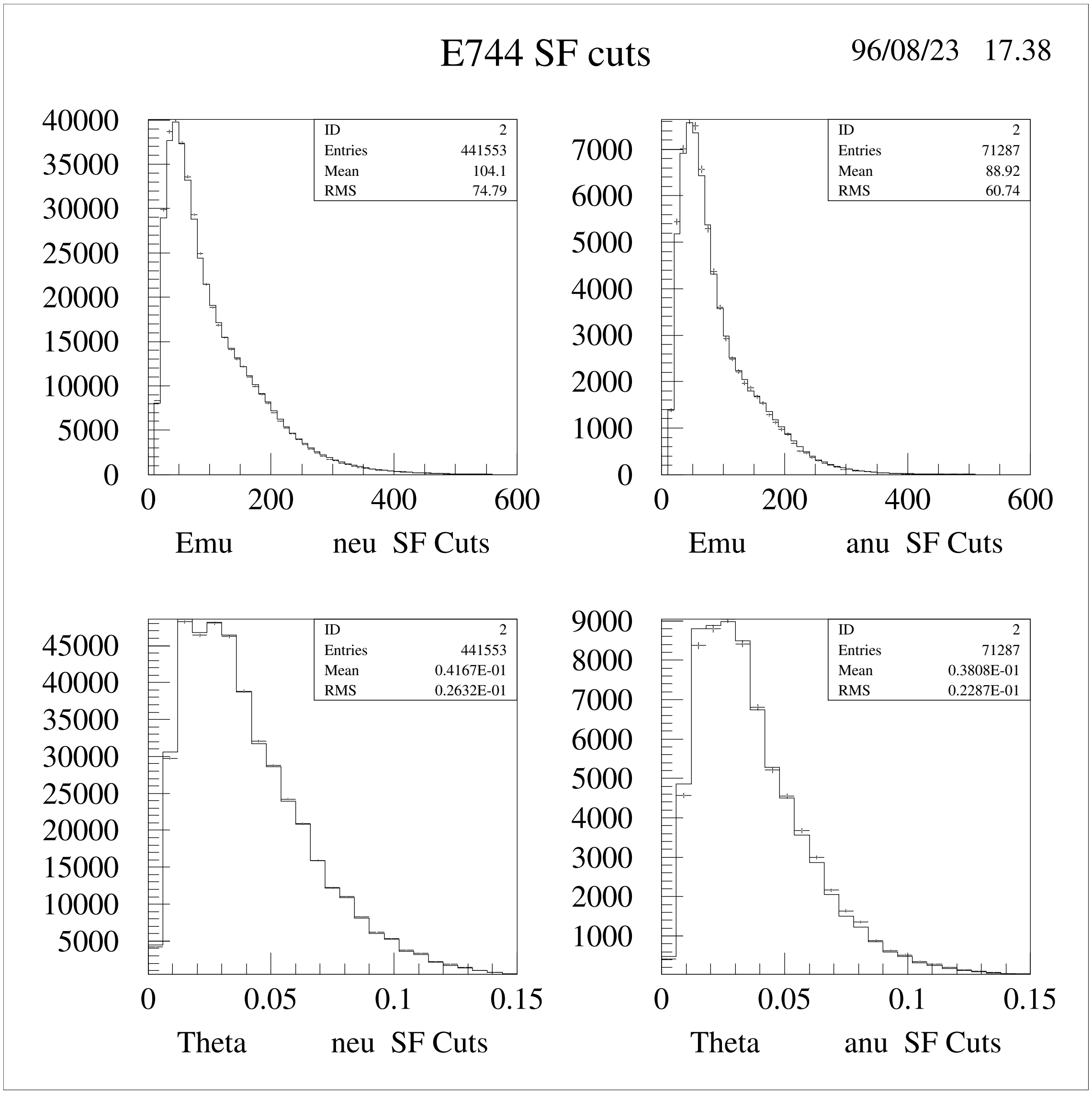

Figure E.10: E744 data versus Monte Carlo for the variables E_μ and θ_μ.

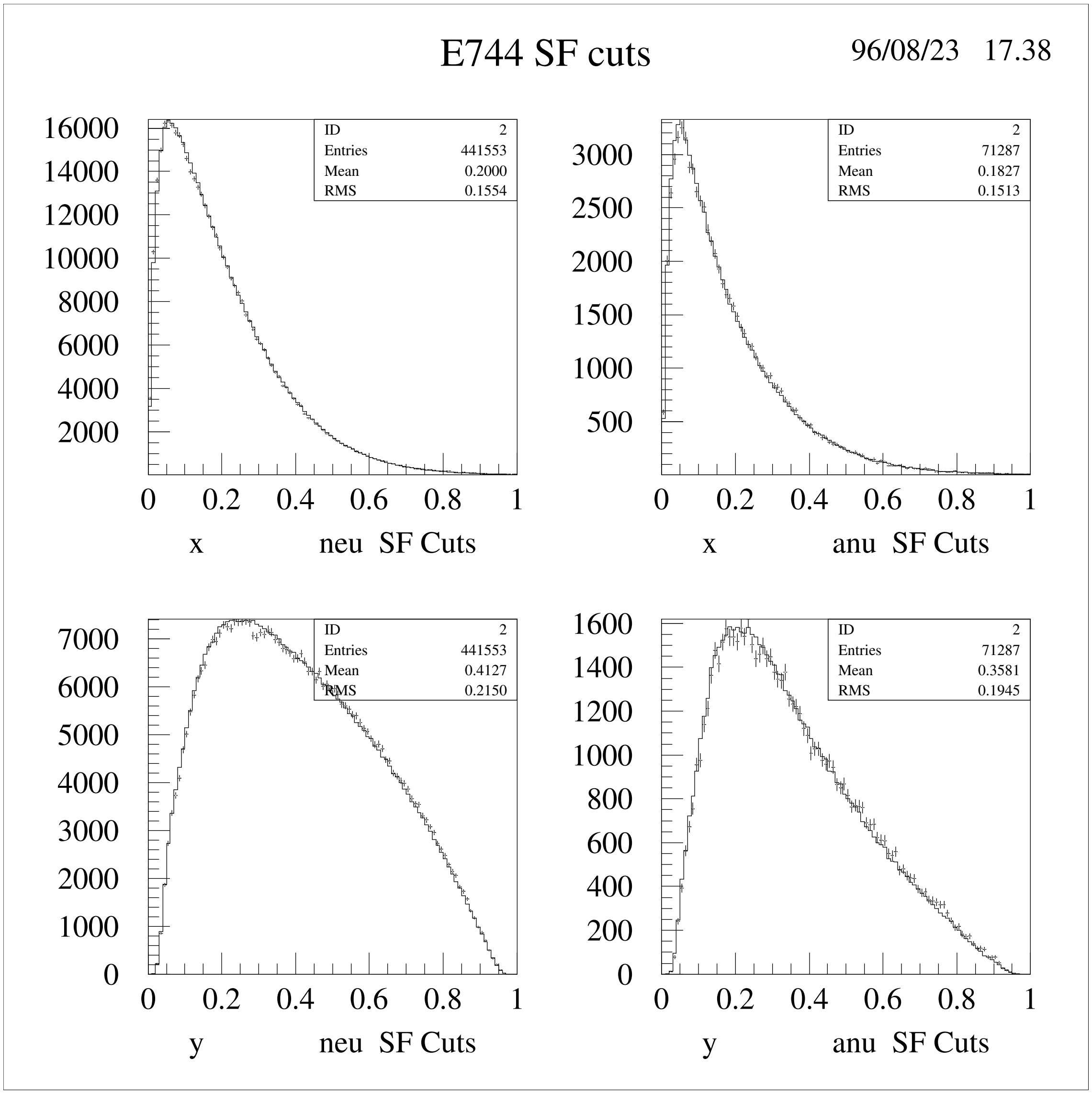

Figure E.11: E744 data versus Monte Carlo for the variables x_{BJ} and y_{BJ}.

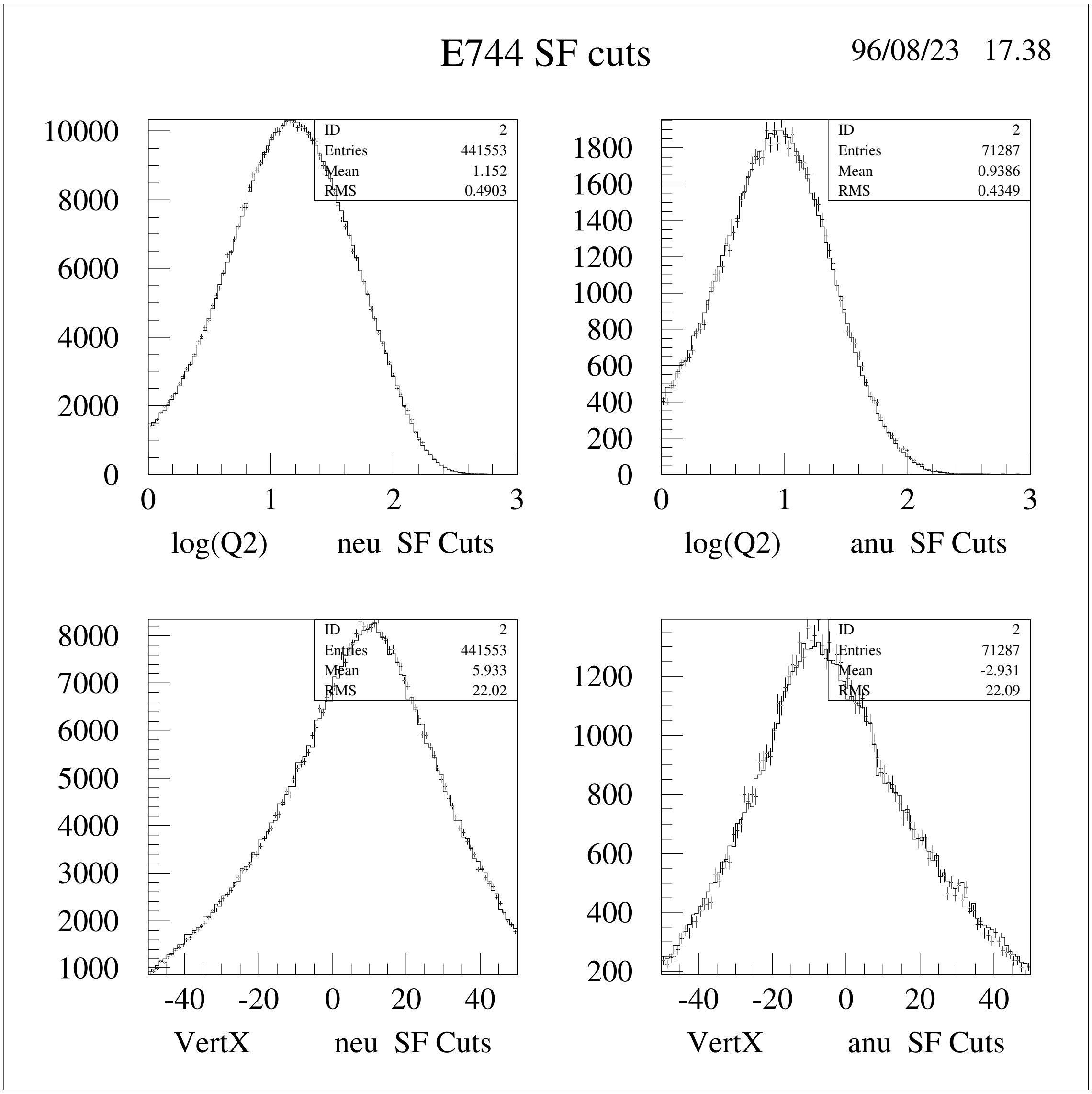

Figure E.12: E744 data versus Monte Carlo for the variables $\log\left(Q^2\right)$ and the x-vertex.

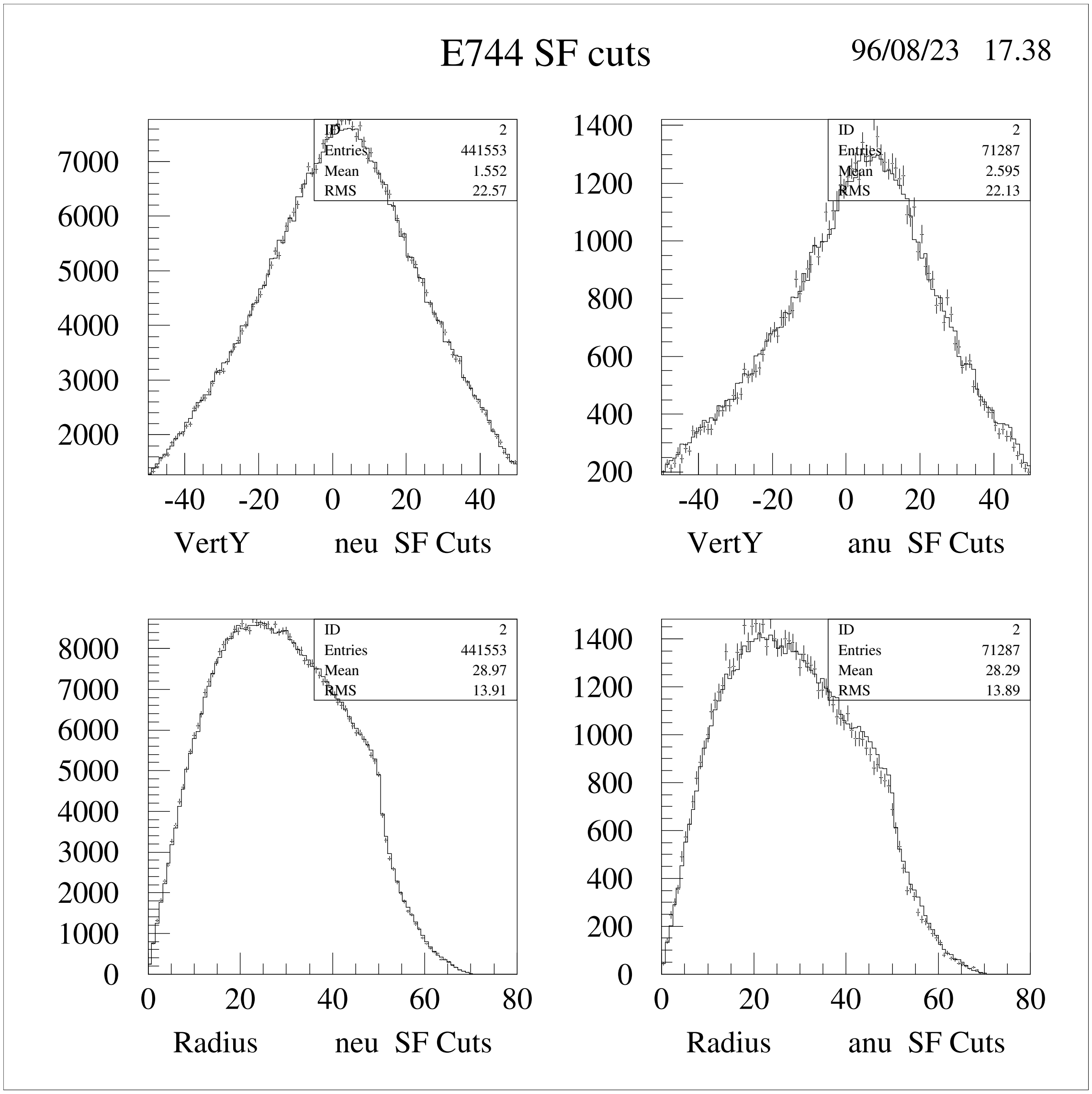

Figure E.13: E744 data versus Monte Carlo for the y-vertex and the vertex radius.

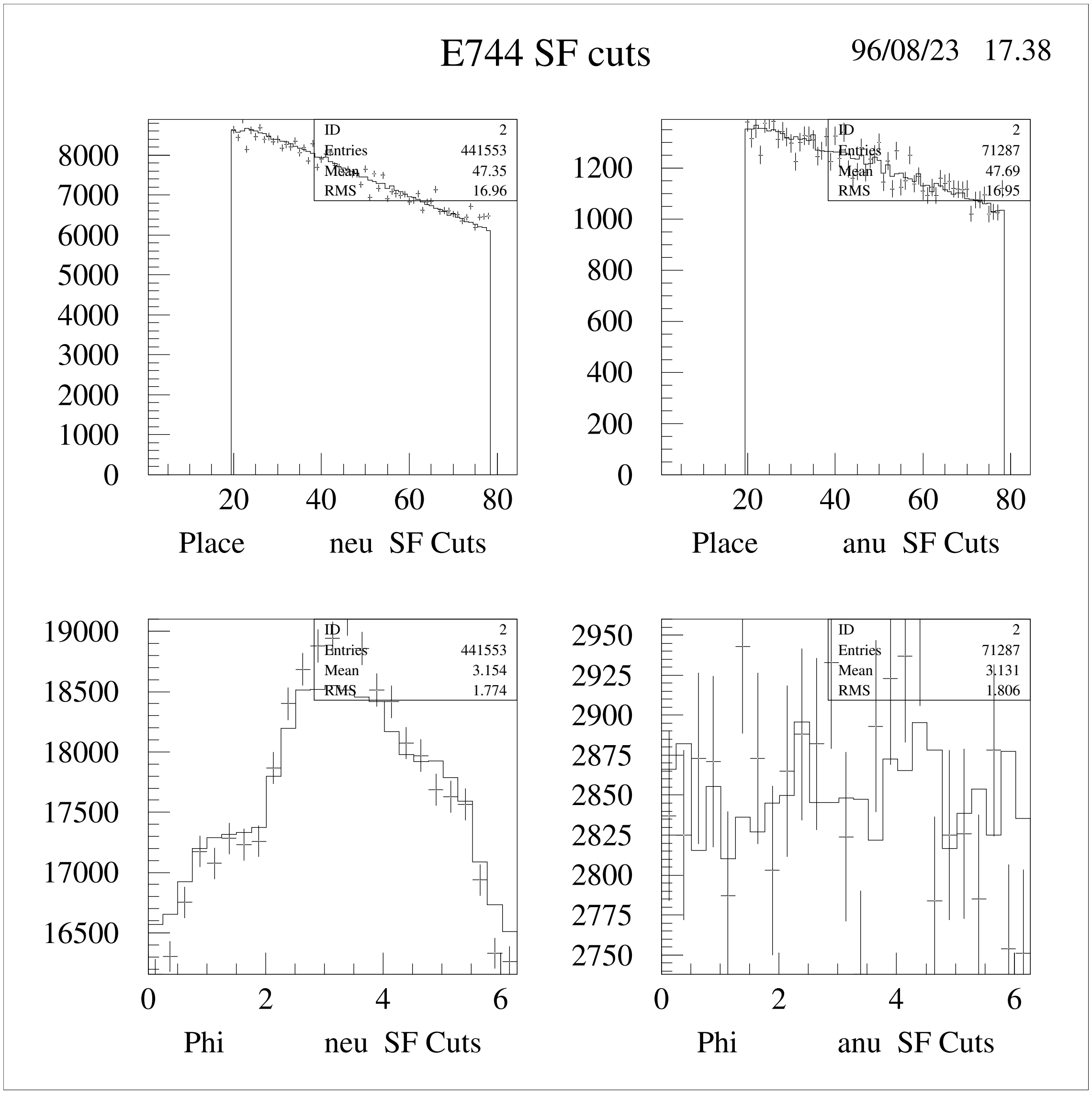

Figure E.14: E744 data versus Monte Carlo for PLACE and ϕ. Note the axes of the ϕ plots are zero-suppressed.

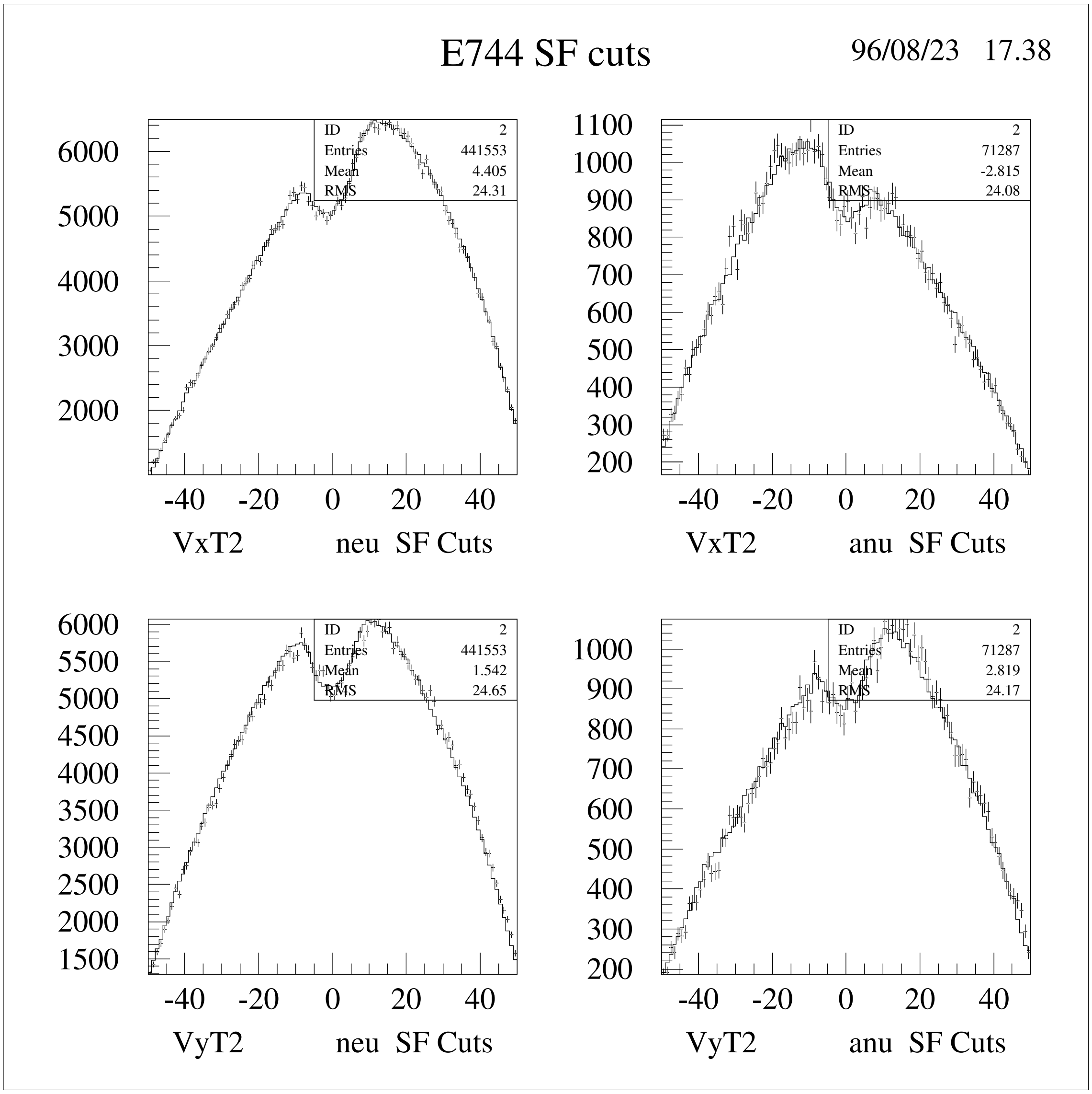

Figure E.15: E744 data versus Monte Carlo for x- and y-vertex at the T2 counter.

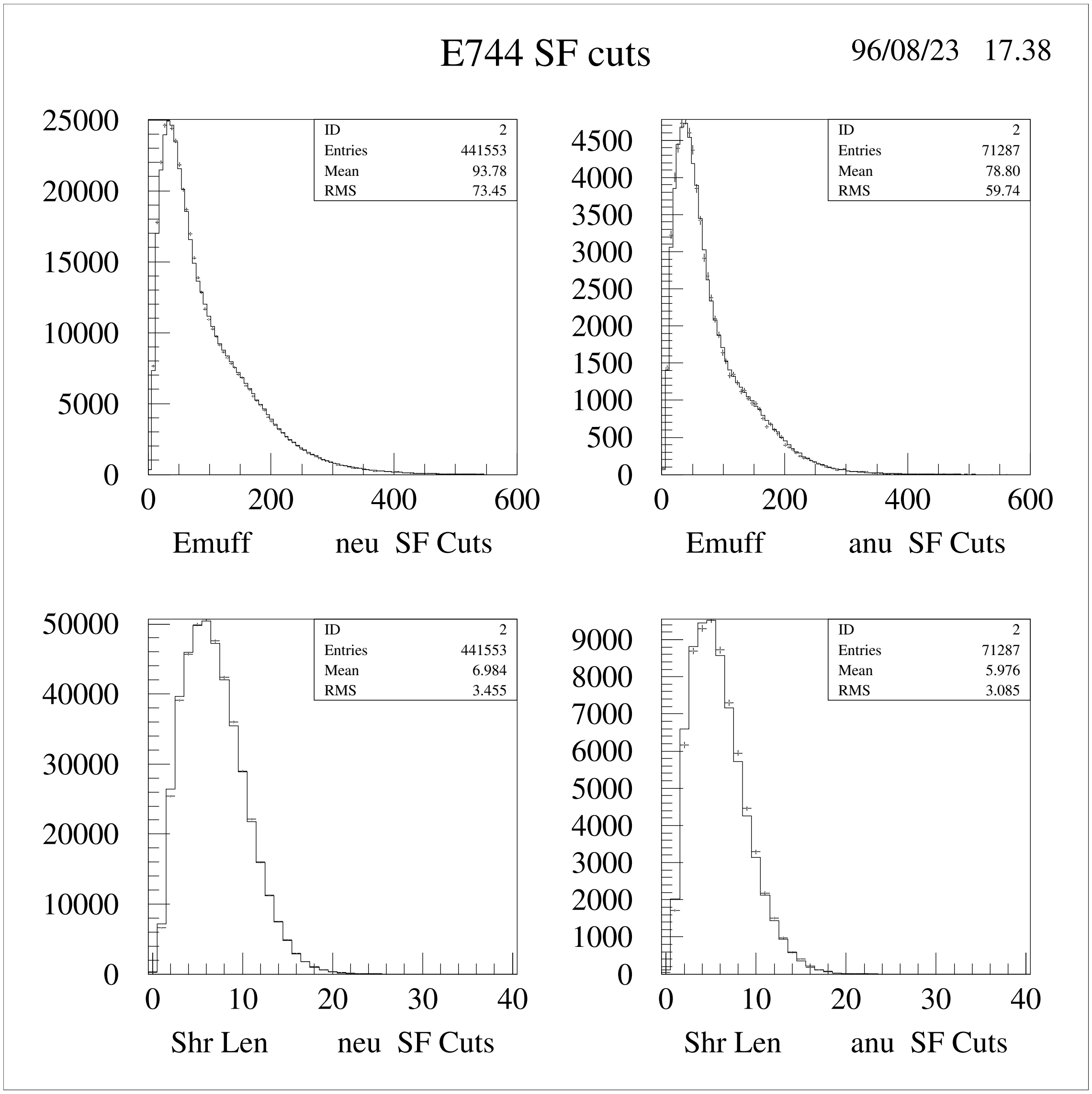

Figure E.16: E744 data versus Monte Carlo for E_{μ}^{FF} and the hadron shower length (*PLACE–SHEND*).

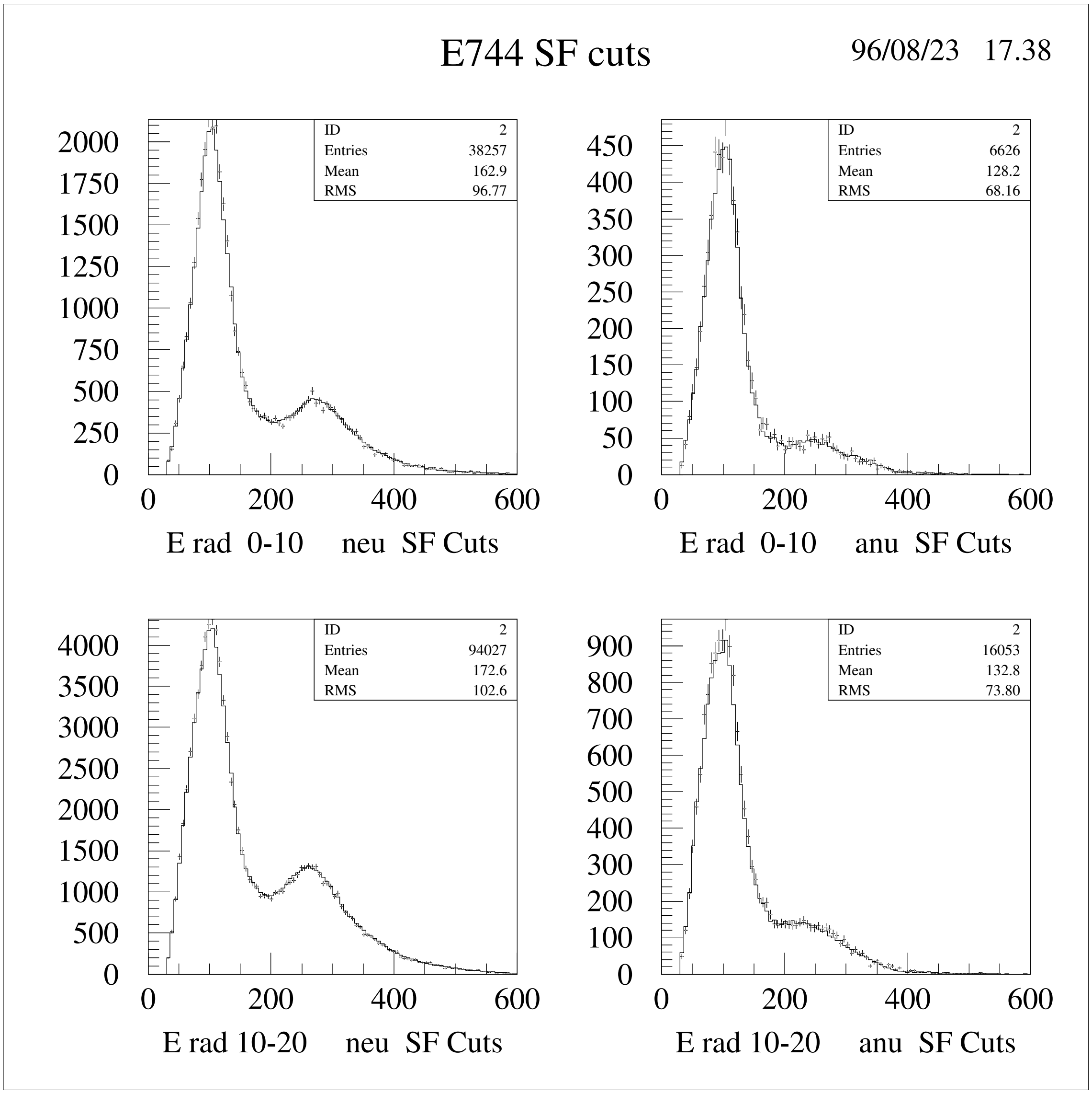

Figure E.17: E744 data versus Monte Carlo for E_ν in the radial bins 0-10 *in* and 10-20 *in*.

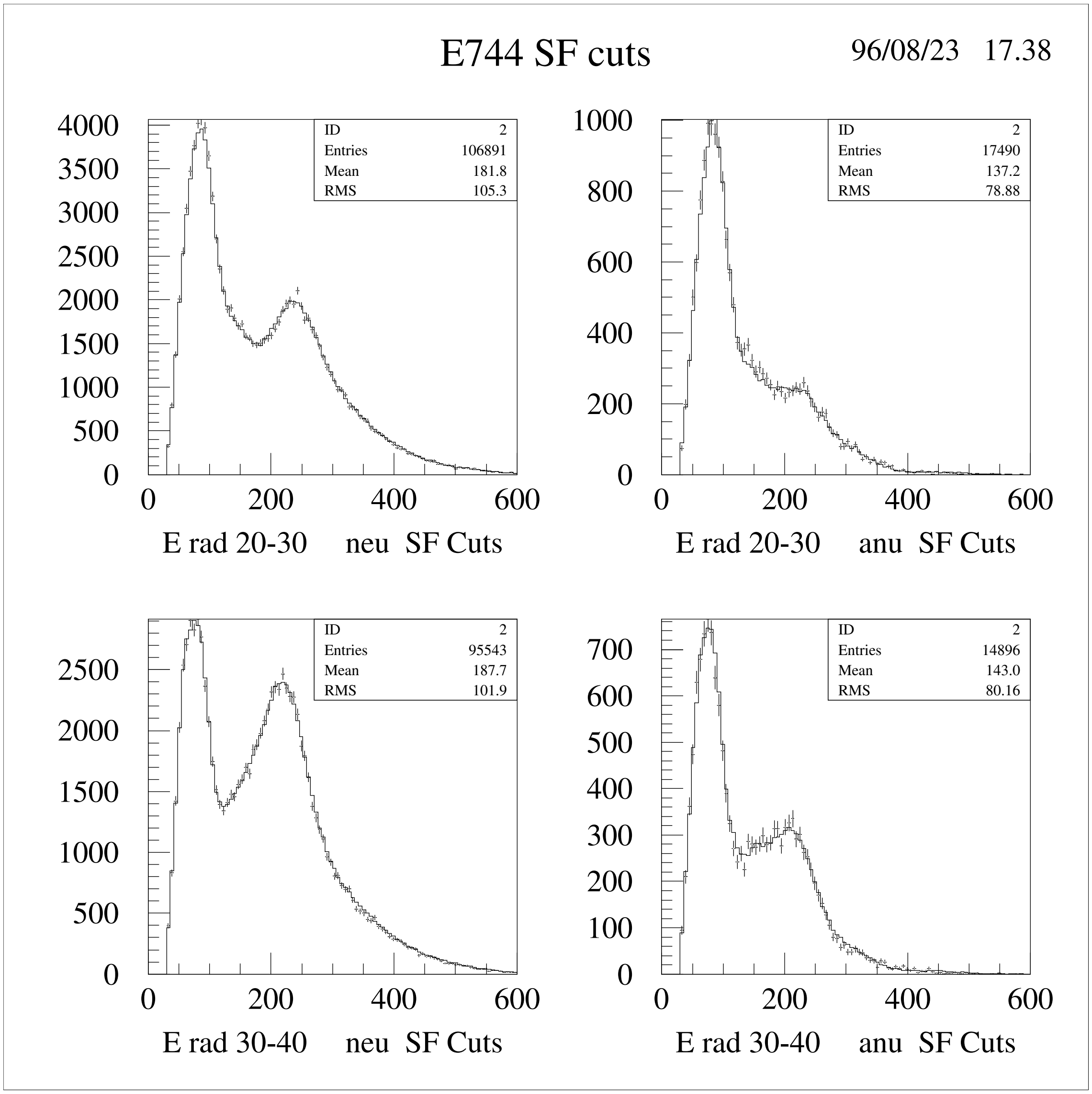

Figure E.18: E744 data versus Monte Carlo for E_ν in the radial bins 20-30 *in* and 30-40 *in*.

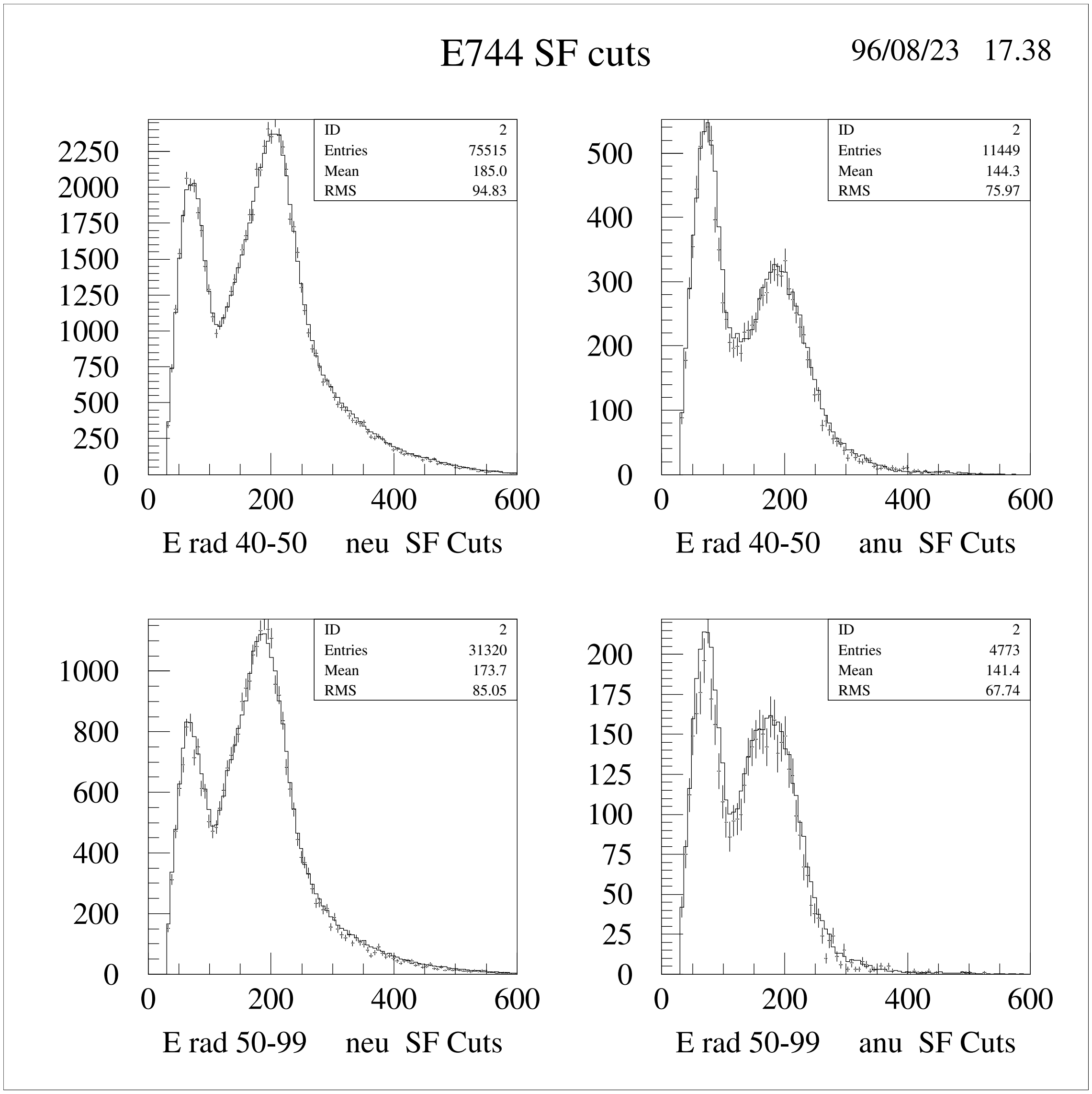

Figure E.19: E744 data versus Monte Carlo for E_ν in the radial bins 40-50 *in* and 50-99 *in*.

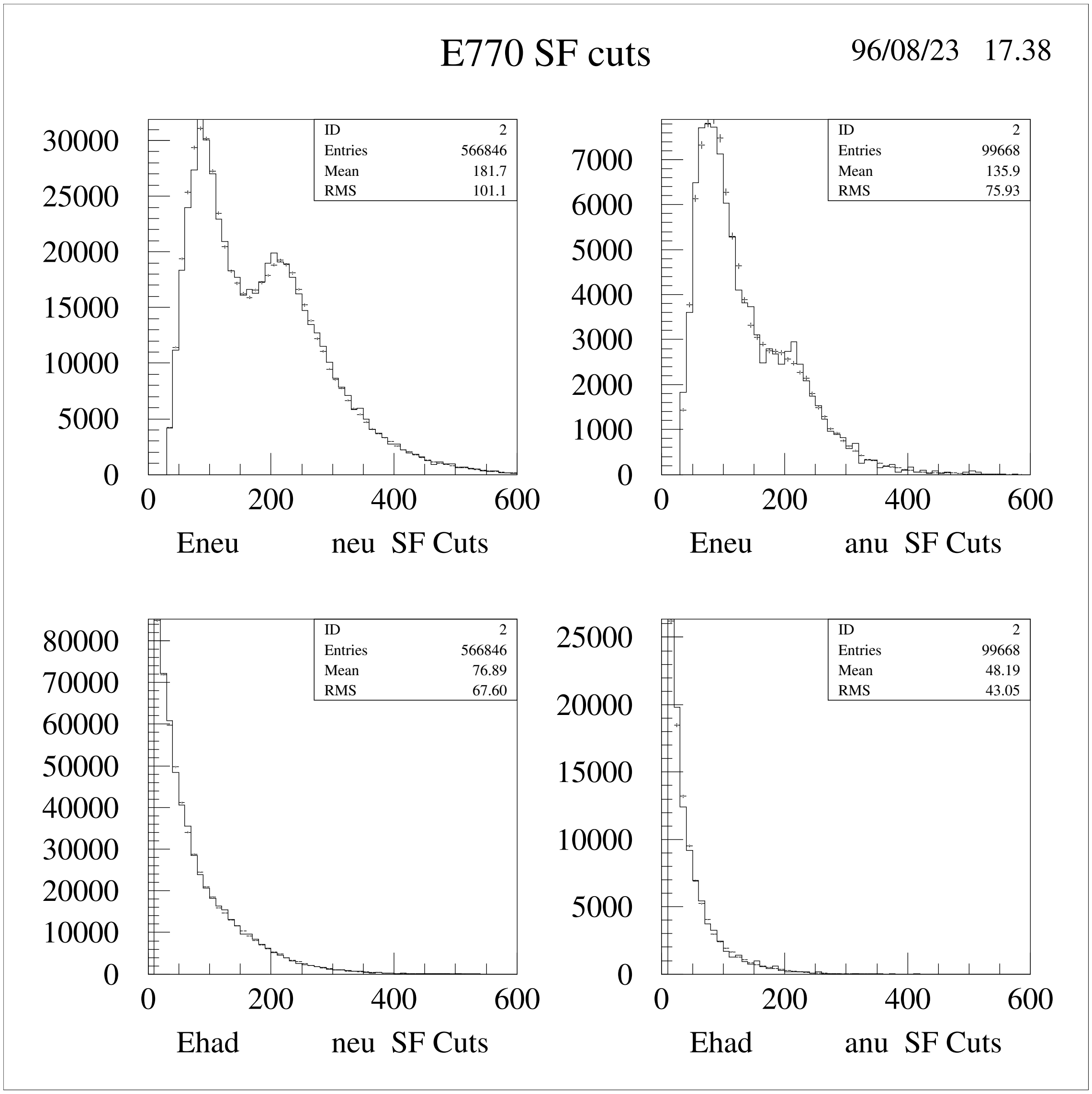

Figure E.20: E770 data versus Monte Carlo for the variables E_{ν} and E_{HAD}.

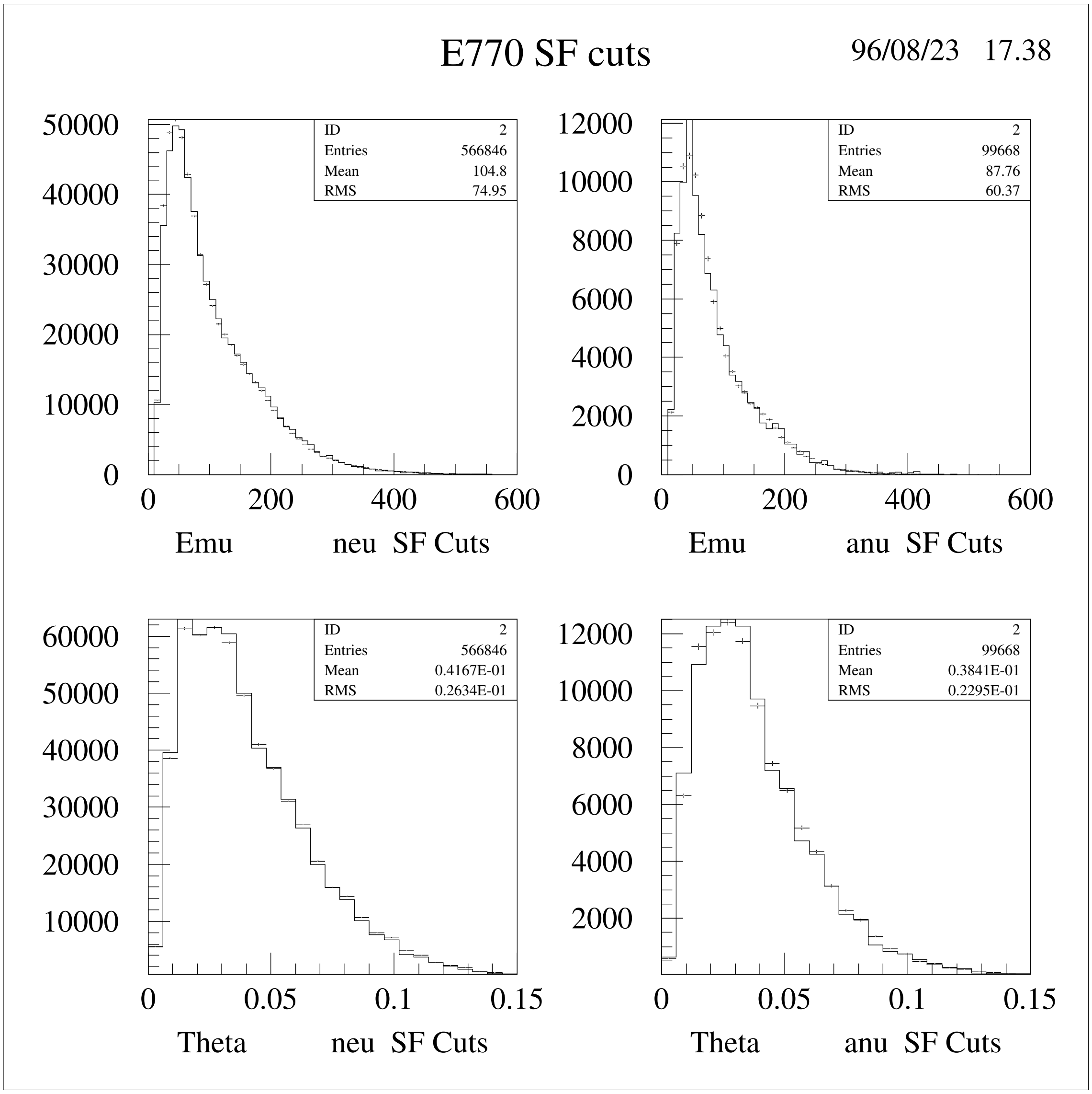

Figure E.21: E770 data versus Monte Carlo for the variables E_μ and θ_μ.

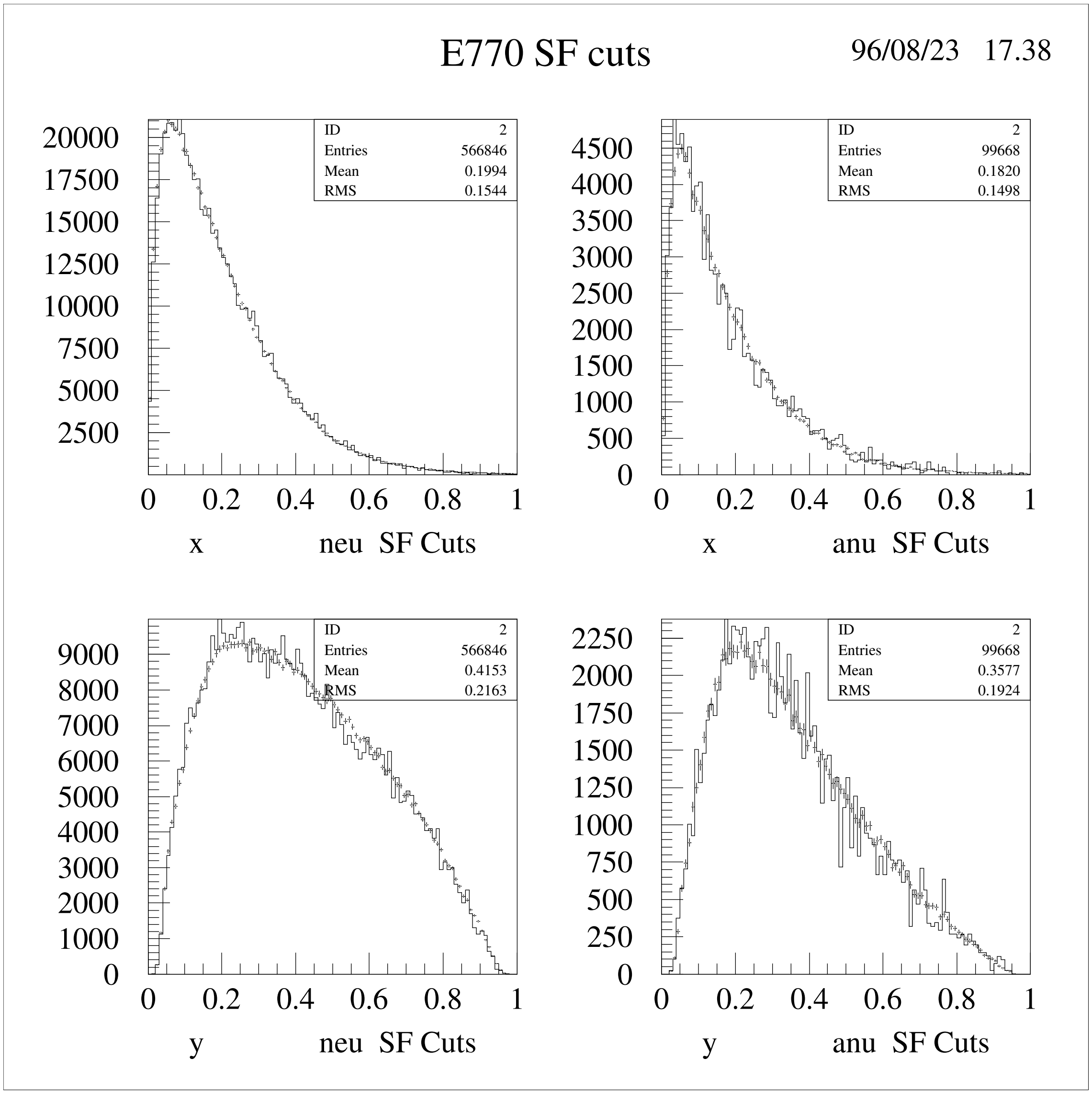

Figure E.22: E770 data versus Monte Carlo for the variables x_{BJ} and y_{BJ}.

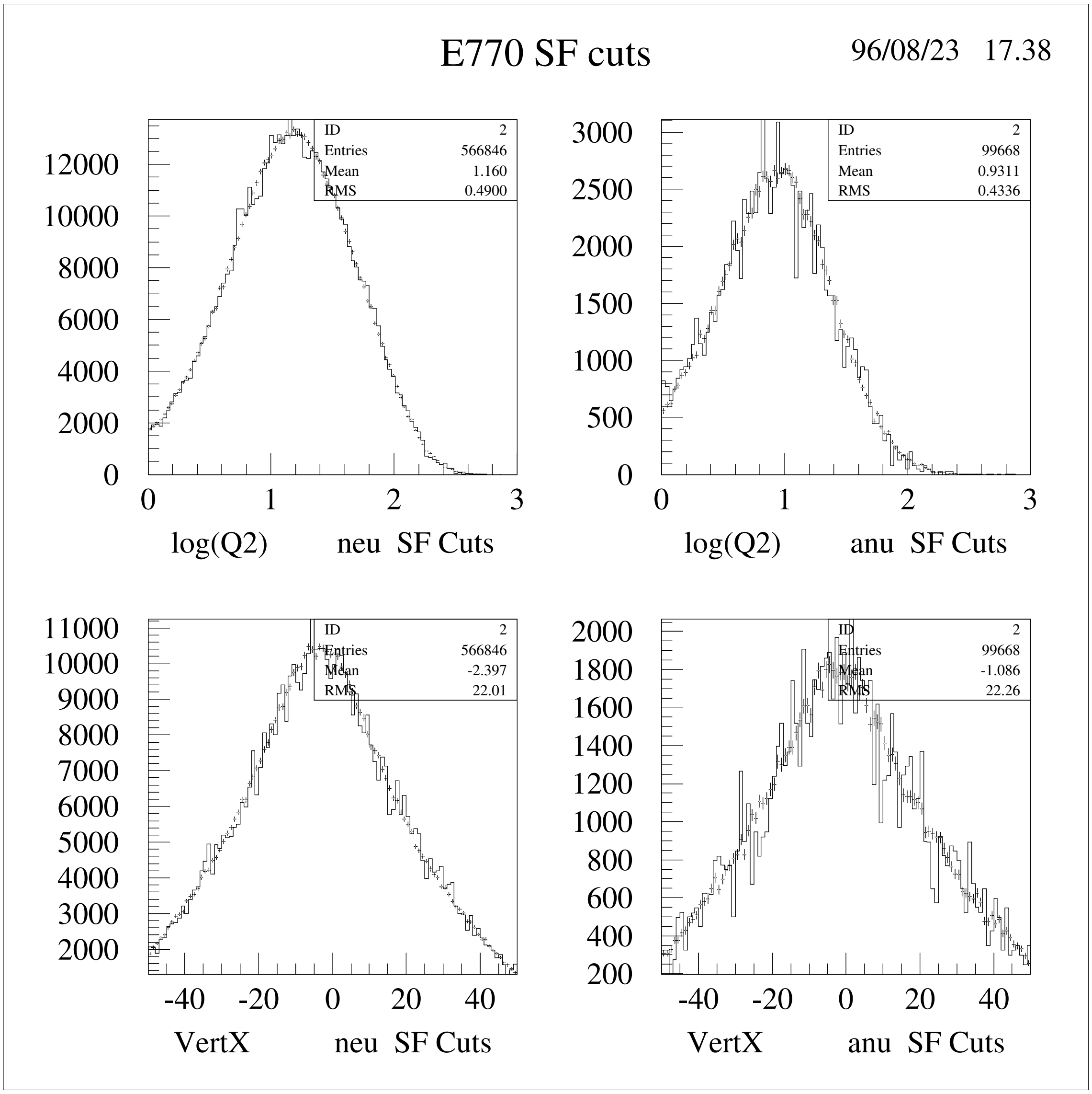

Figure E.23: E770 data versus Monte Carlo for the variables $\log\left(Q^2\right)$ and the x-vertex.

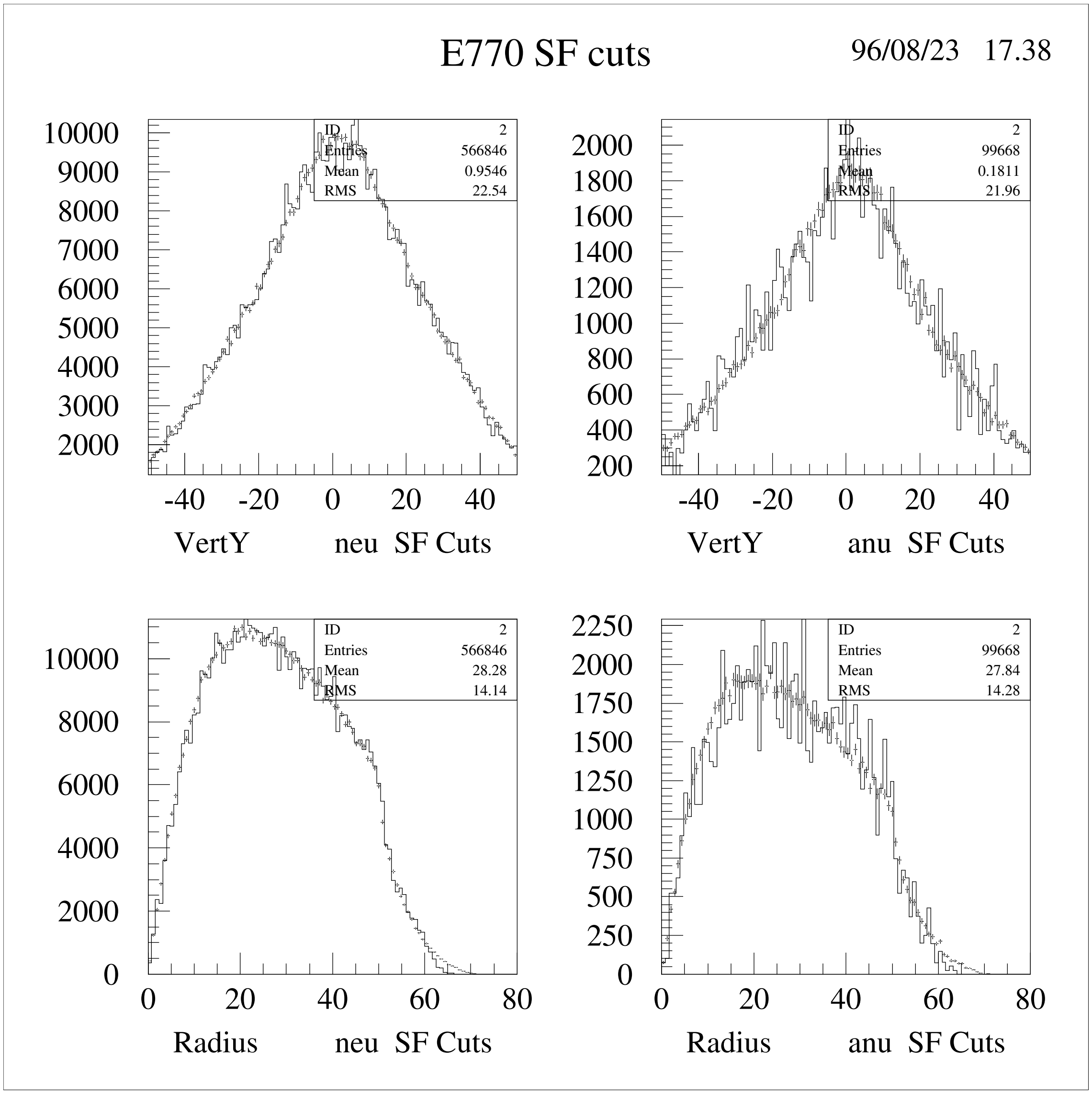

Figure E.24: E770 data versus Monte Carlo for the y-vertex and the vertex radius.

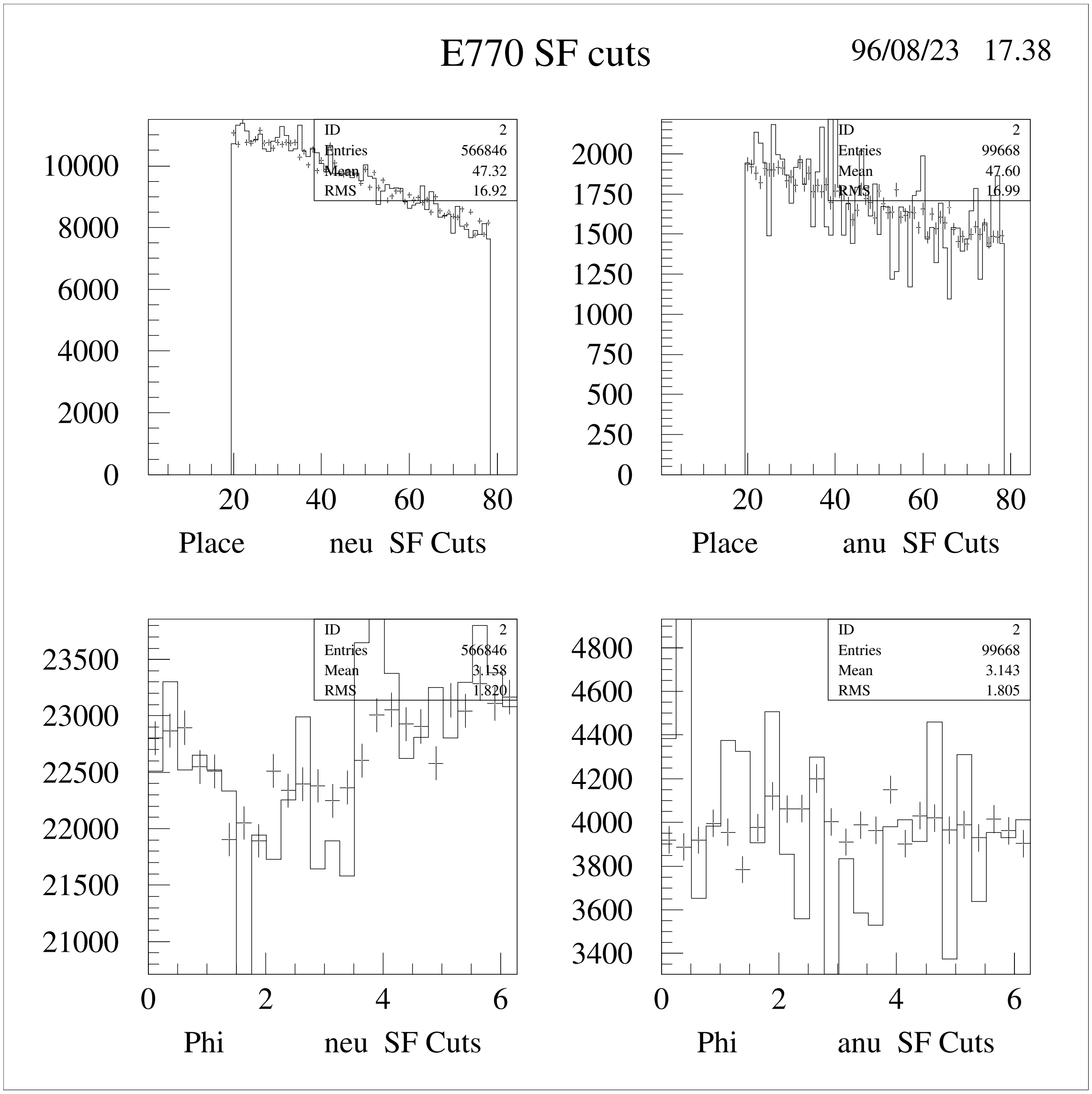

Figure E.25: E770 data versus Monte Carlo for PLACE and ϕ. Note the axes of the ϕ plots are zero-suppressed.

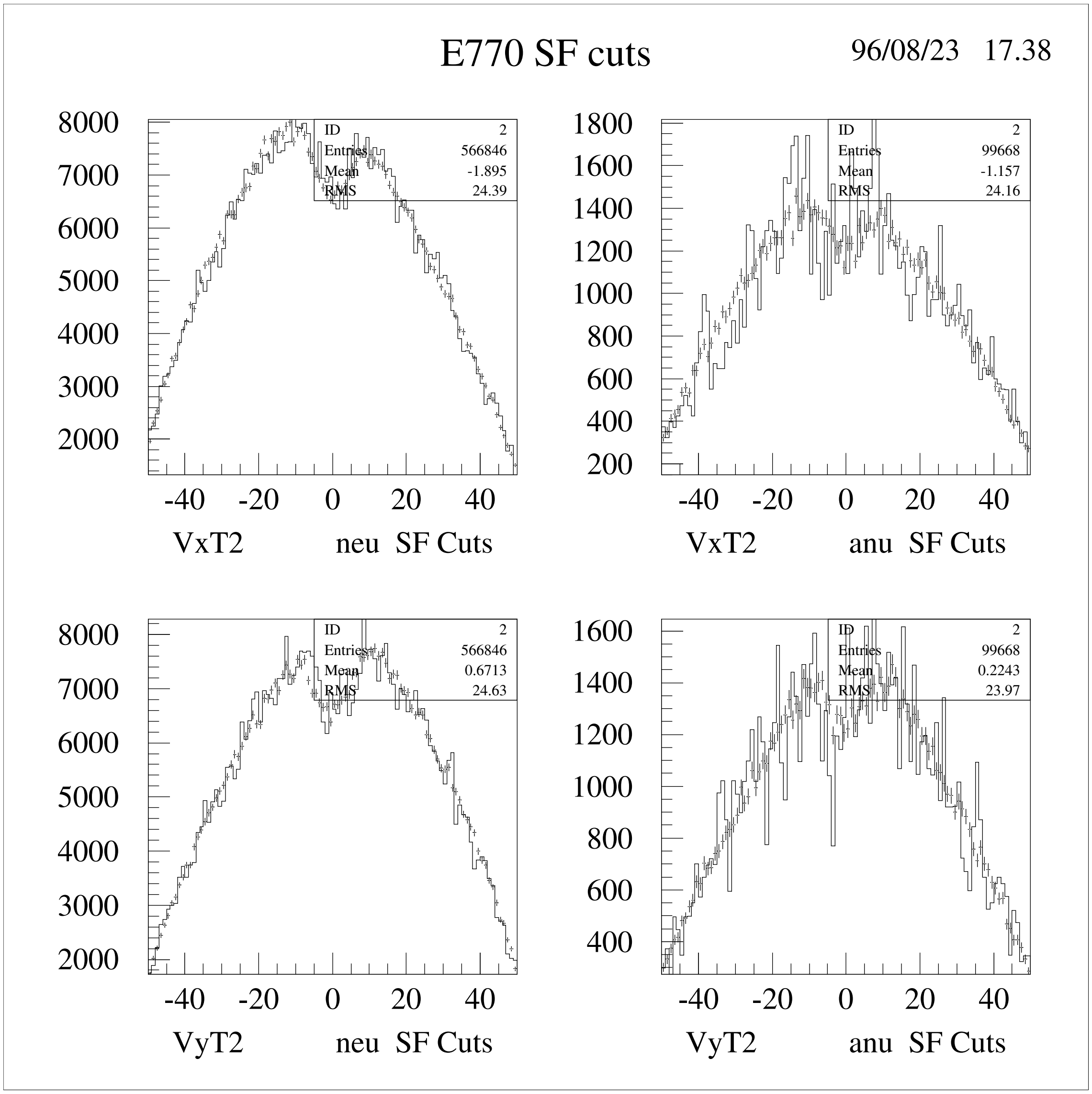

Figure E.26: E770 data versus Monte Carlo for x- and y-vertex at the T2 counter.

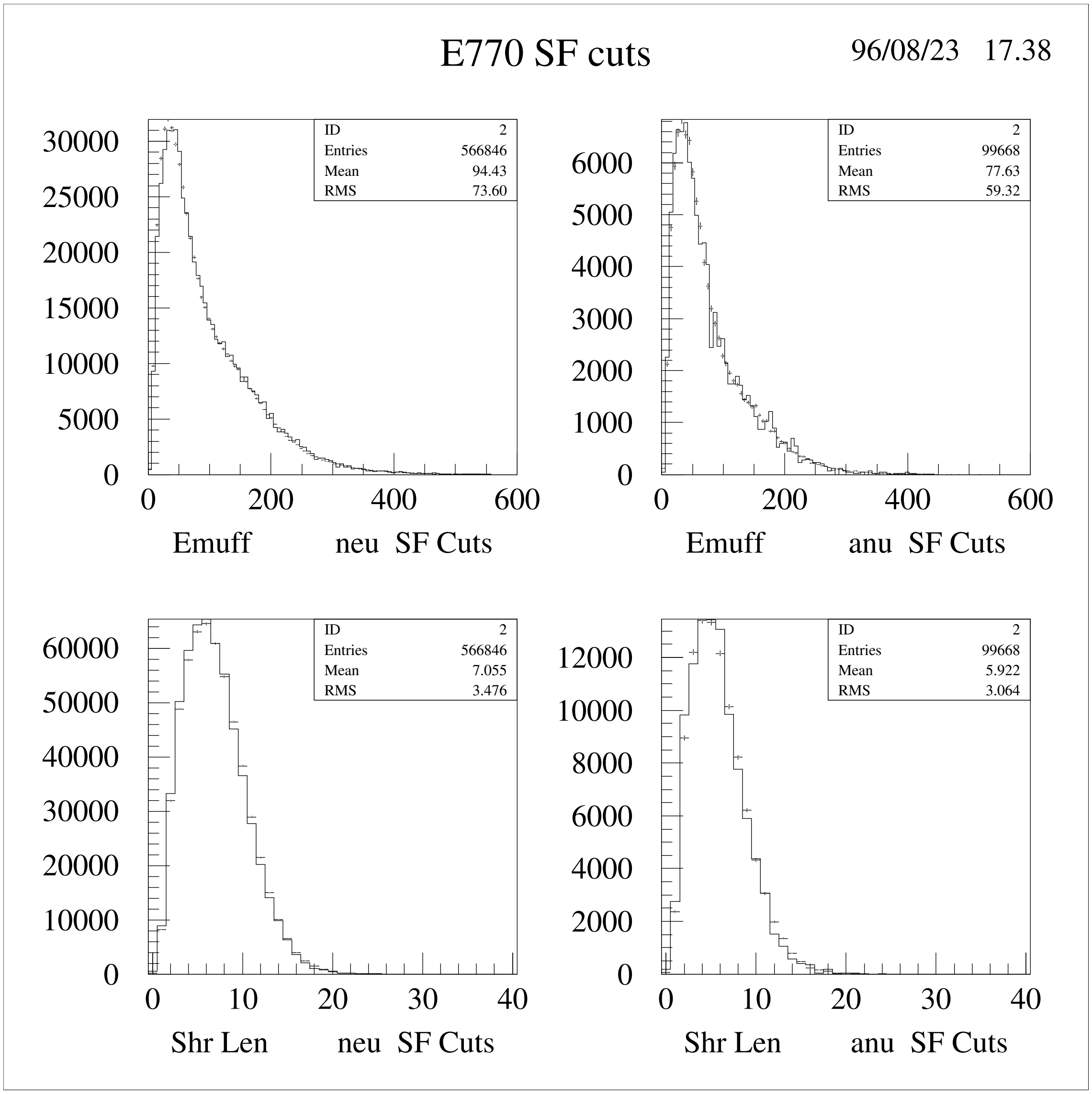

Figure E.27: E770 data versus Monte Carlo for E_{μ}^{FF} and the hadron shower length (*PLACE–SHEND*).

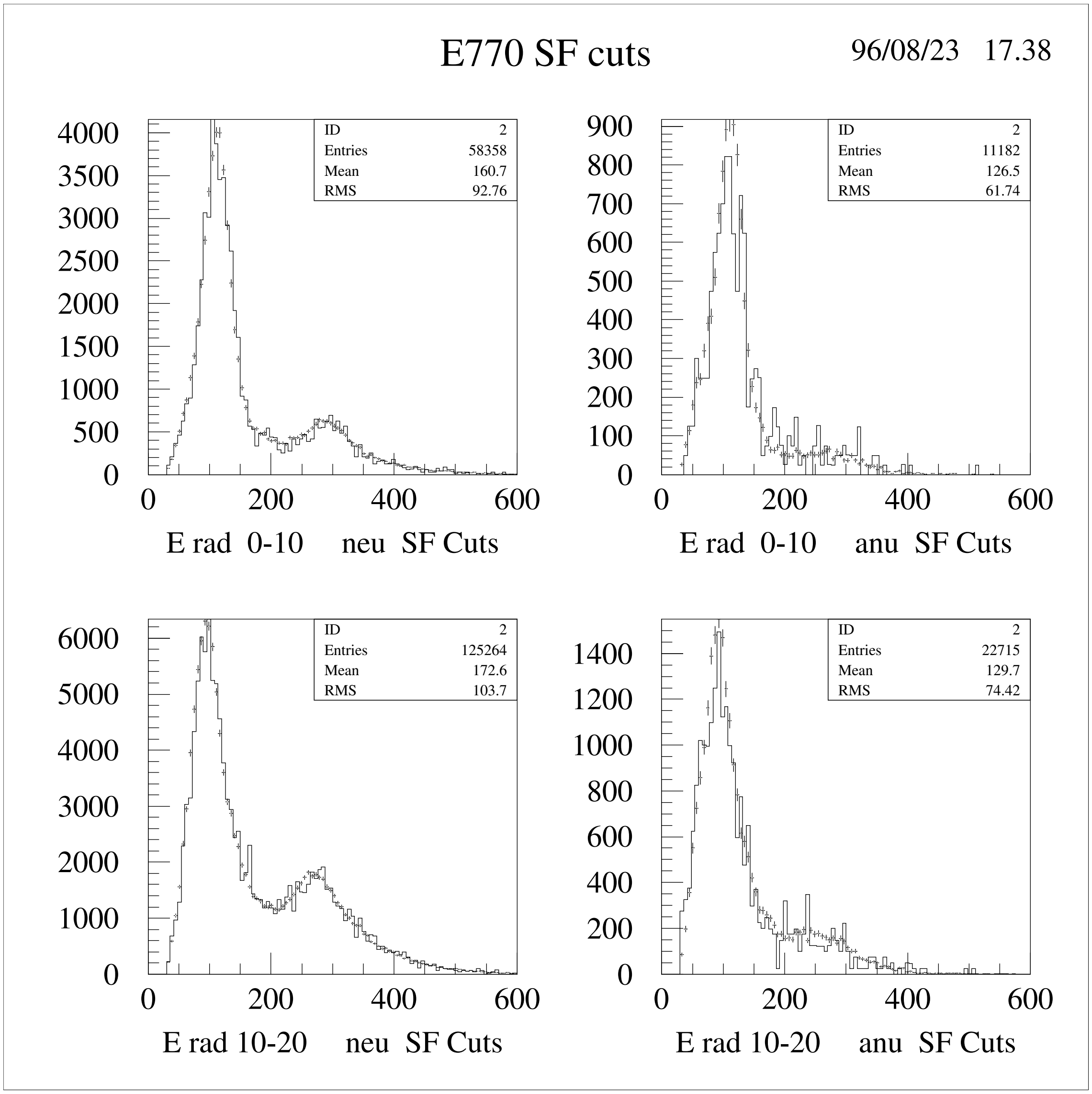

Figure E.28: E770 data versus Monte Carlo for E_ν in the radial bins 0-10 *in* and 10-20 *in*.

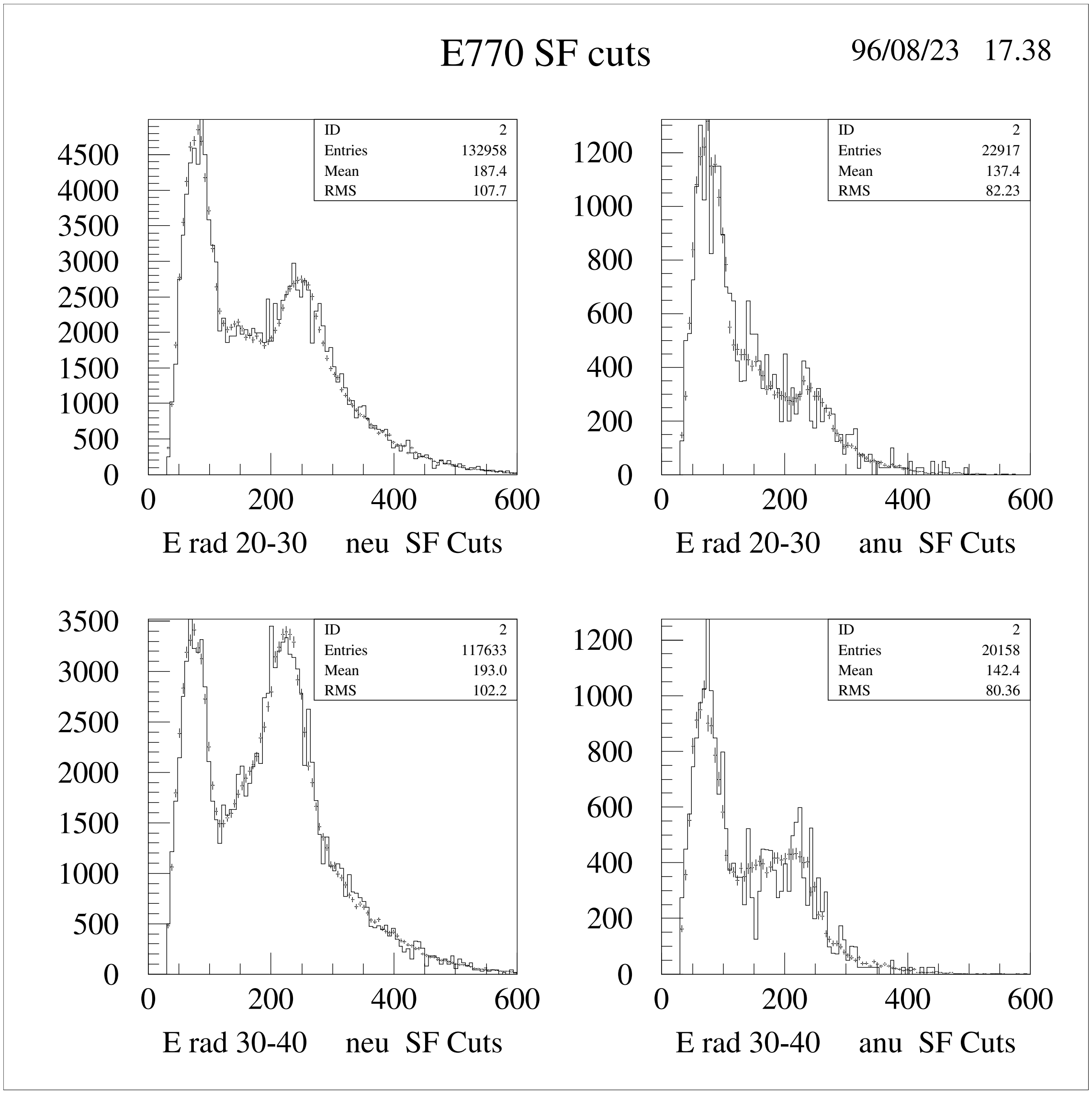

Figure E.29: E770 data versus Monte Carlo for E_ν in the radial bins 20-30 *in* and 30-40 *in*.

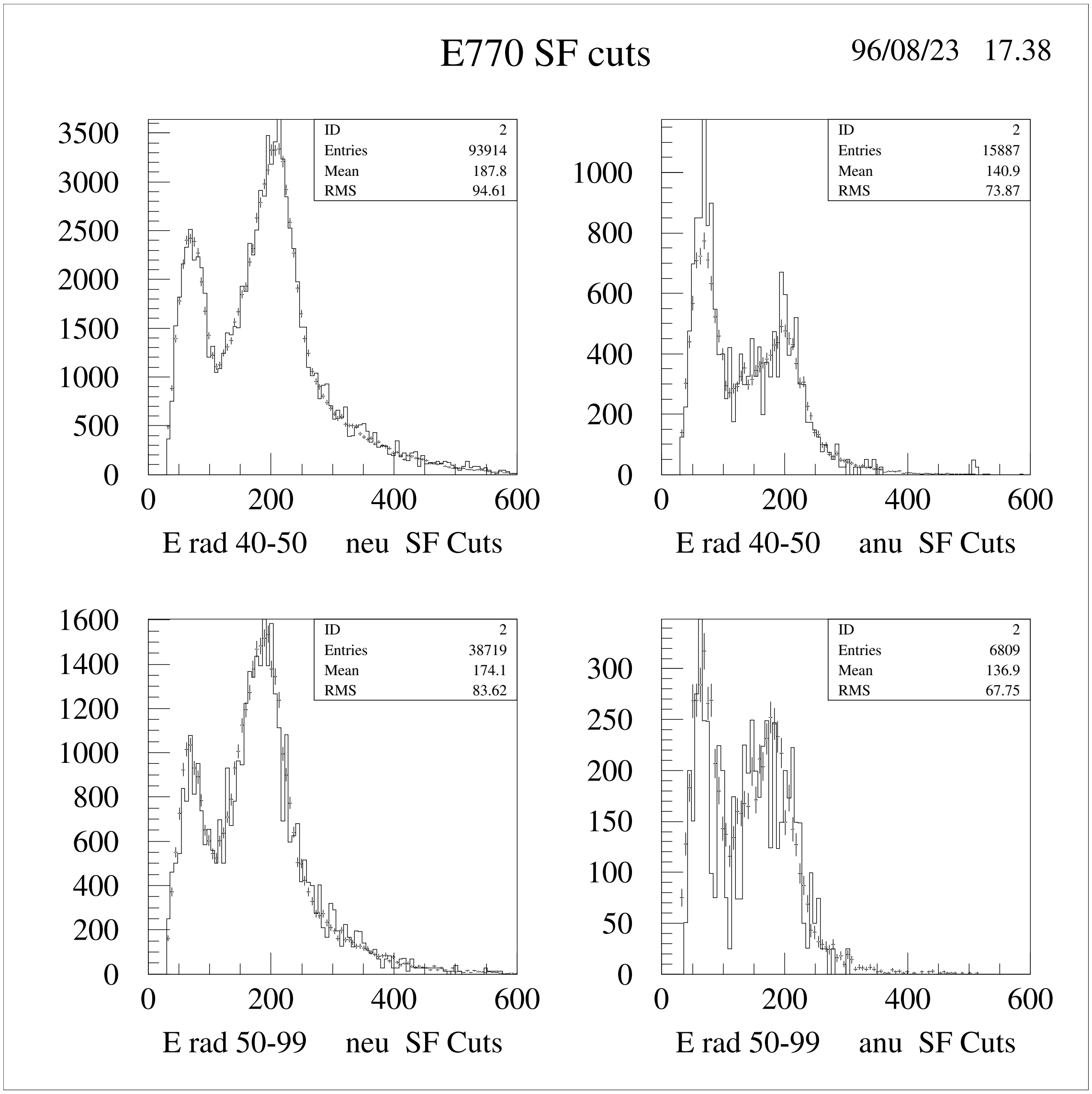

Figure E.30: E770 data versus Monte Carlo for E_ν in the radial bins 40-50 *in* and 50-99 *in*.