

Jet Energy Calibration Results

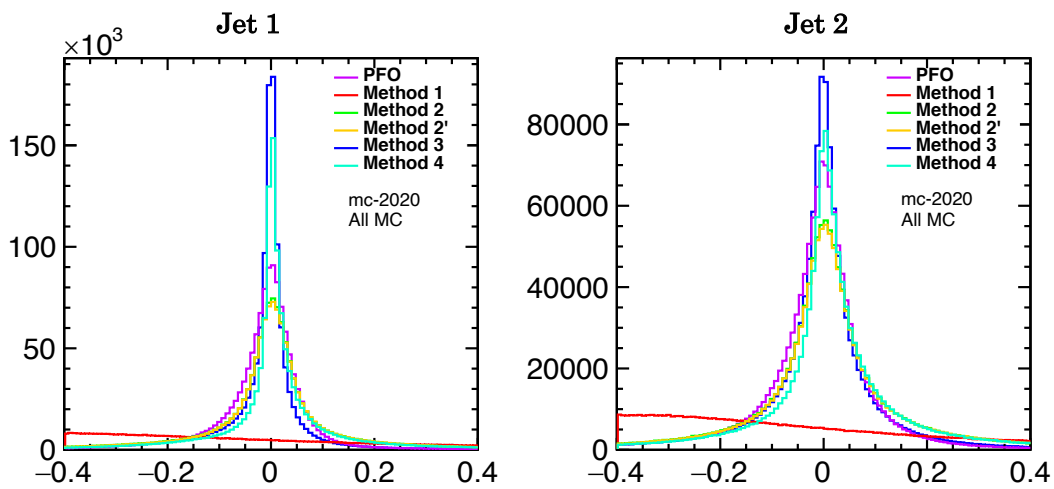
1. Method Comparison

1.1. Method comparison using All-MC

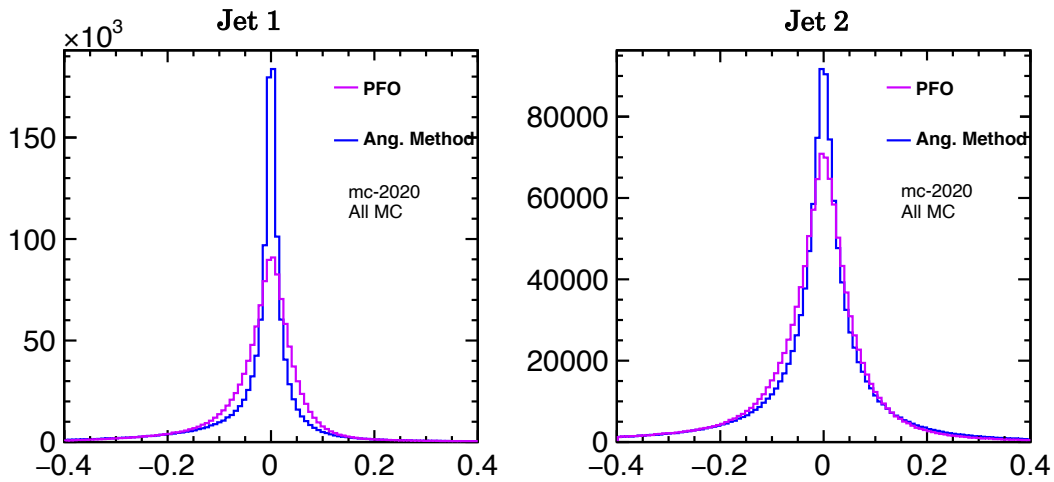
Relative difference of jet energies

*All plots in this “Chapter 1.” use only eLpR samples.

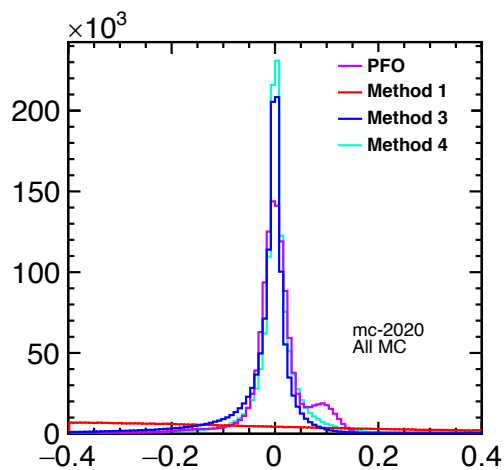
All methods comparison



Comparison between PFO and Ang. Method



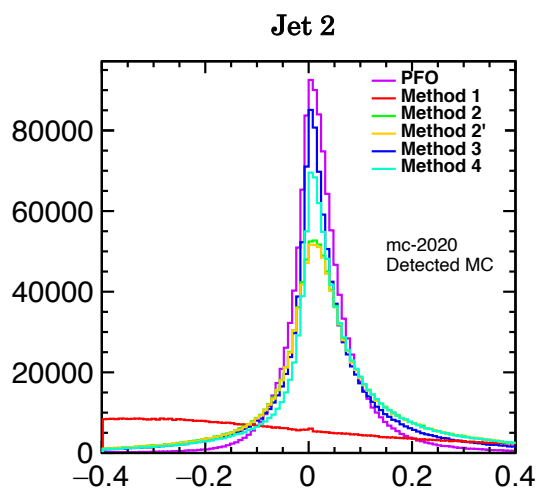
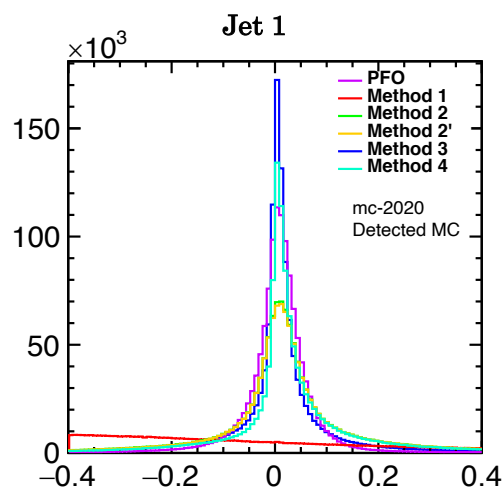
Photon energy defference



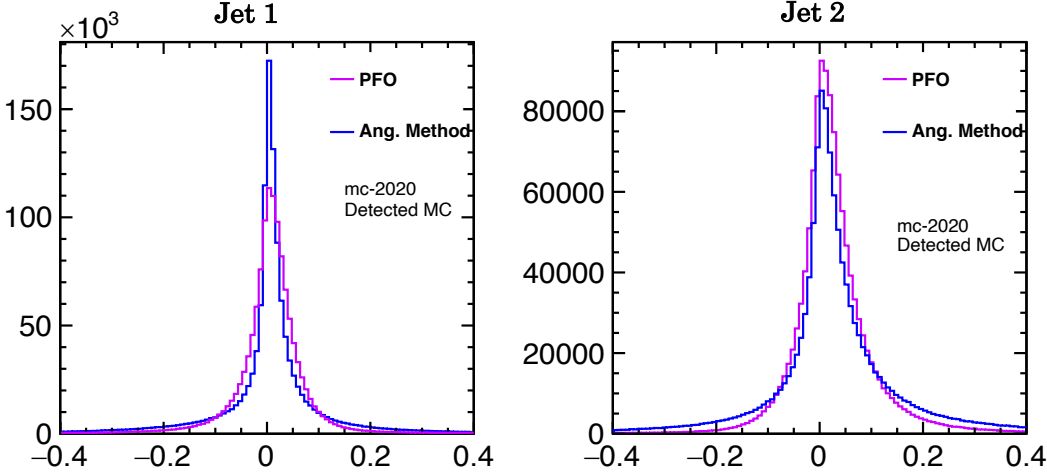
1.2. Method comparison using Detected-MC

Relative difference of jet energies

All methods comparison



Comparison between PFO and Ang. Method



2. Energy, Flavor and Theta Dependences

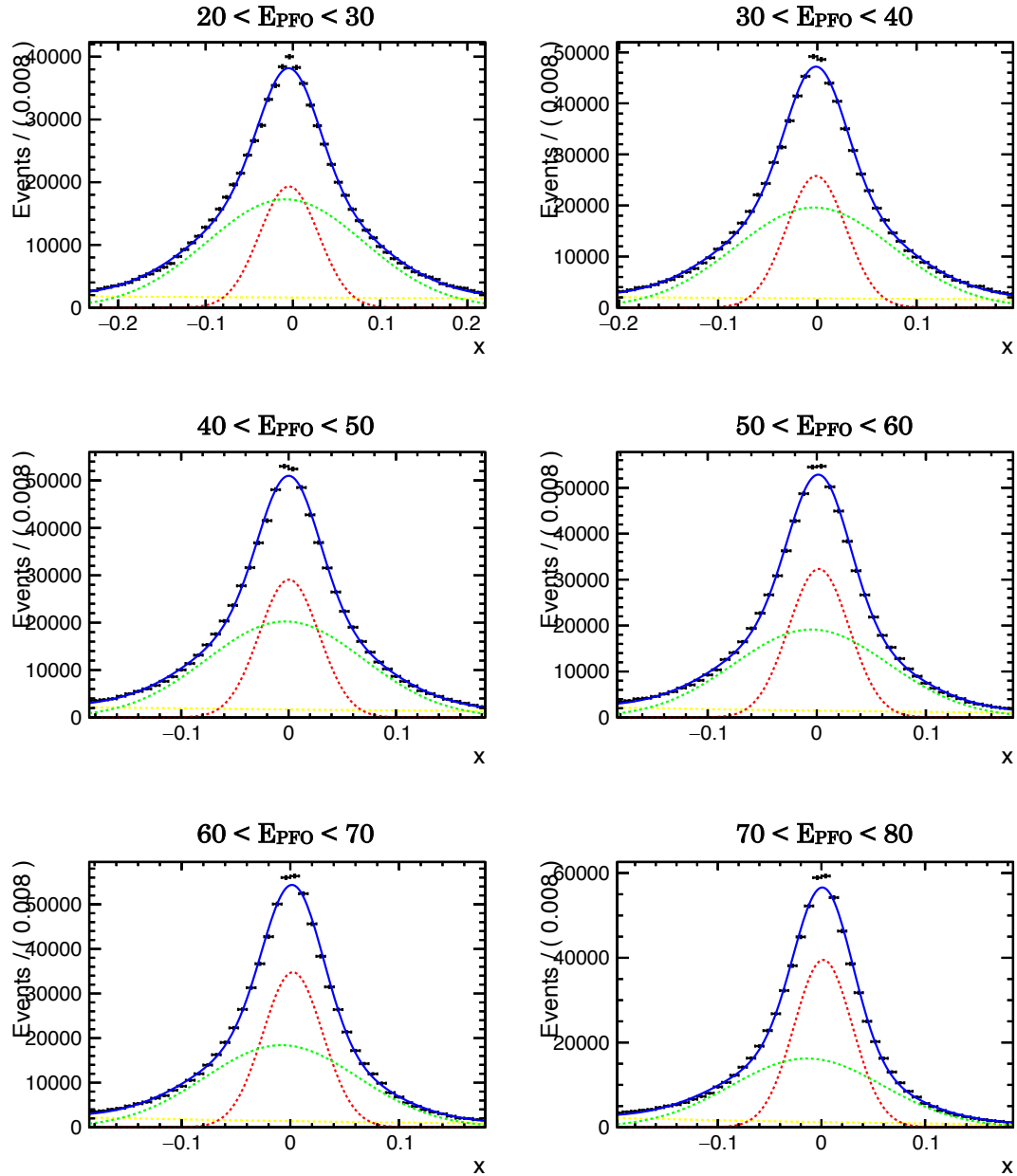
2.1. Energy dependence

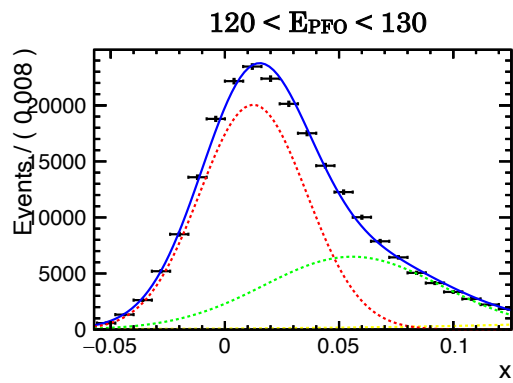
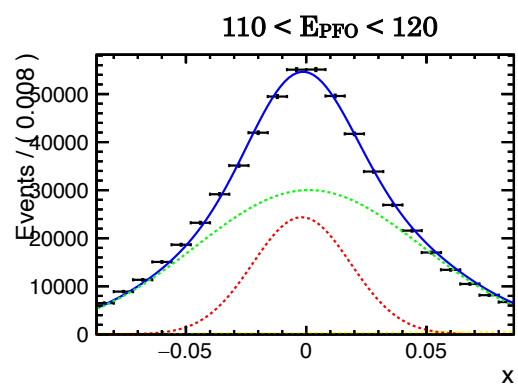
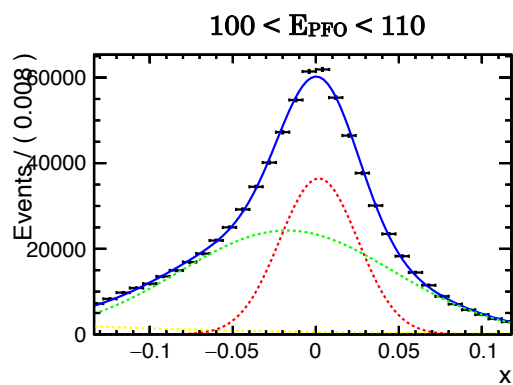
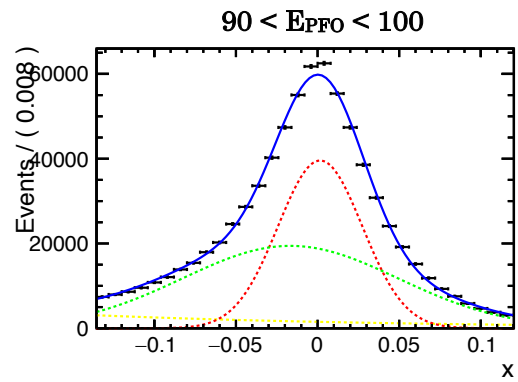
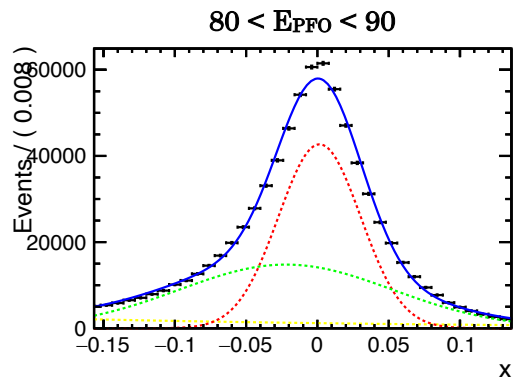
2.1.1. Energy dependence using All-MC

2.1.1.1. Energy dependence of PFO using All-MC

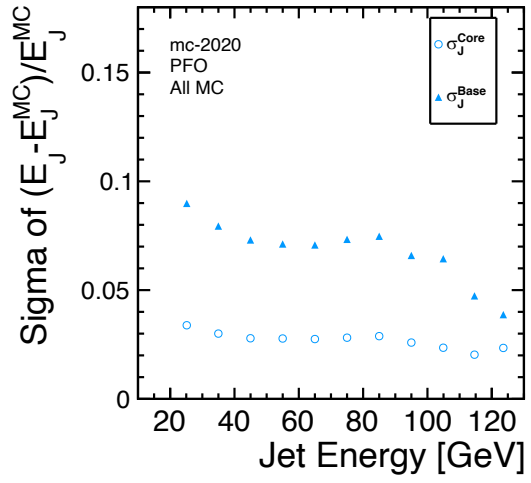
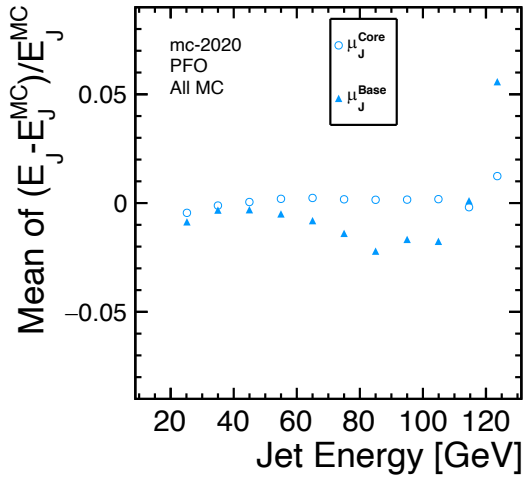
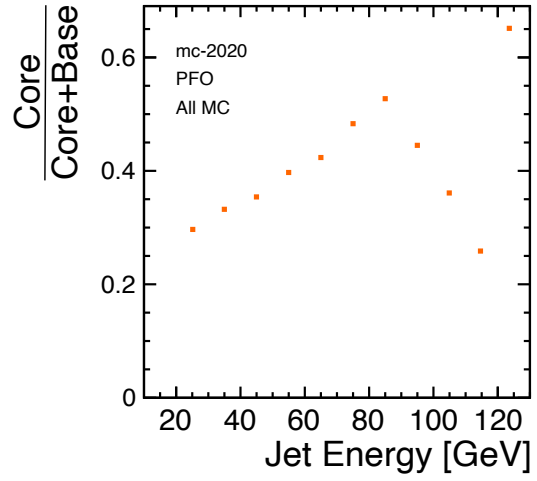
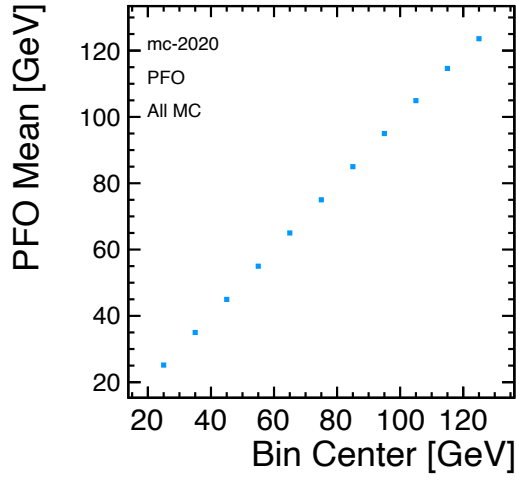
Relative difference of PFO jet energy

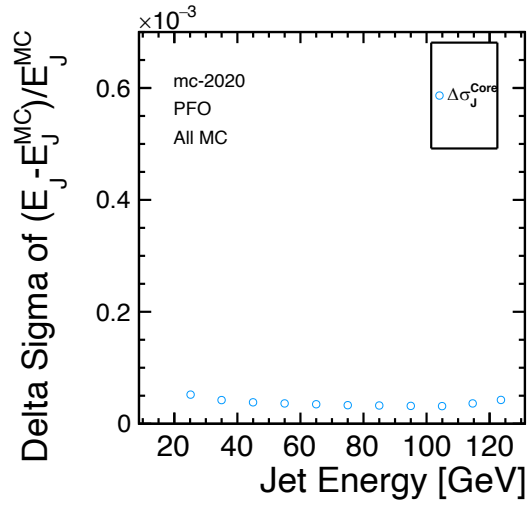
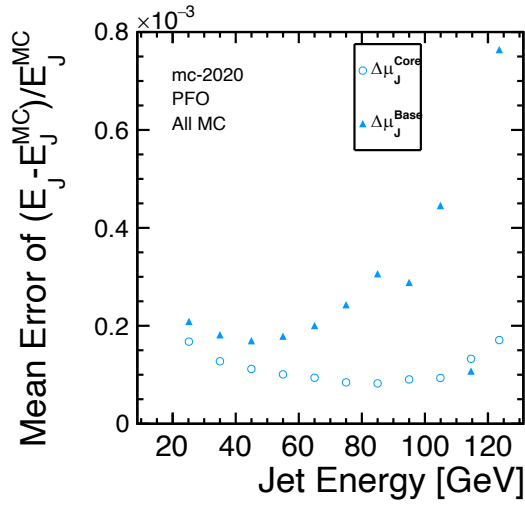
Raw distributions





Fitting parameters

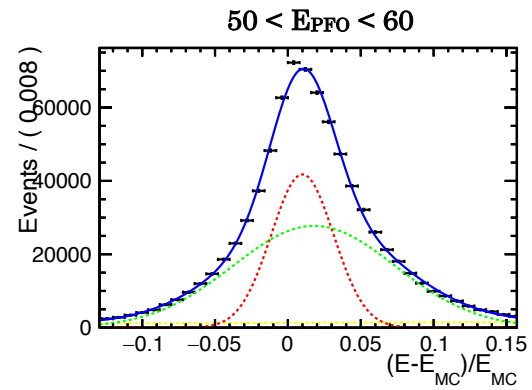
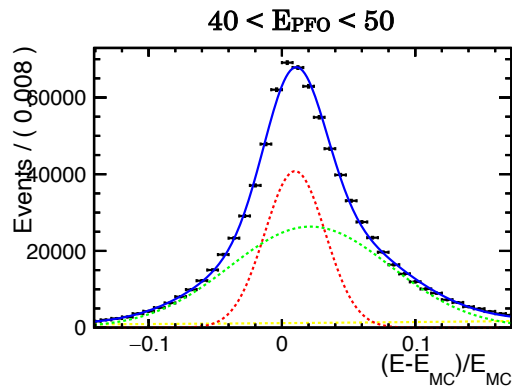
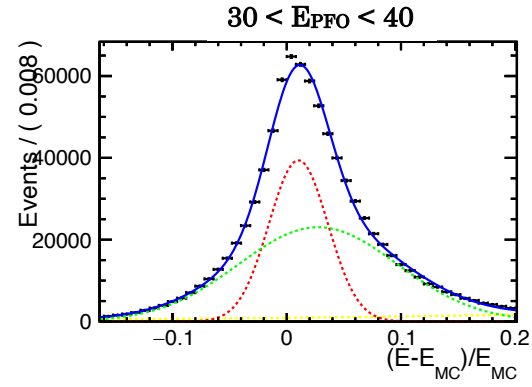
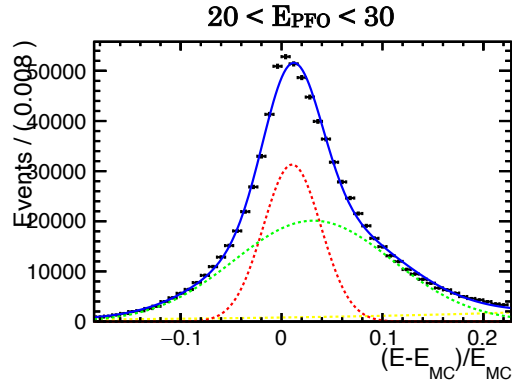


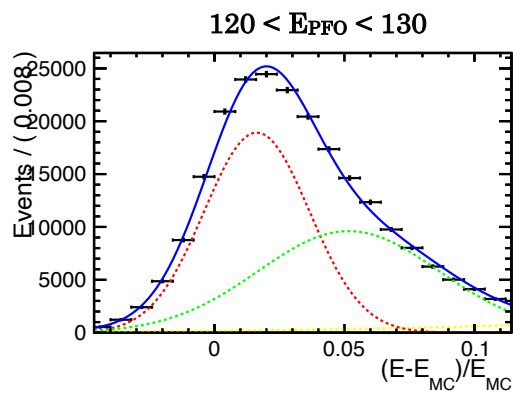
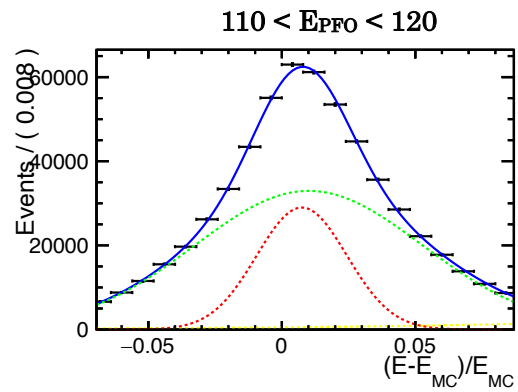
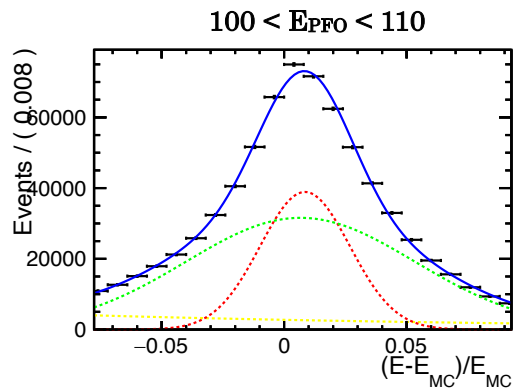
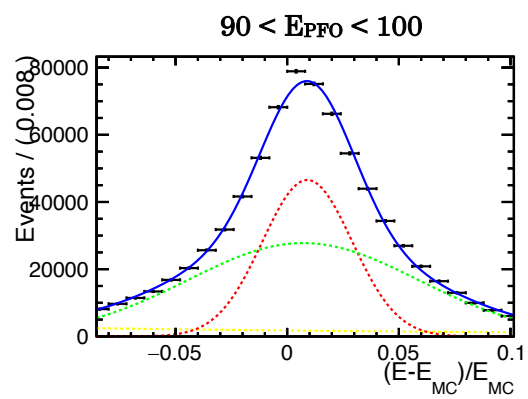
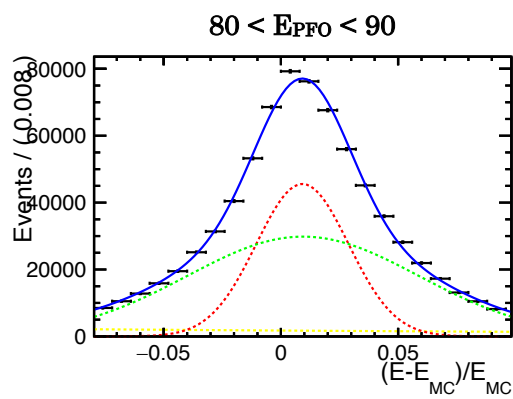
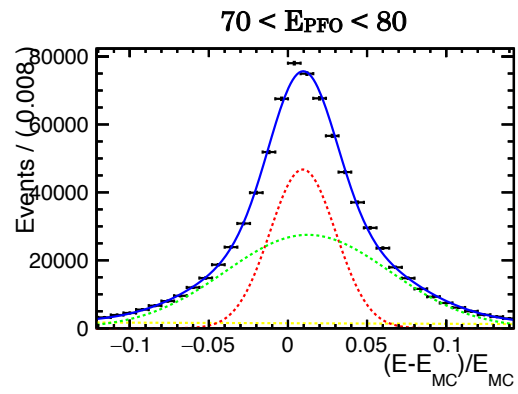
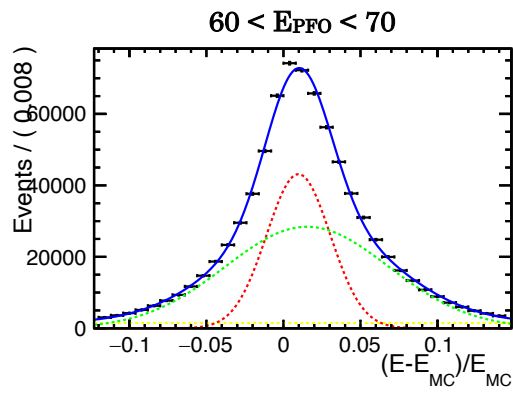


2.1.1.2. Energy dependence of Ang. Method using All-MC

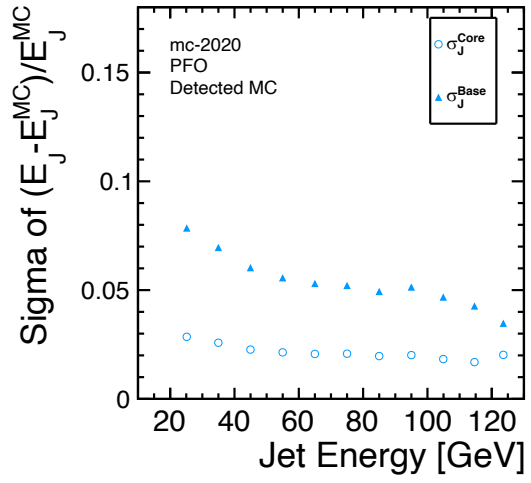
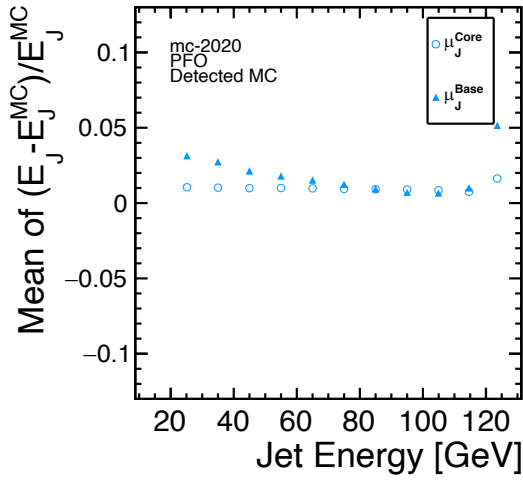
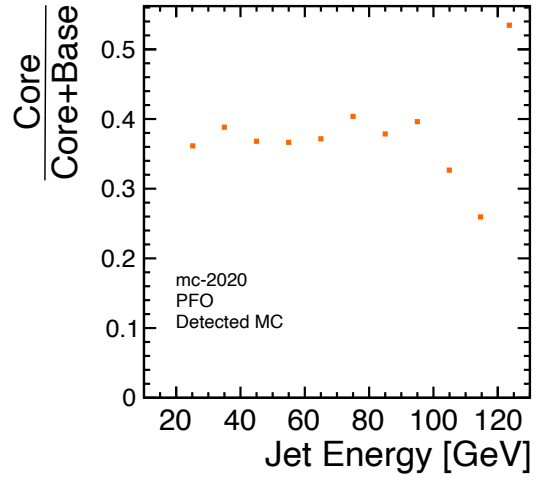
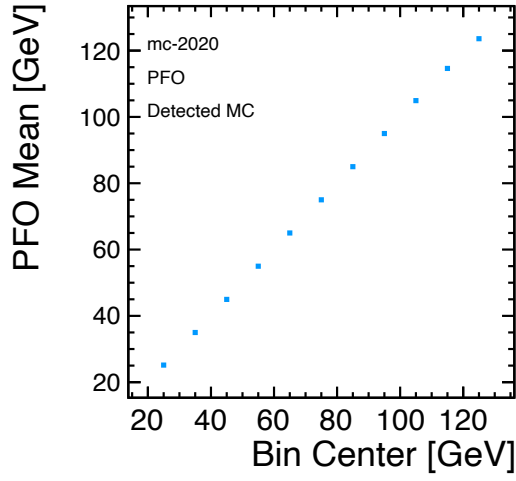
Relative difference of PFO jet energy

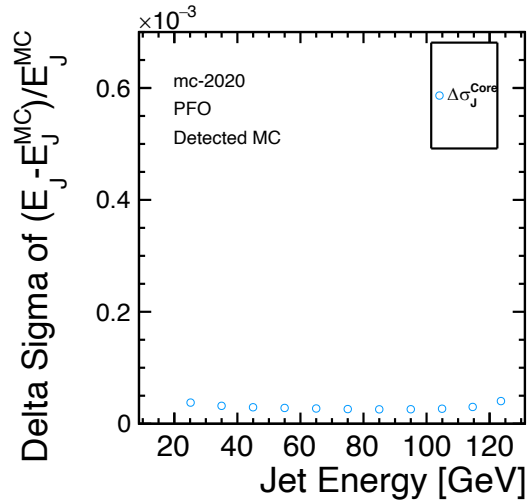
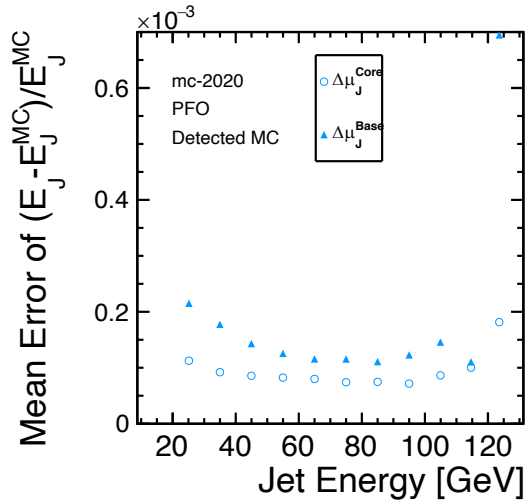
Raw distributions





Fitting parameters

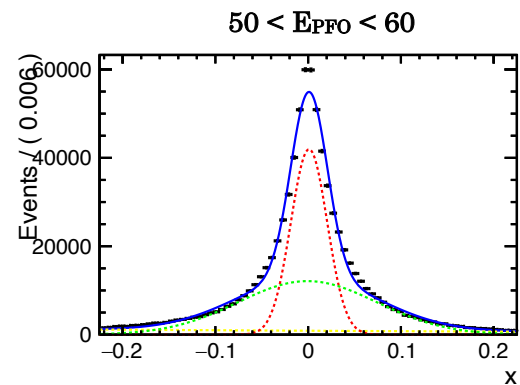
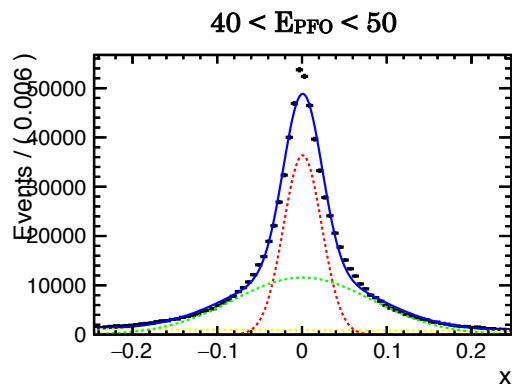
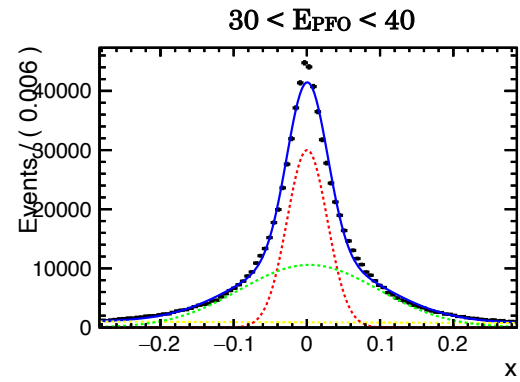
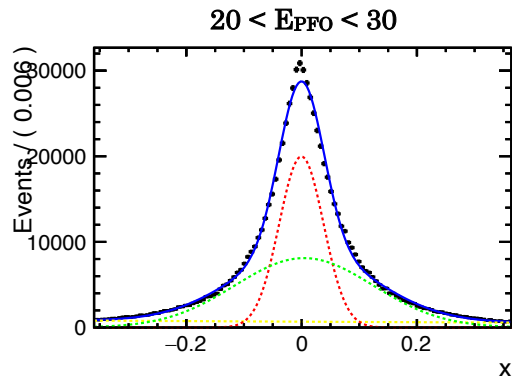




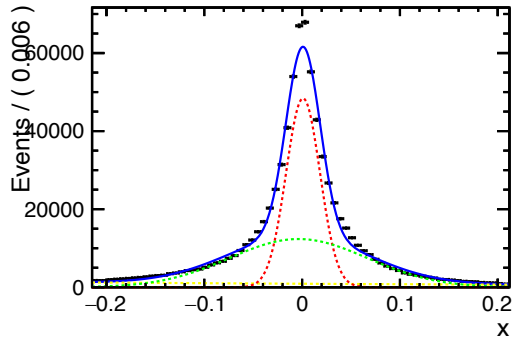
2.1.2. Energy dependence using Detected-MC

2.1.2.1. Energy dependence of PFO using Detected-MC

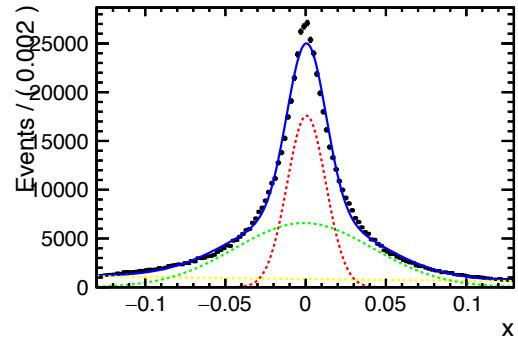
Raw distributions



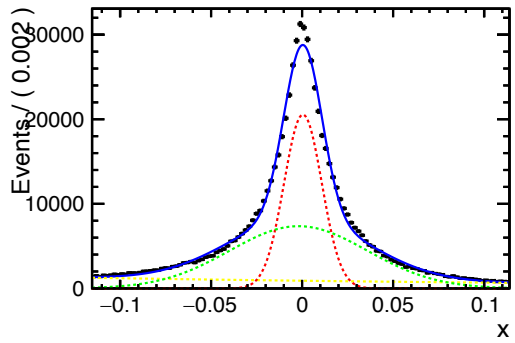
$60 < E_{PFO} < 70$



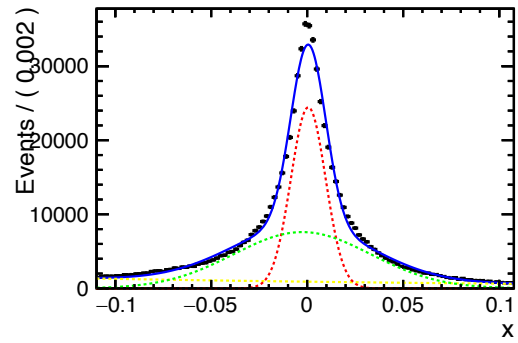
$70 < E_{PFO} < 80$



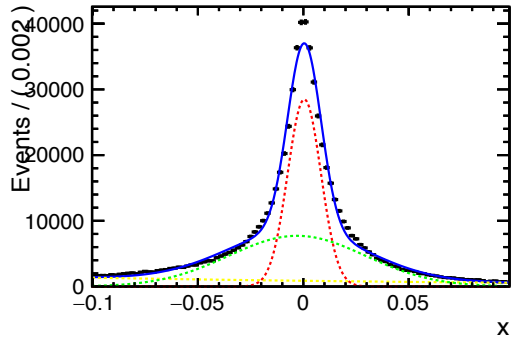
$80 < E_{PFO} < 90$



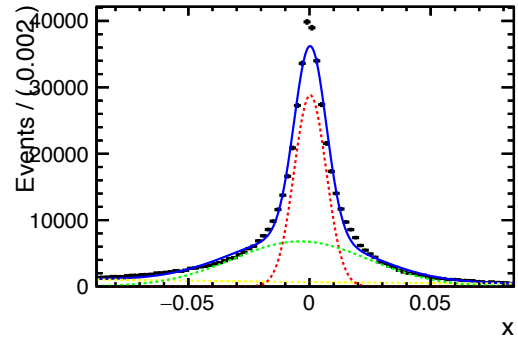
$90 < E_{PFO} < 100$



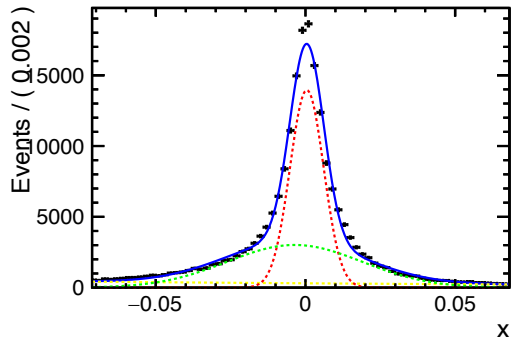
$100 < E_{PFO} < 110$



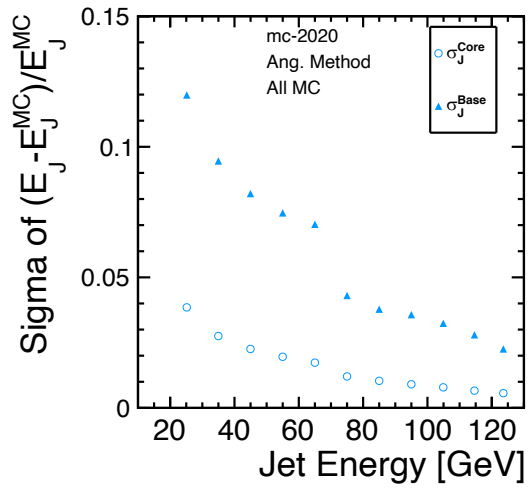
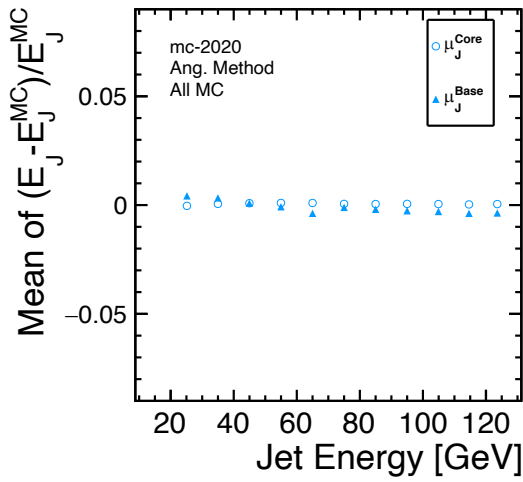
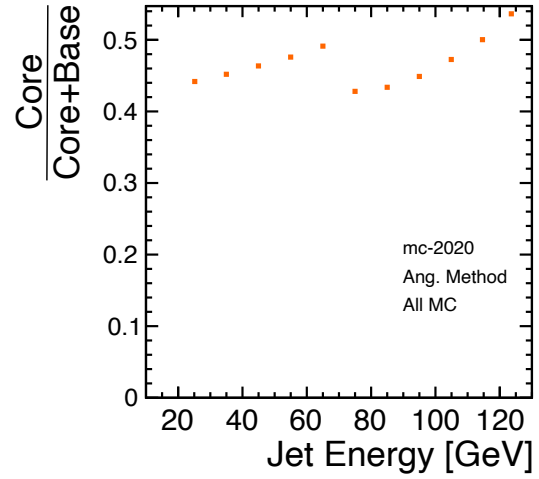
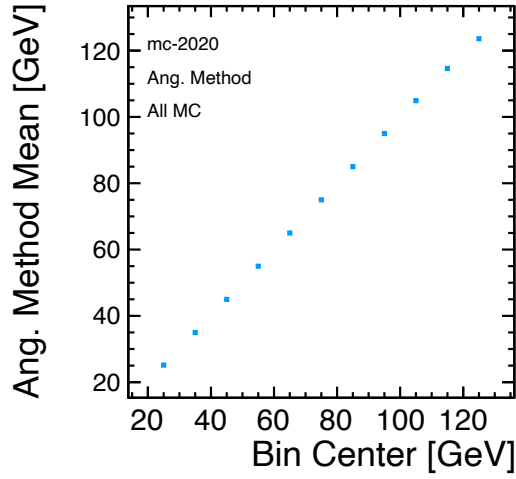
$110 < E_{PFO} < 120$

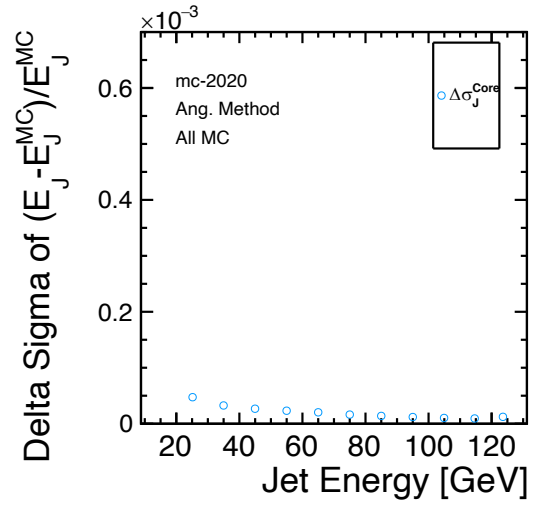
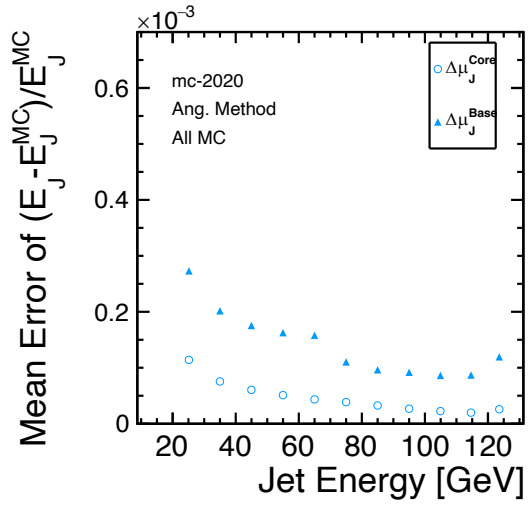


$120 < E_{PFO} < 130$



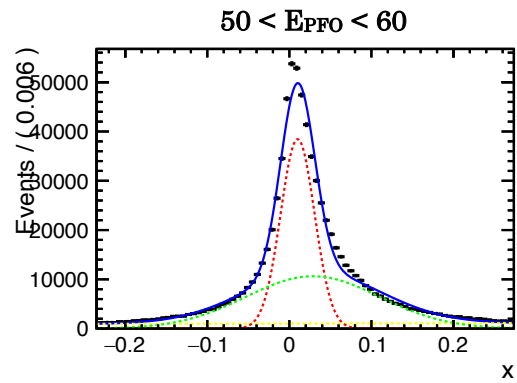
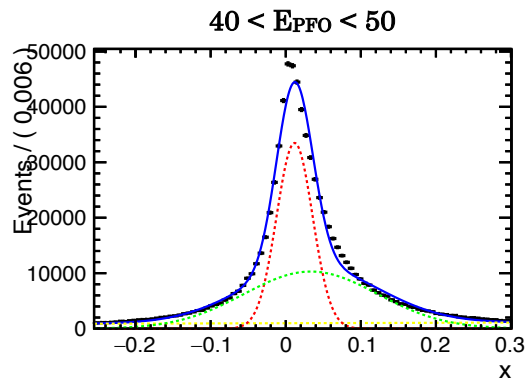
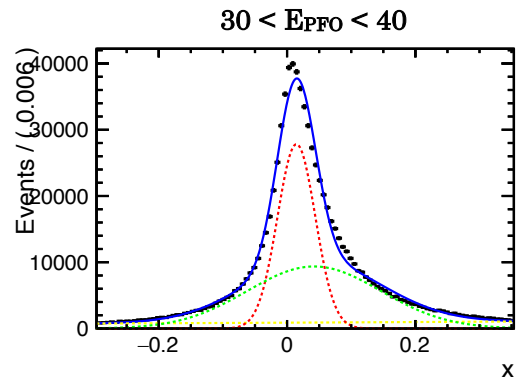
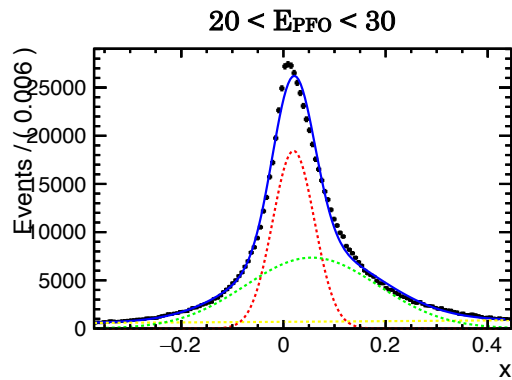
Fitting parameters

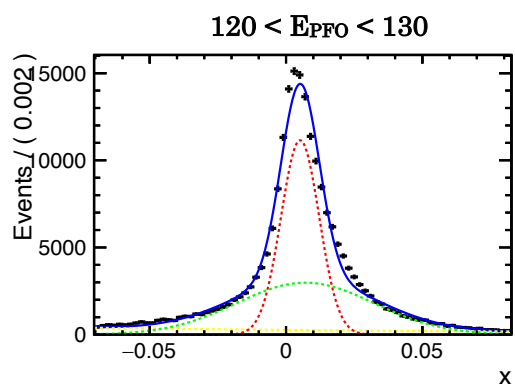
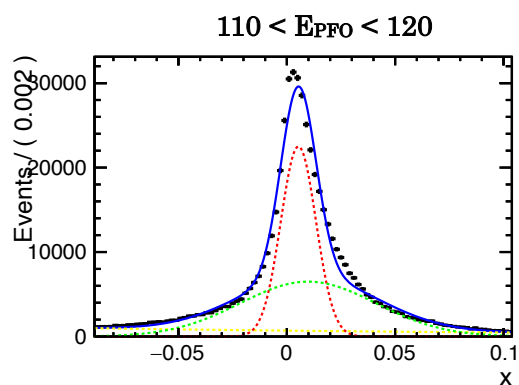
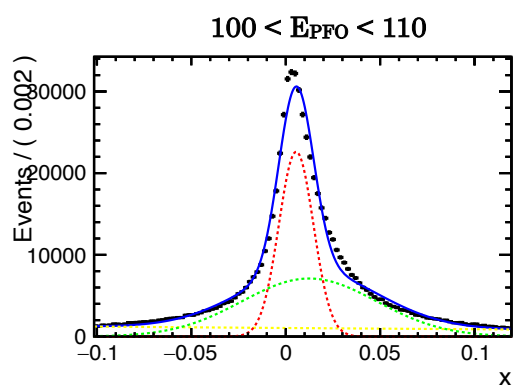
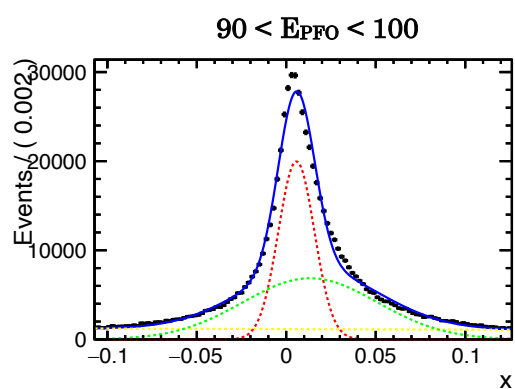
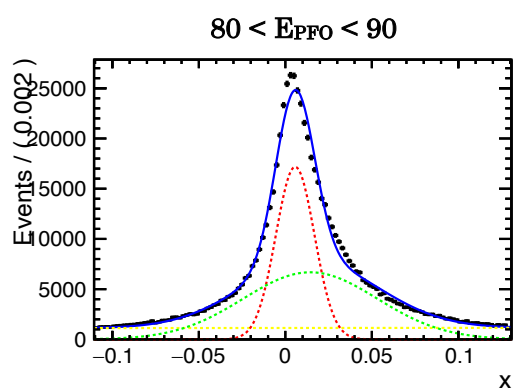
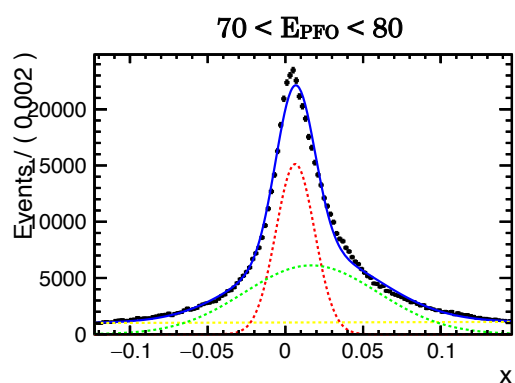
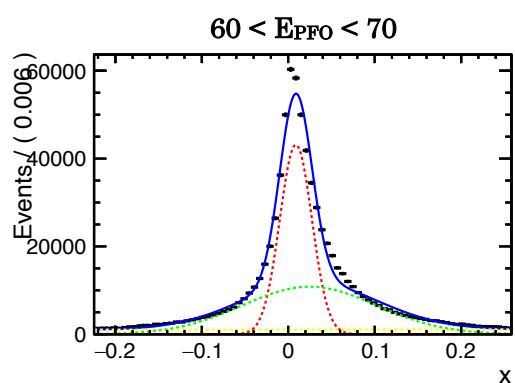




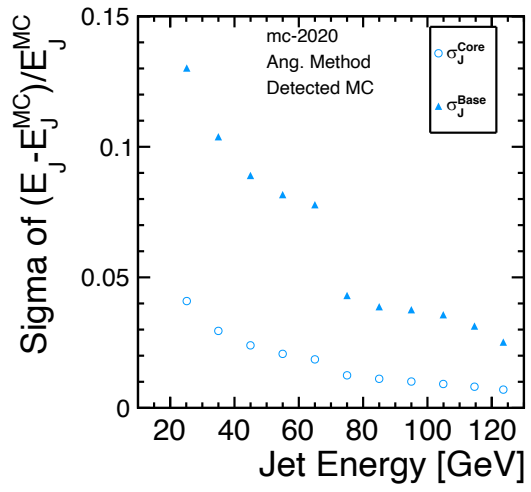
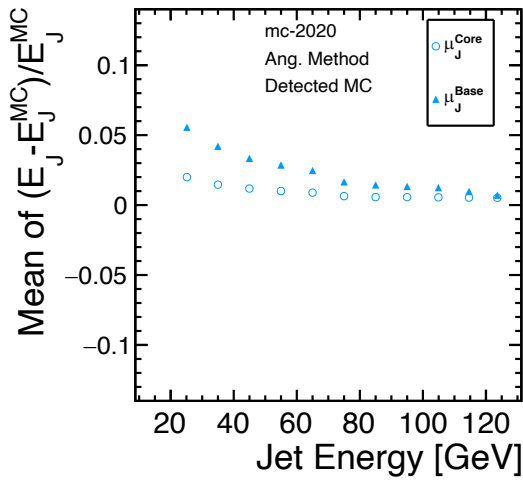
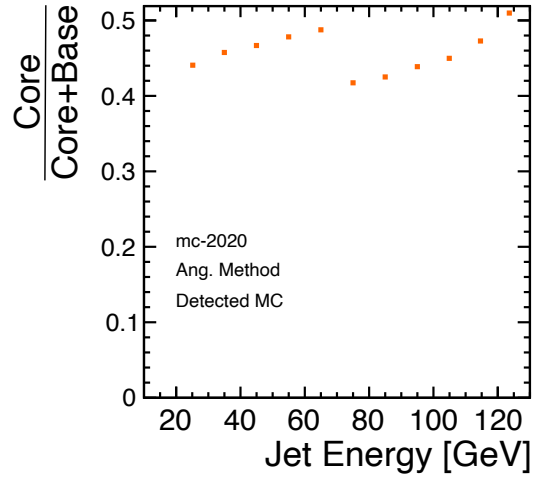
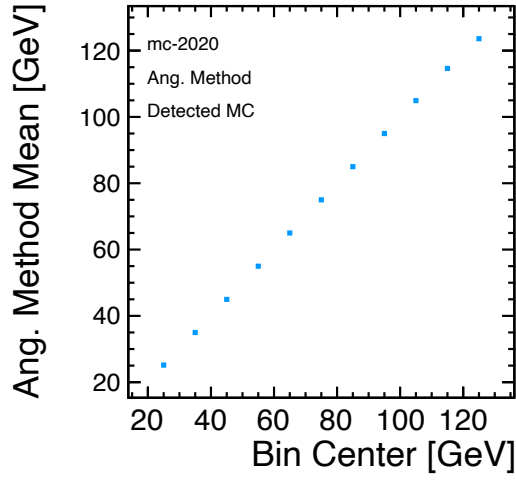
2.1.2.2. Energy dependence of Ang. Method using Detected-MC

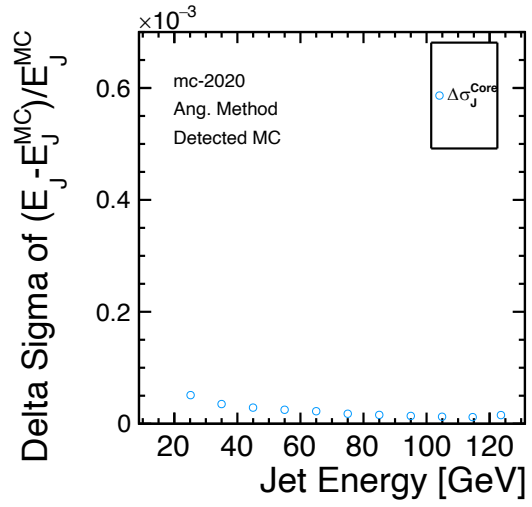
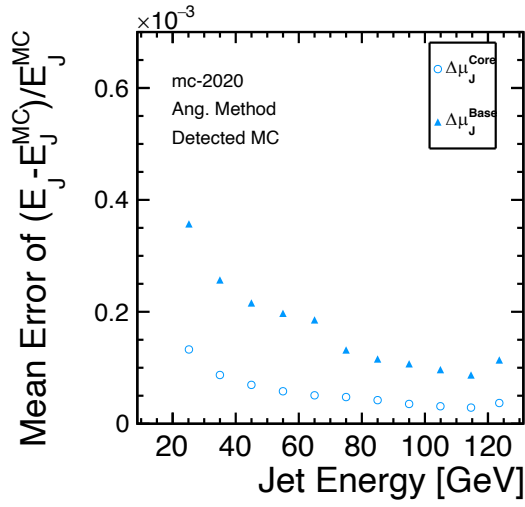
Raw distributions





Fitting parameters



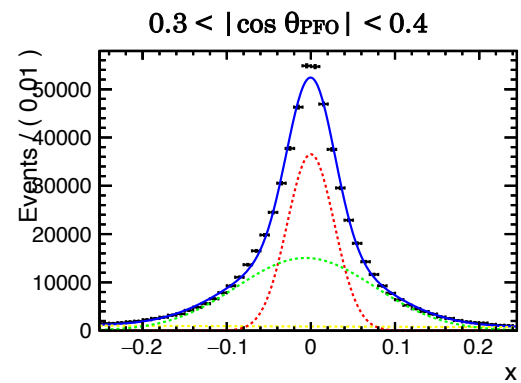
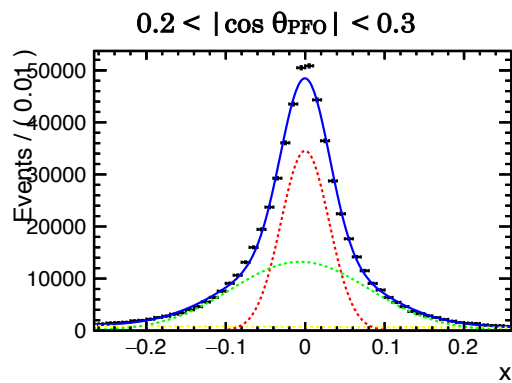
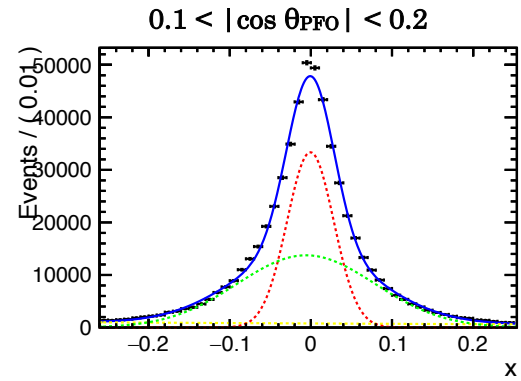
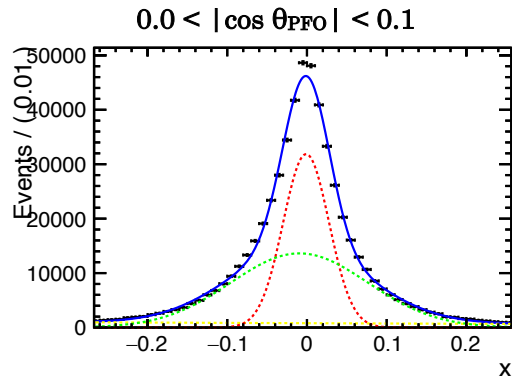


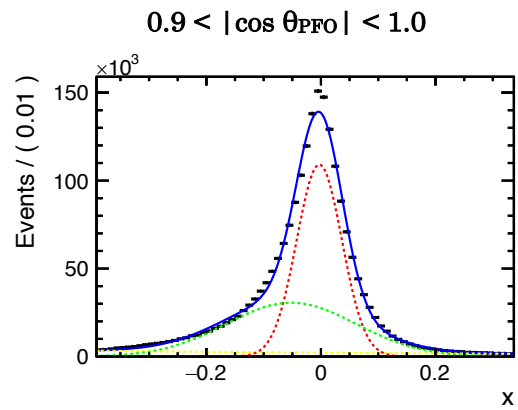
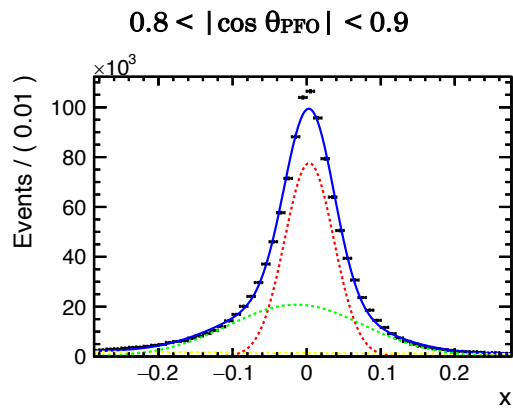
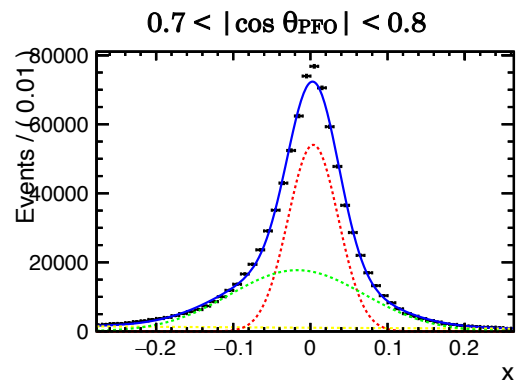
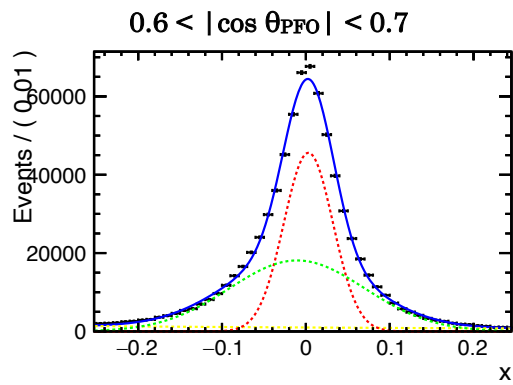
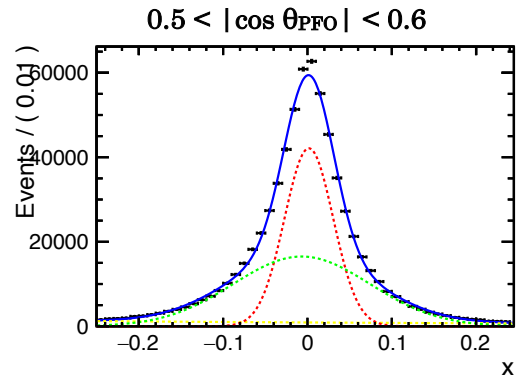
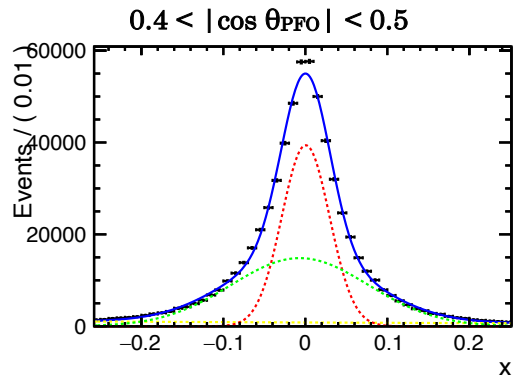
2.2. Theta dependence

2.2.1. Theta dependence using All-MC

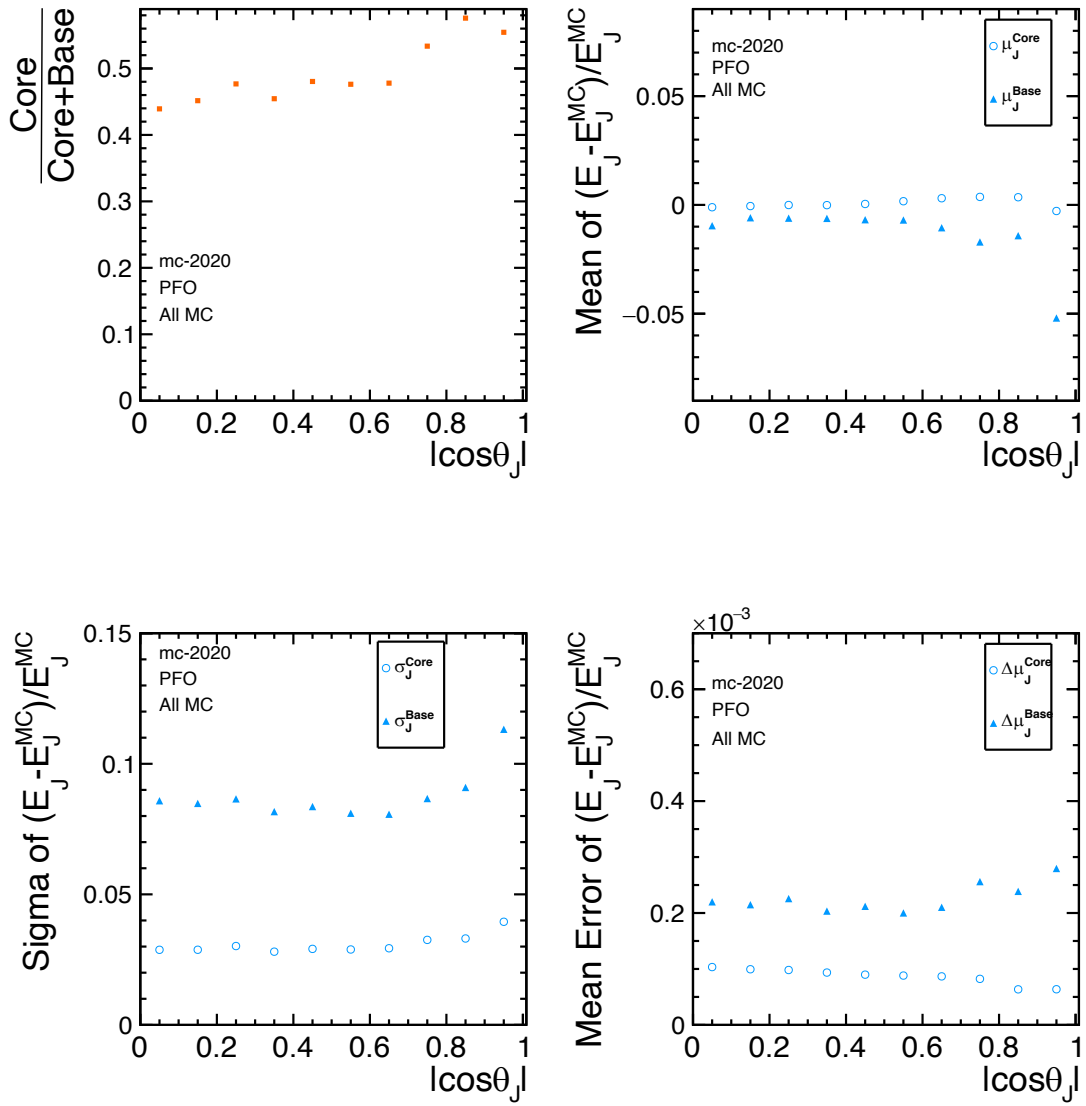
2.2.1.1. Theta dependence of PFO using All-MC

Raw distributions



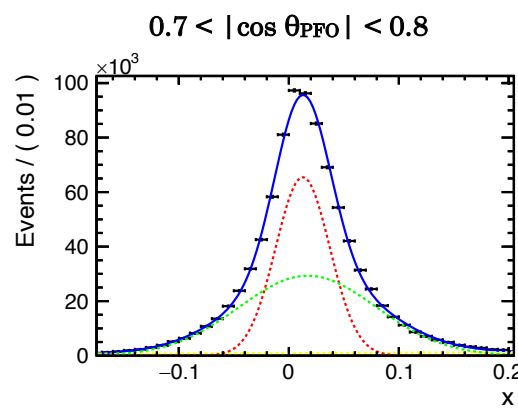
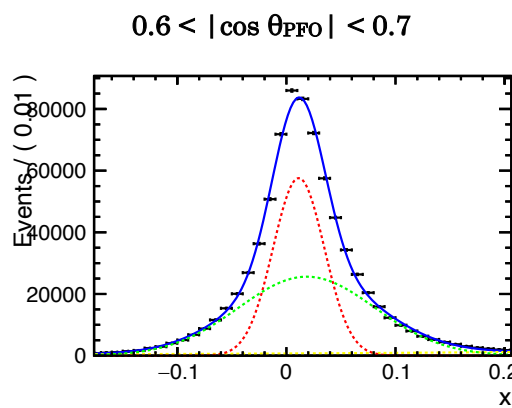
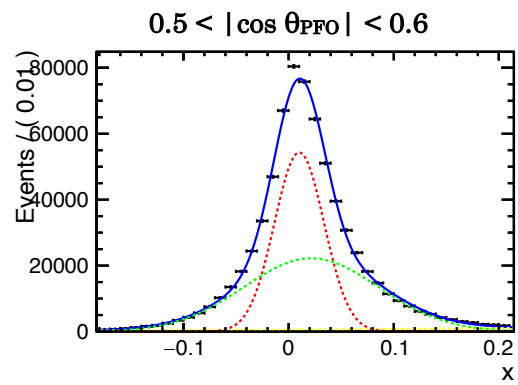
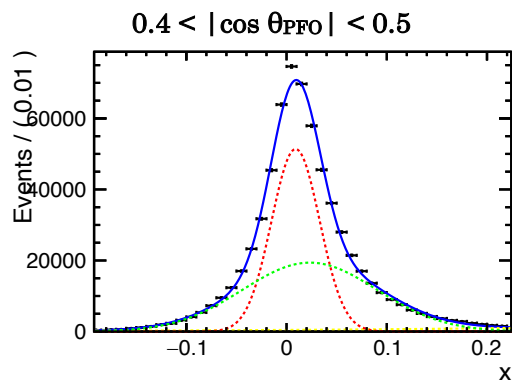
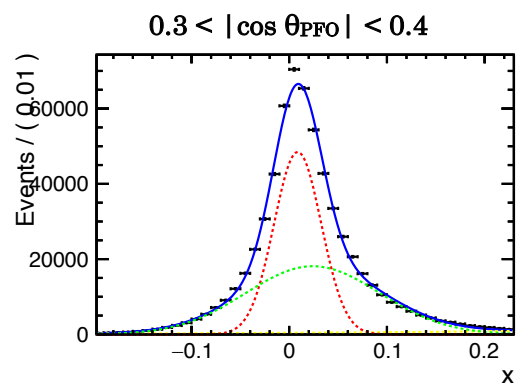
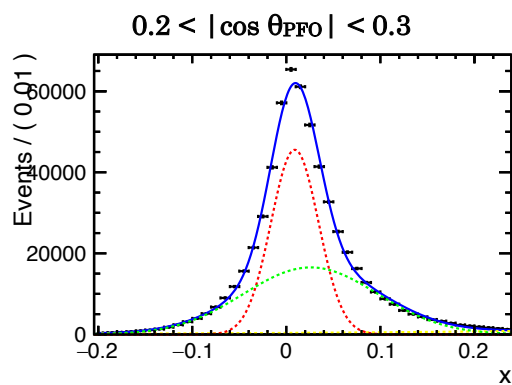
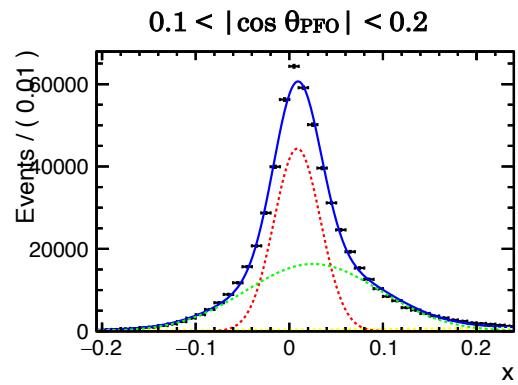
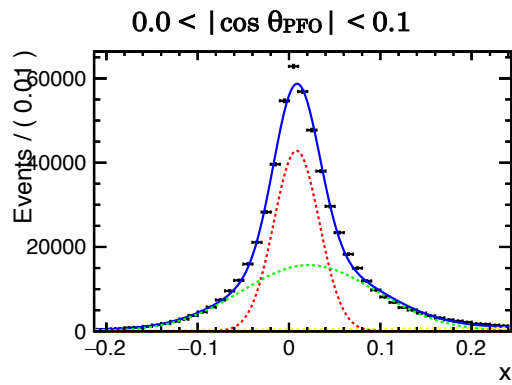


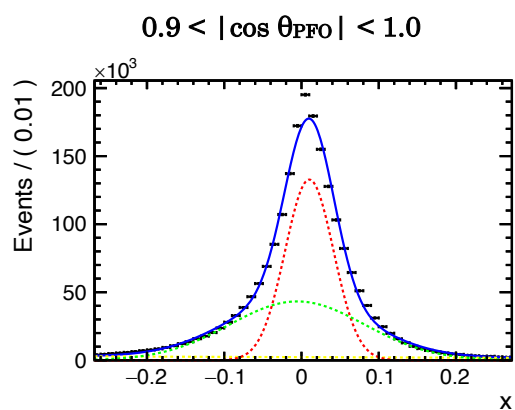
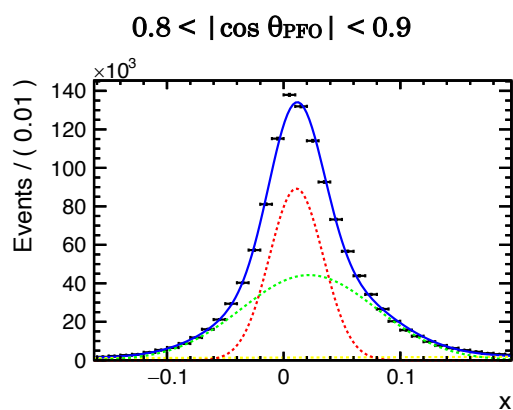
Fitting parameters



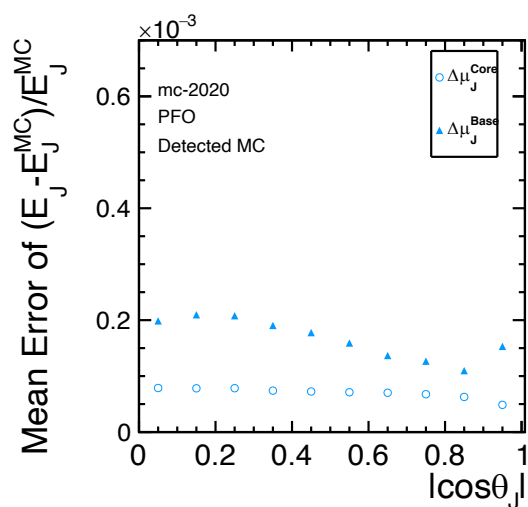
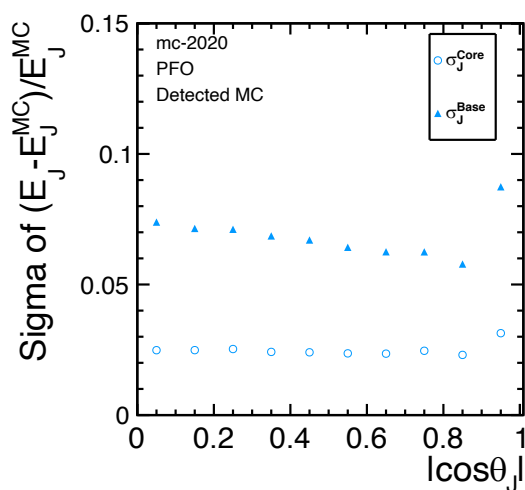
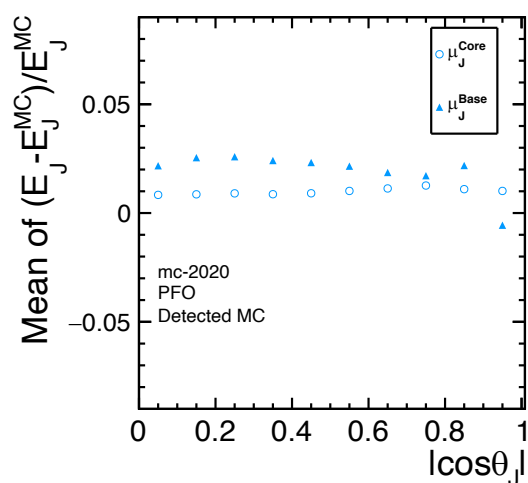
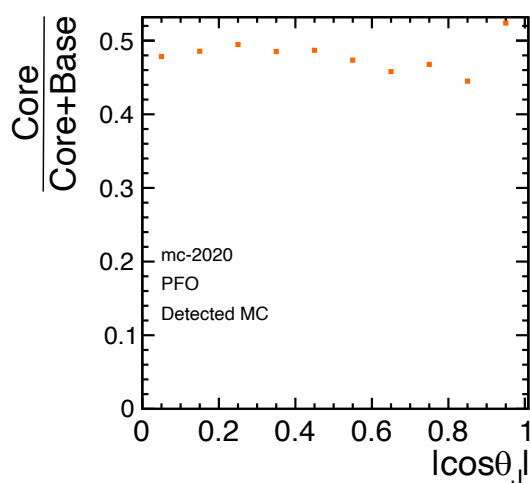
2.2.1.2. Theta dependence of Ang. Method using All-MC

Raw distributions





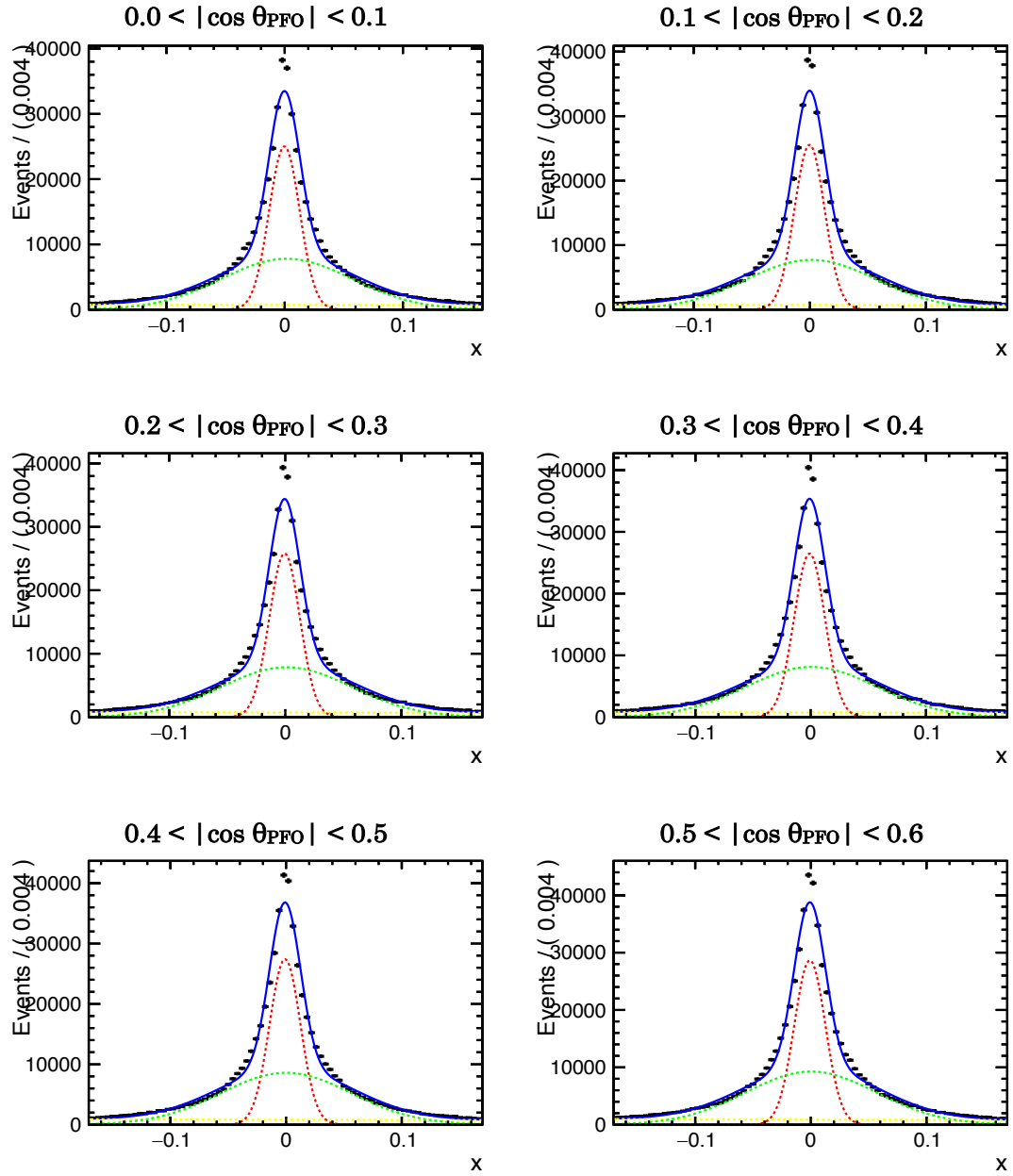
Fitting parameters

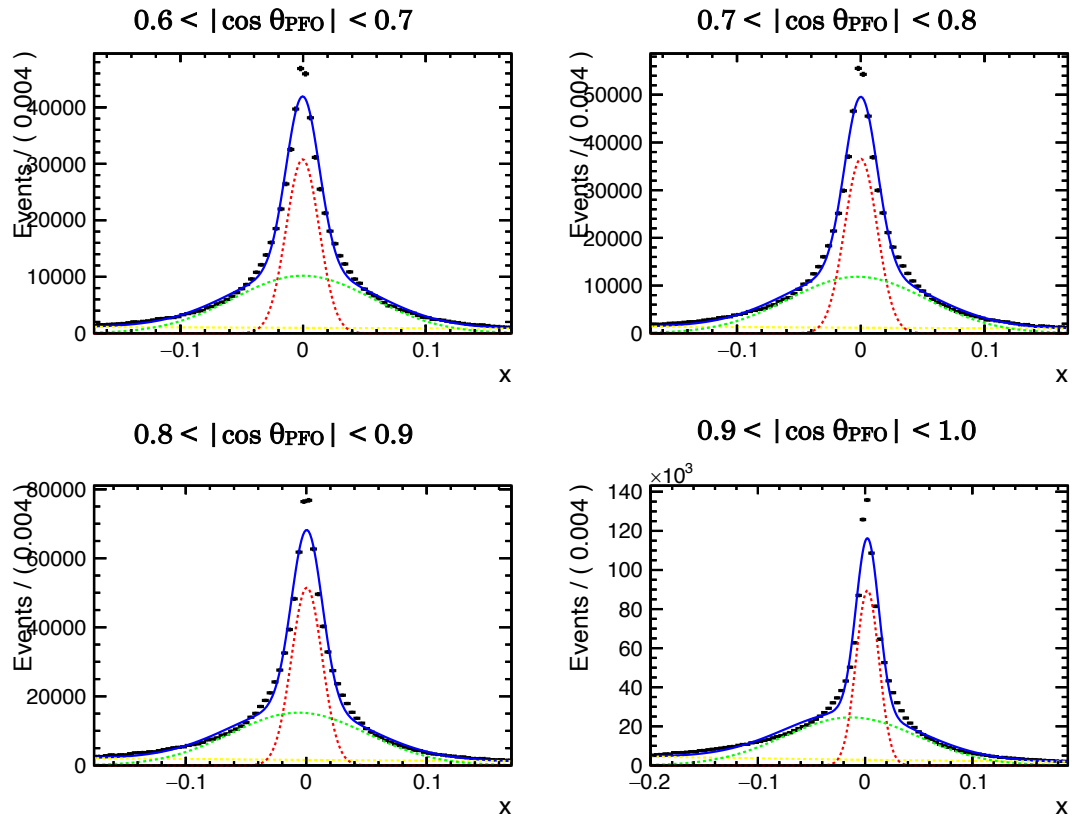


2.2.2. Theta dependence using Detected-MC

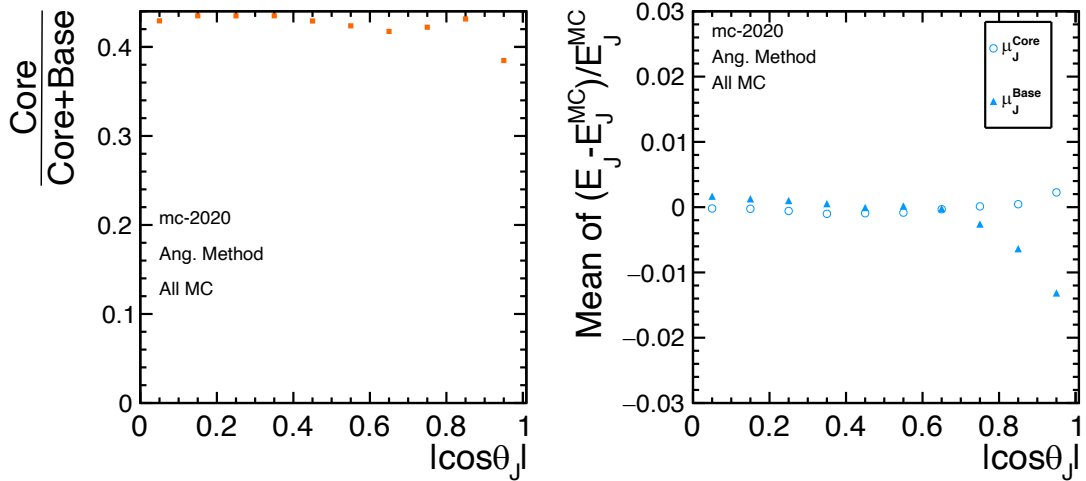
2.2.2.1. Theta dependence of PFO using Detected-MC

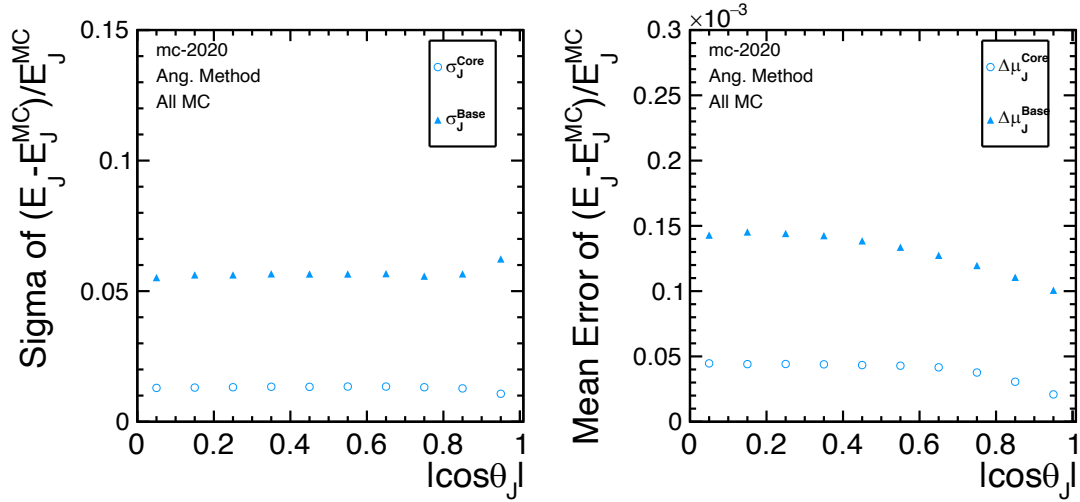
Raw distributions





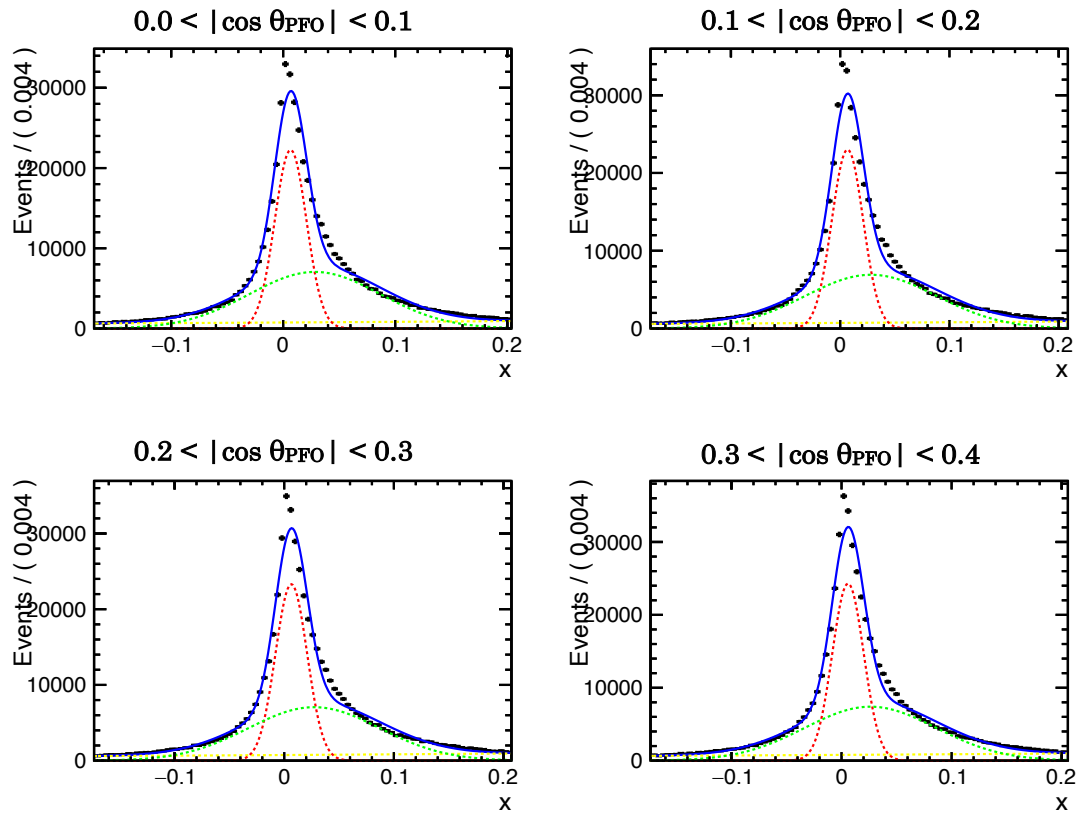
Fitting parameters



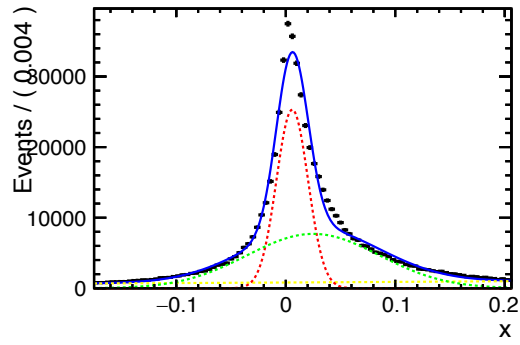


2.2.2.2. Theta dependence of Ang. Method using Detected-MC

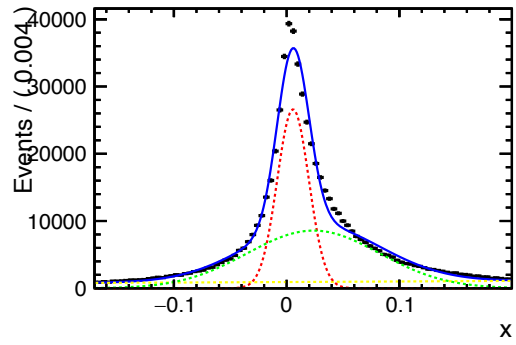
Raw distributions



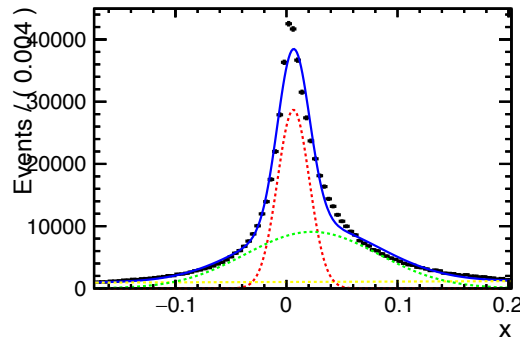
$0.4 < |\cos \theta_{\text{PFO}}| < 0.5$



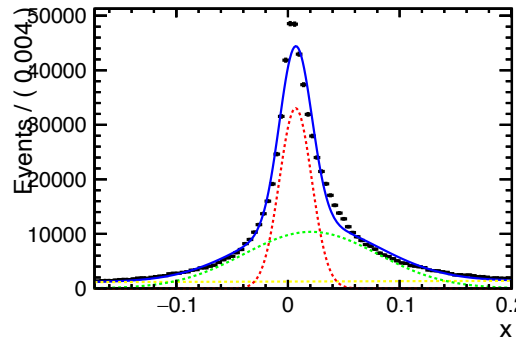
$0.5 < |\cos \theta_{\text{PFO}}| < 0.6$



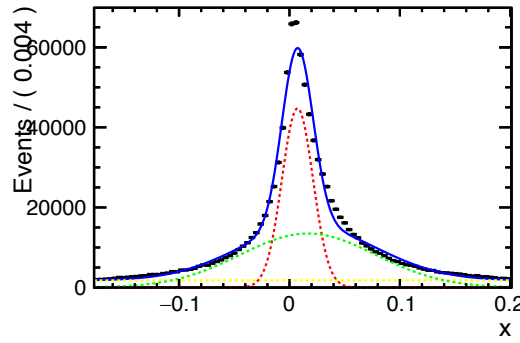
$0.6 < |\cos \theta_{\text{PFO}}| < 0.7$



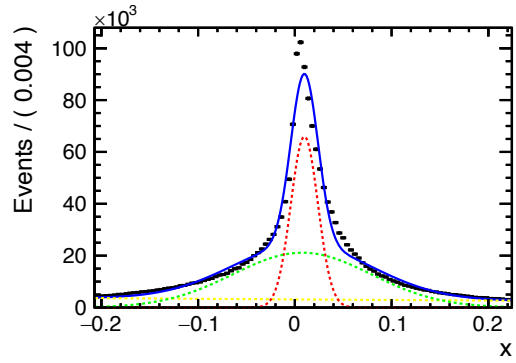
$0.7 < |\cos \theta_{\text{PFO}}| < 0.8$



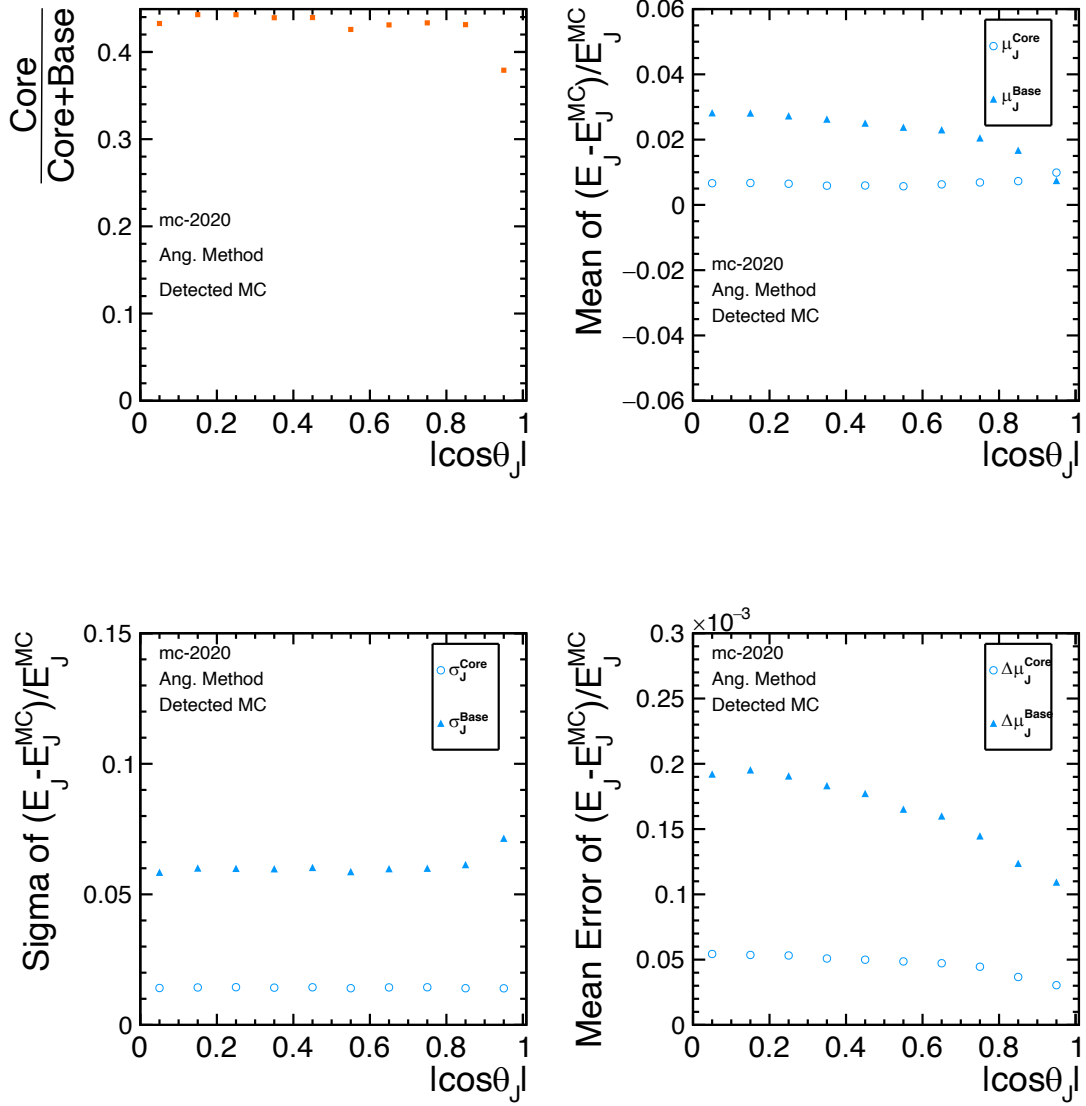
$0.8 < |\cos \theta_{\text{PFO}}| < 0.9$



$0.9 < |\cos \theta_{\text{PFO}}| < 1.0$



Fitting parameters

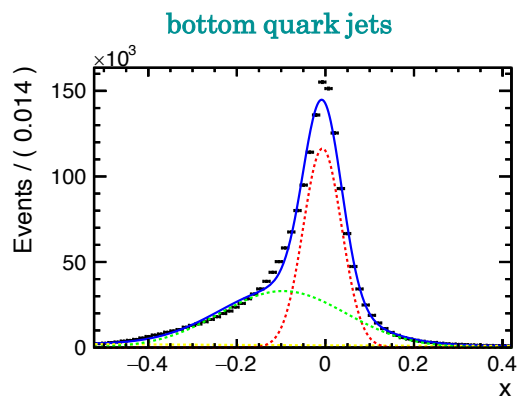
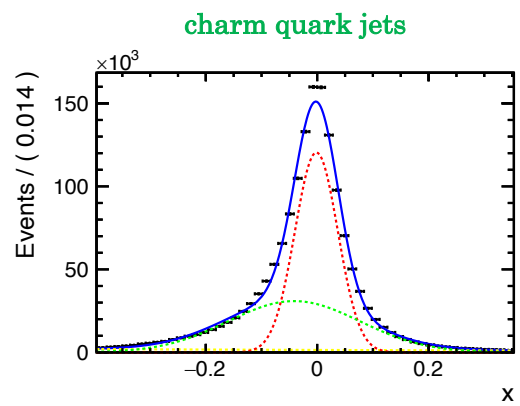
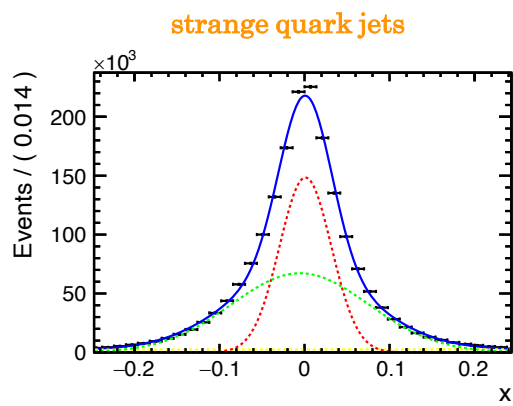
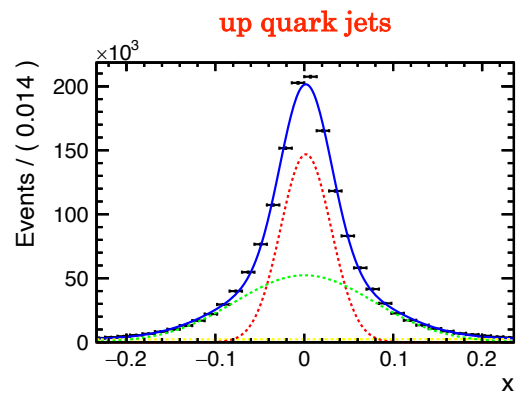
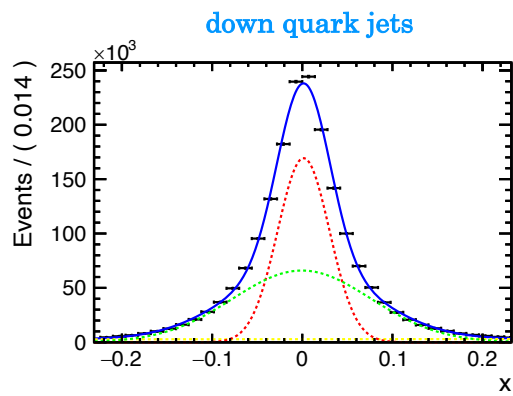


2.3. Flavor dependence

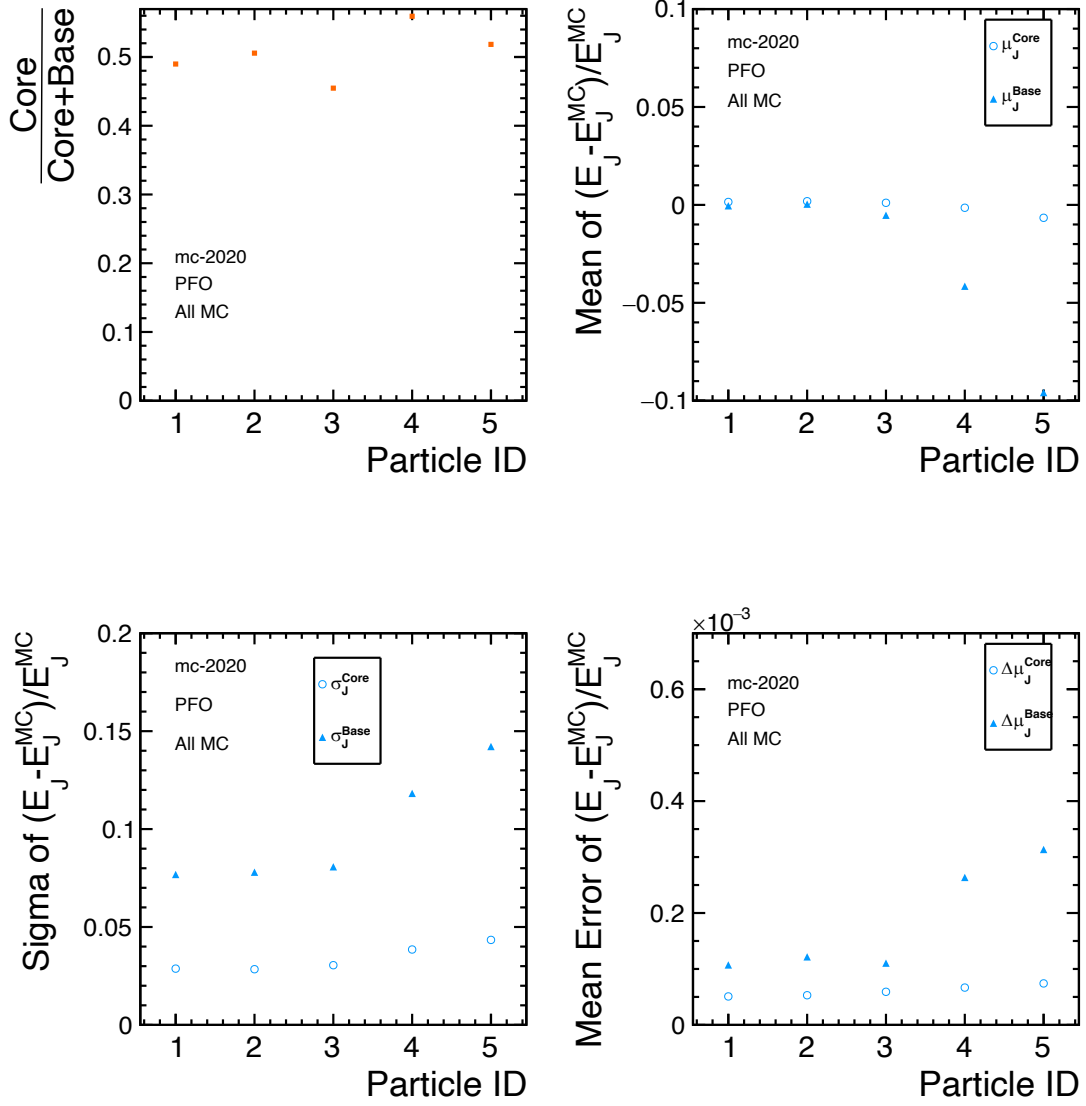
2.3.1. Flavor dependence using All-MC

2.3.1.1. Flavor dependence of PFO using All-MC

Raw distributions

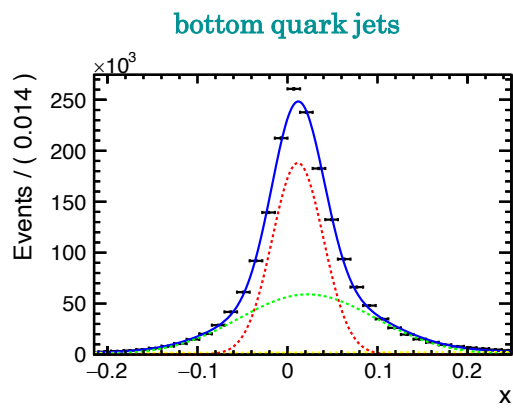
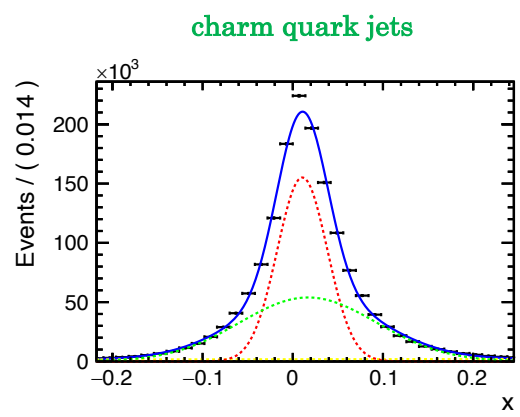
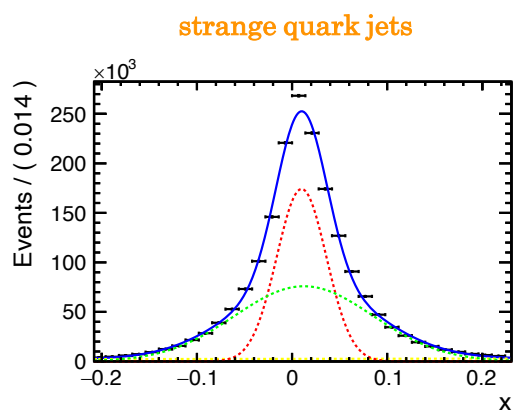
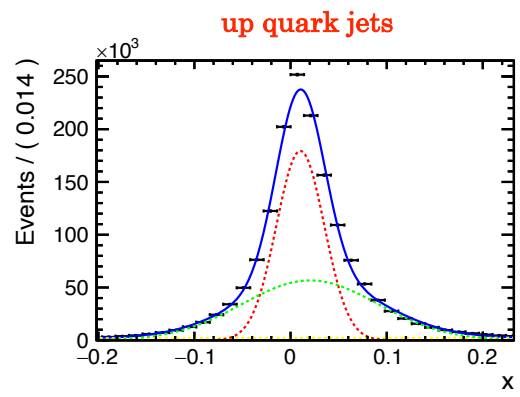
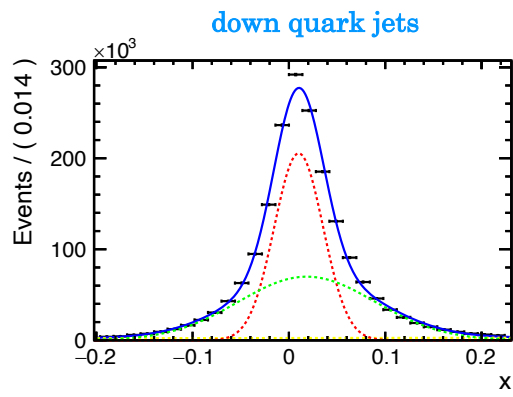


Fitting parameters

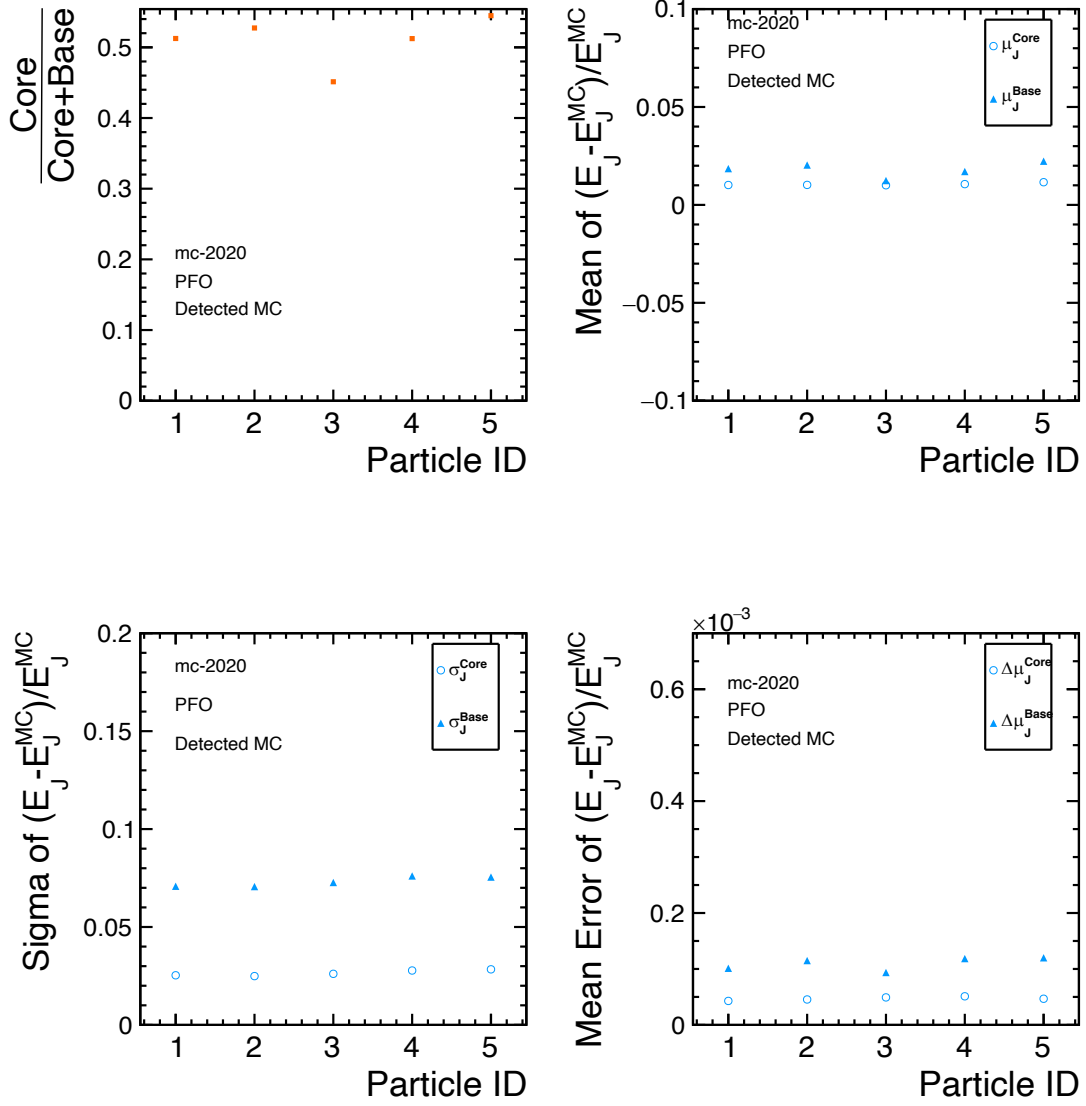


2.3.1.2. Flavor dependence of Ang. Method using All-MC

Raw distributions



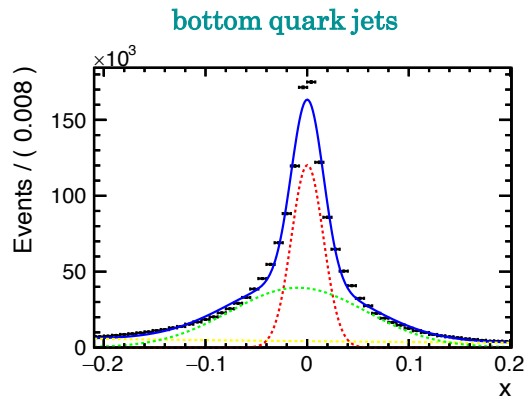
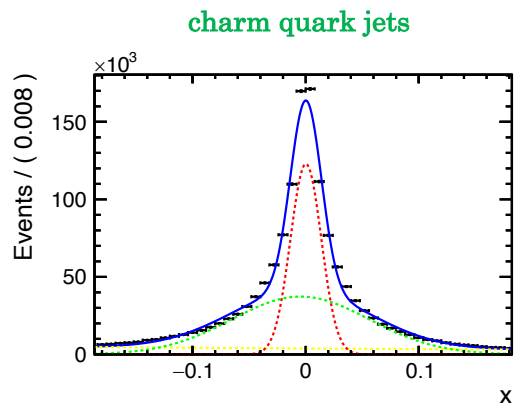
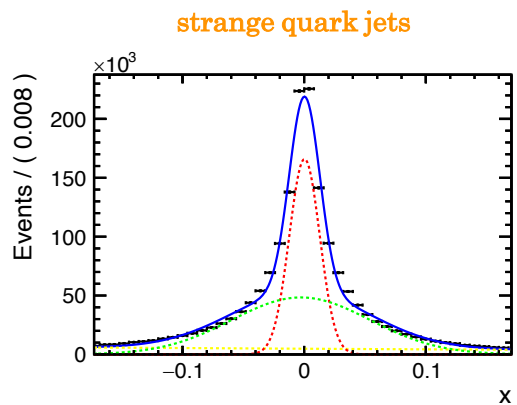
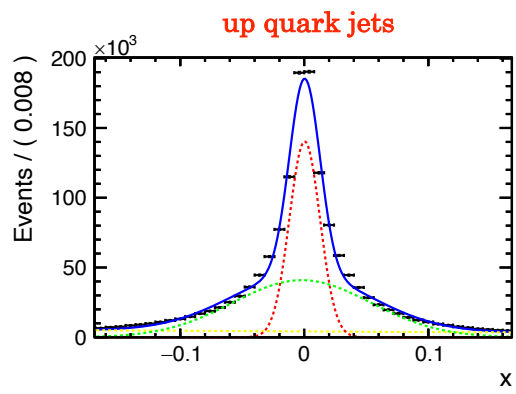
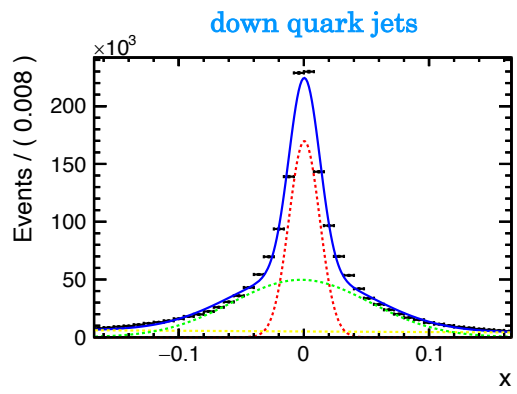
Fitting parameters



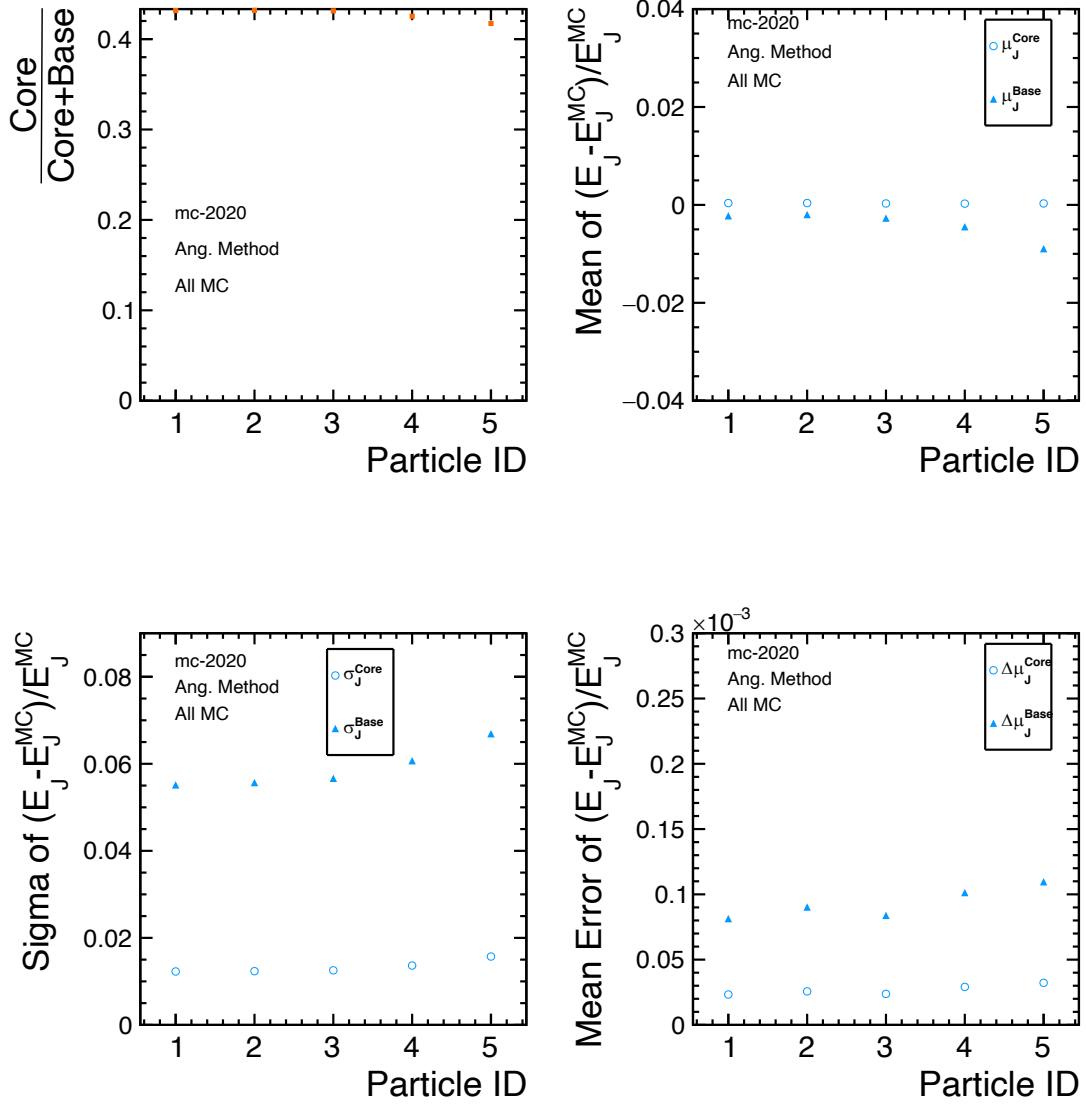
2.3.2. Flavor dependence using Detected-MC

2.3.2.1. Flavor dependence of PFO using Detected-MC

Raw distributions



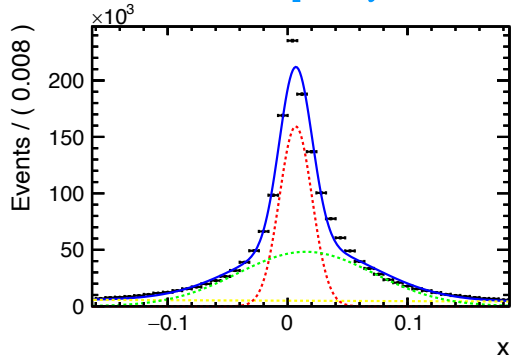
Fitting parameters



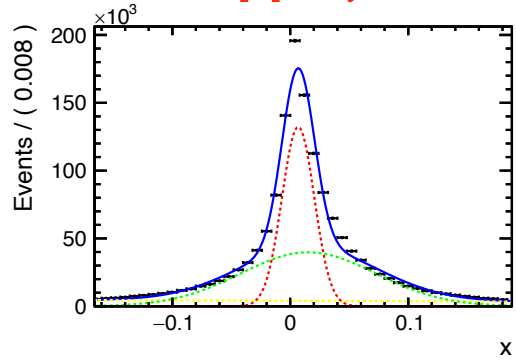
2.3.2.2. Flavor dependence of Ang. Method using Detected-MC

Raw distributions

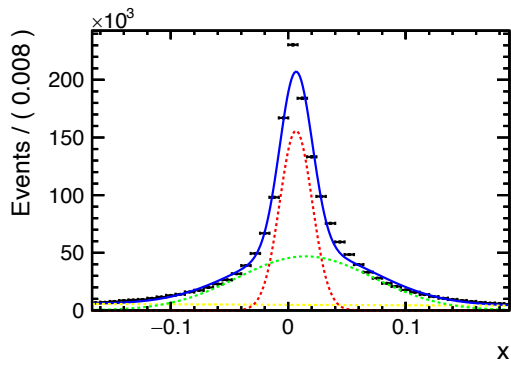
down quark jets



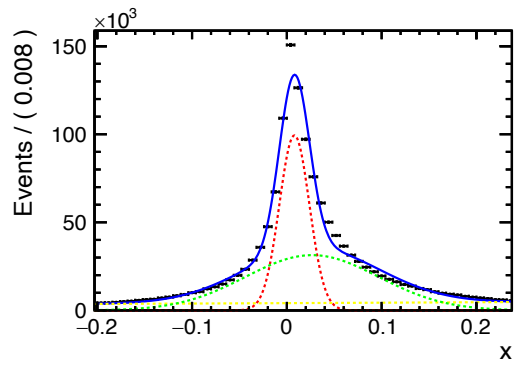
up quark jets



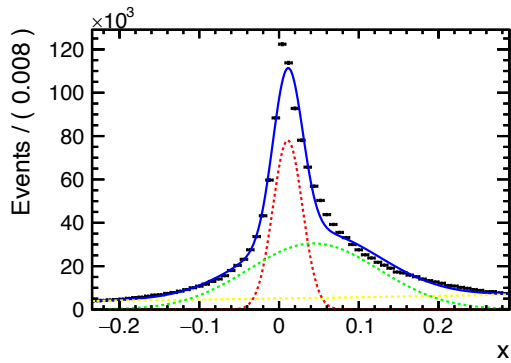
strange quark jets



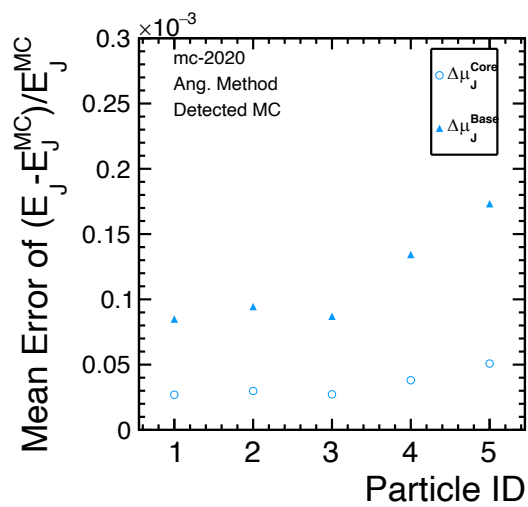
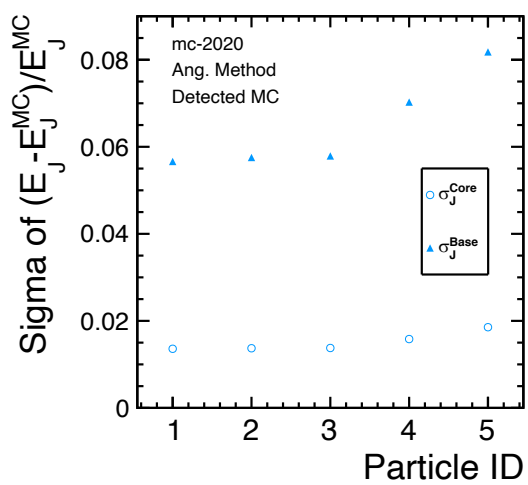
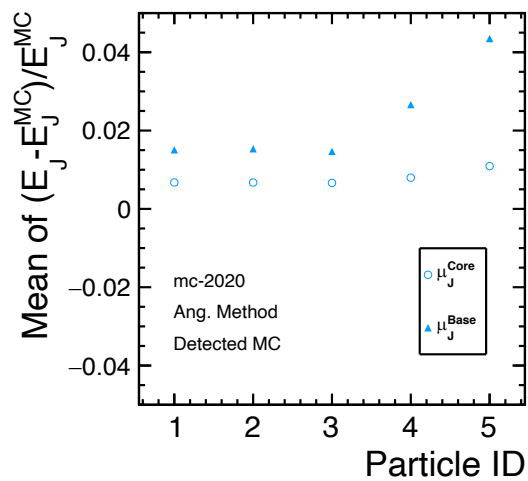
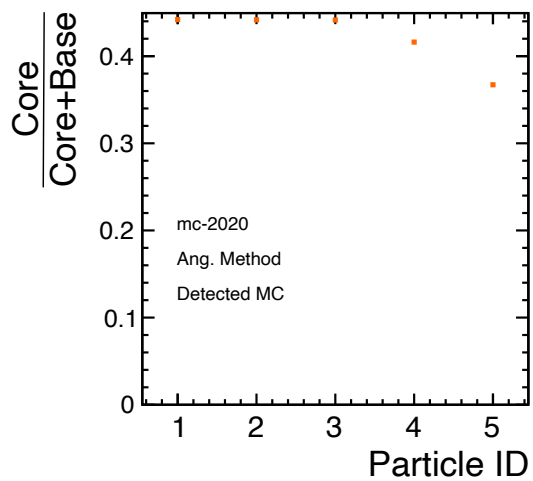
charm quark jets



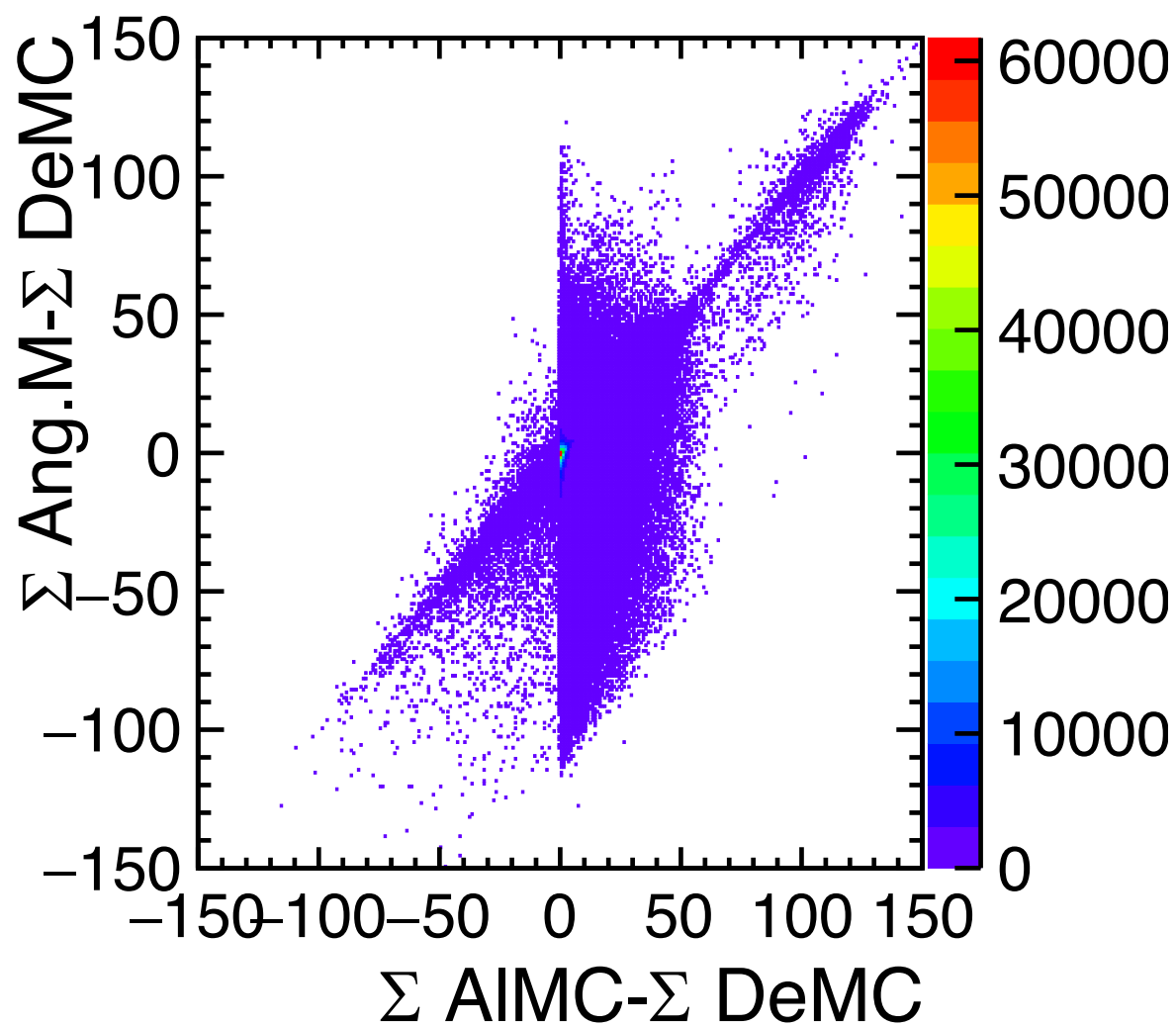
bottom quark jets



Fitting parameters



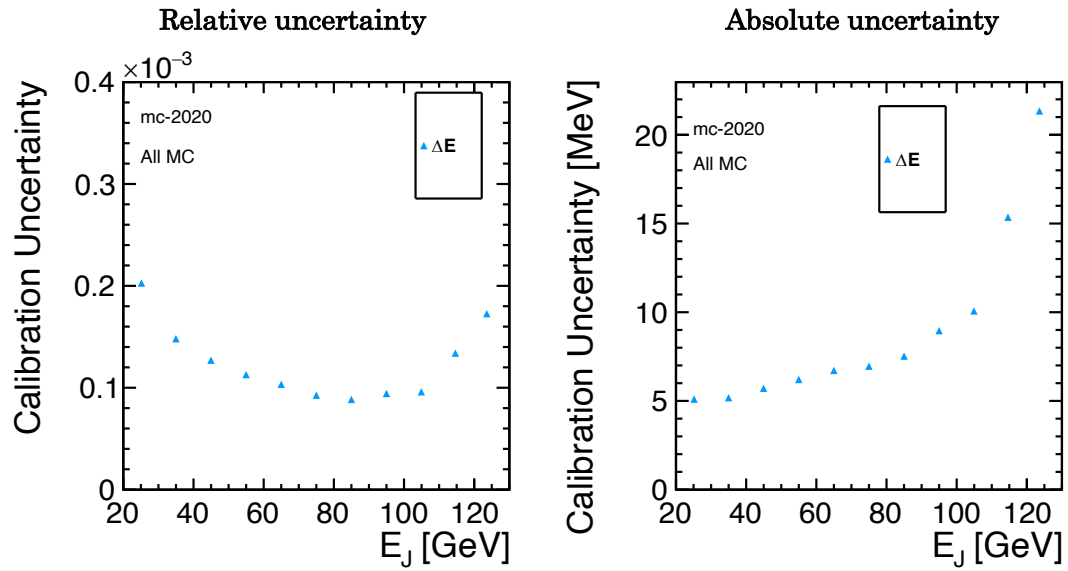
3. Missing Particles Recovery



4. Calibration Uncertainty

4.1. Calibration uncertainty using All-MC

Jet energy calibration uncertainty



4.2. Calibration uncertainty using Detected-MC

Jet energy calibration uncertainty

