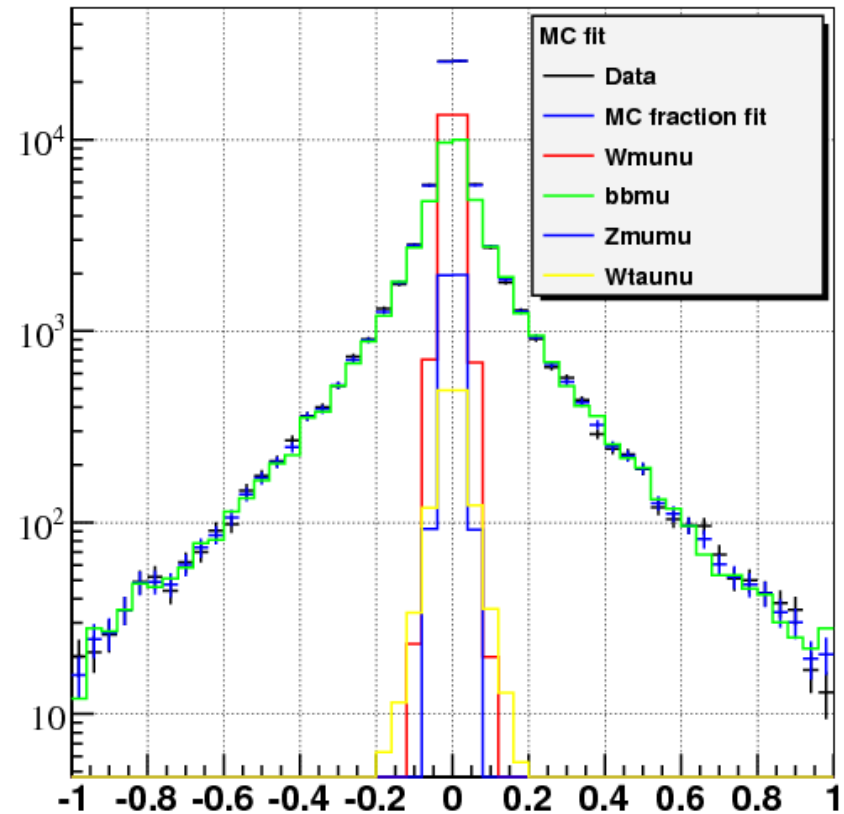
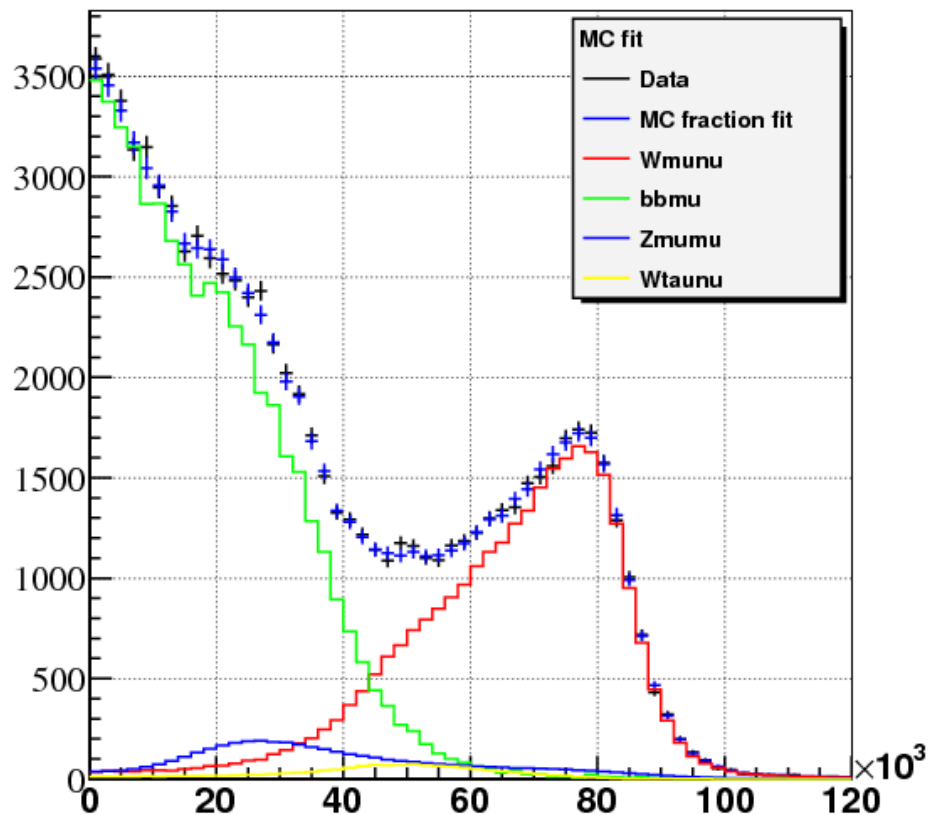


MC fit

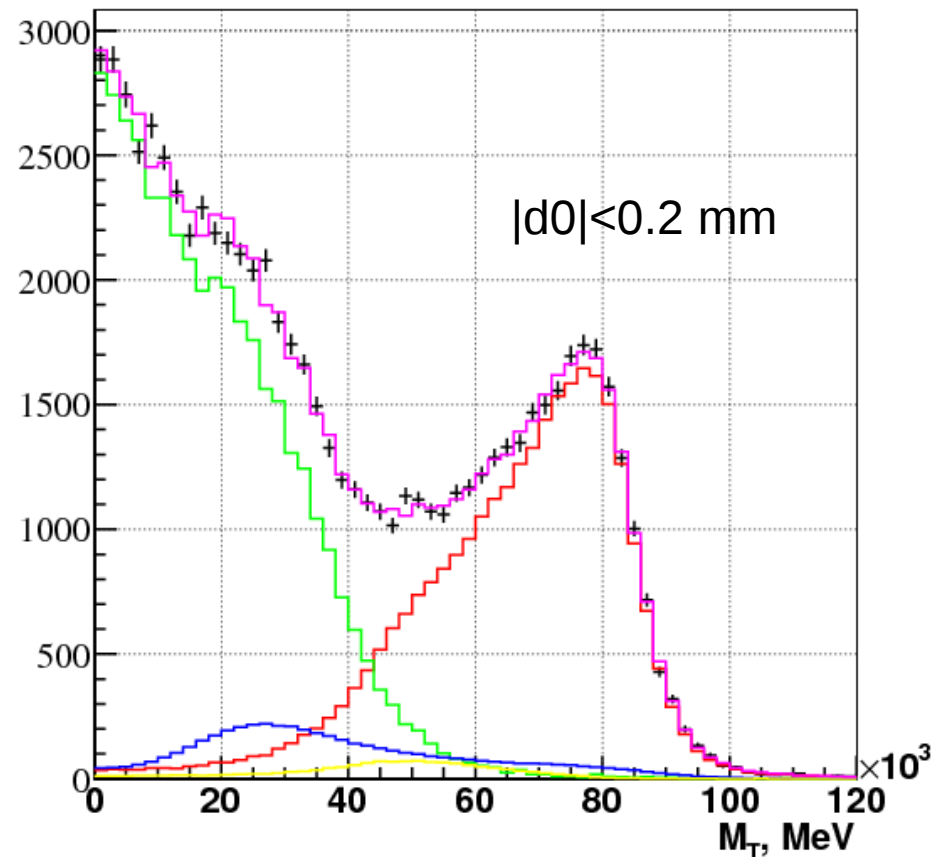
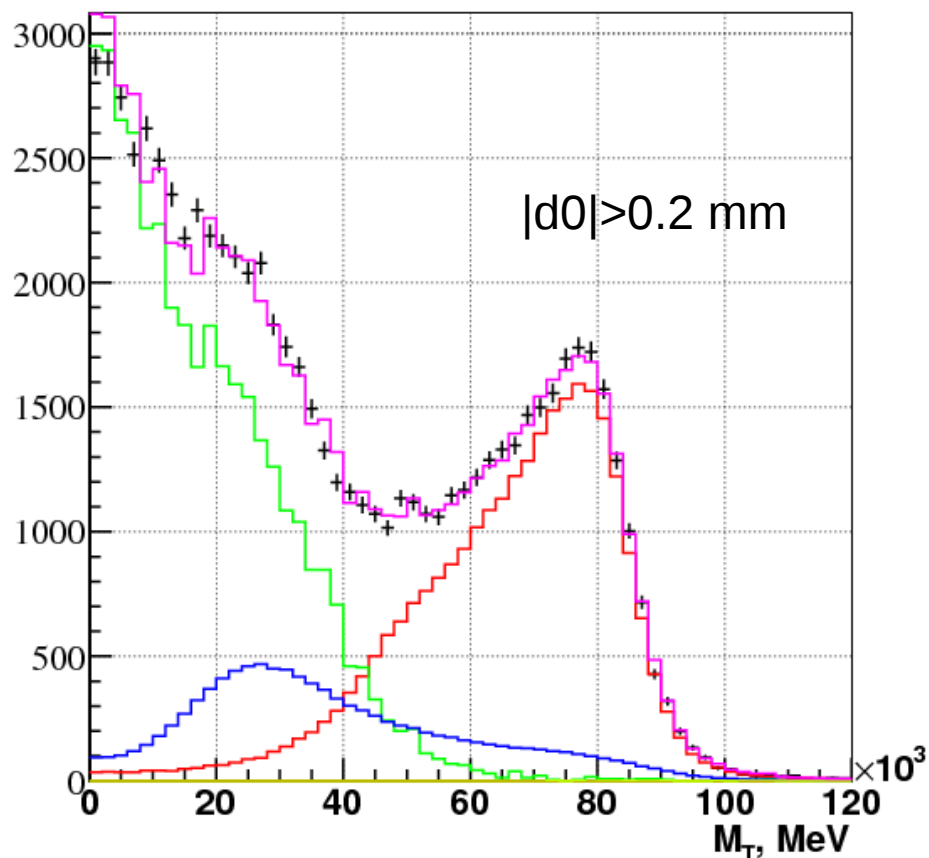


Bidimensional fit MT vs d0 with 4 major components”

“Data” corresponds to 5.6 pb⁻¹ (completely uncorrelated with MC shapes)

	Fit	True
1 Wmunu	3.41e-01+/-3.0e-03	0.344
2 bbmu	5.92e-01+/-4.5e-03	0.593
3 Zmumu	4.94e-02+/-4.4e-03	0.046
4 Wtaunu	1.61e-02+/-3.6e-03	0.015

MC fit sideband



1d fit MT with 4 major components using side band $|d0| > 0.2 \text{ mm}$ for bbmu
 “Data” corresponds to 5.6 pb⁻¹ (completely uncorrelated with MC shapes)

	Fit($ d0 > 0.2$)	Fit($ d0 < 0.2$)	True
1 Wmunu	3.65e-01+-4e-03	3.78e-01+-4e-03	0.384
2 bbmu	4.98e-01+-9e-03	5.40e-01+-6e-03	0.547
3 Zmumu	1.35e-01+-1e-02	6.38e-02+-1e-02	0.052
4 Wtaunu	6.02e-08+-8e-03	1.79e-02+-6e-03	0.017

Difference can be corrected in DATA using correction from MC $MT(|d0| > 0.2)/MT(|d0| < 0.2)$

ETMiss studies

$$P_{MissTot}^{L,T} = P_{CellOut}^{L,T} + P_{Cryo}^{L,T} + P_{Muon}^{L,T} + P_{Jet}^{L,T} + P_{Ele}^{L,T} + P_{Gamma}^{L,T} + P_{Tau}^{L,T}$$

Longitudinal component of P is different from 0 for Z->mumu process due to miscalibration of CellOut component. Try to fix it by varying scale and shift of the CellOut component in Z->mumu process.

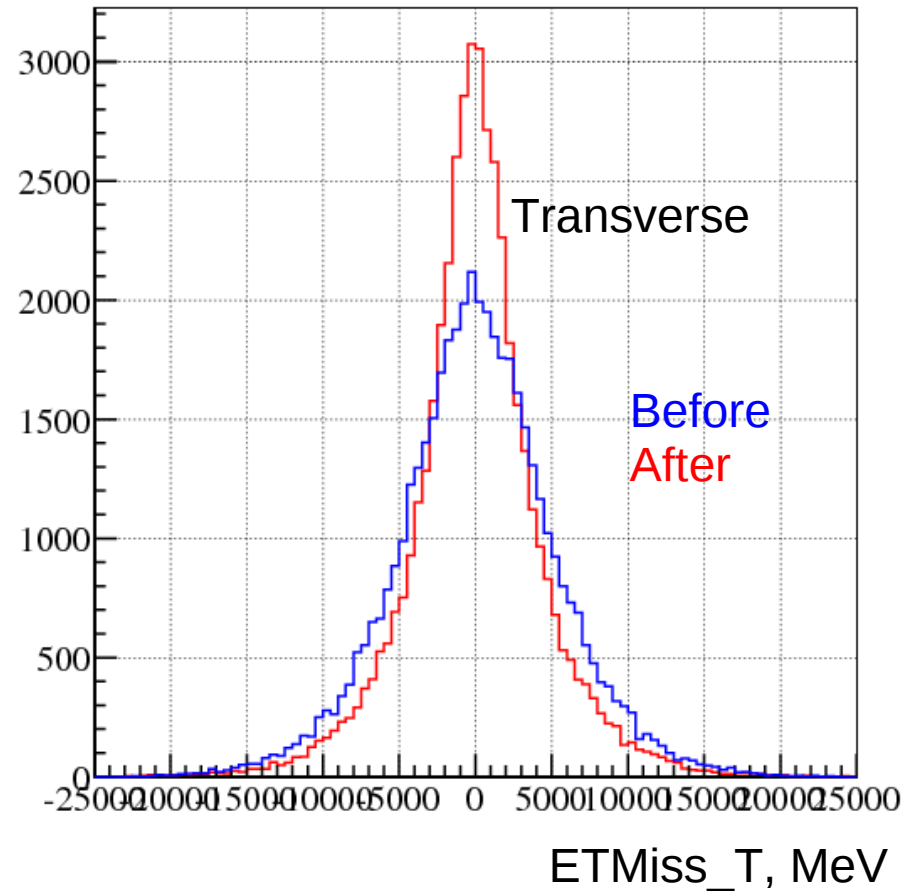
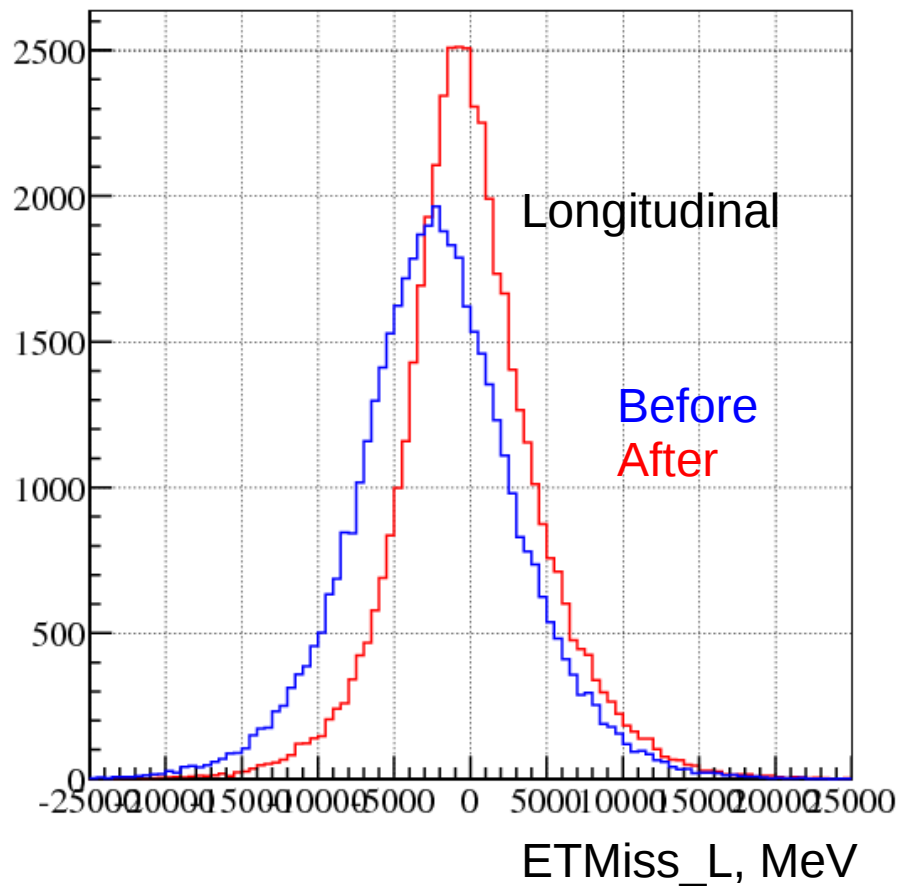
$$P_{Calib}^L = C_0(P_T^Z)(P_{CellOut}^L + C_1(P_T^Z)) + P_{Cryo}^L + P_{Muon}^L + P_{Jet}^L + P_{Ele}^L + P_{Gamma}^L + P_{Tau}^L$$

$$P_{Calib}^T = C_2(P_T^Z)P_{CellOut}^T + P_{Cryo}^T + P_{Muon}^T + P_{Jet}^T + P_{Ele}^T + P_{Gamma}^T + P_{Tau}^T$$

$$\chi^2 = \sum (P_{Calib}^T)^2 + (P_{Calib}^L)^2$$

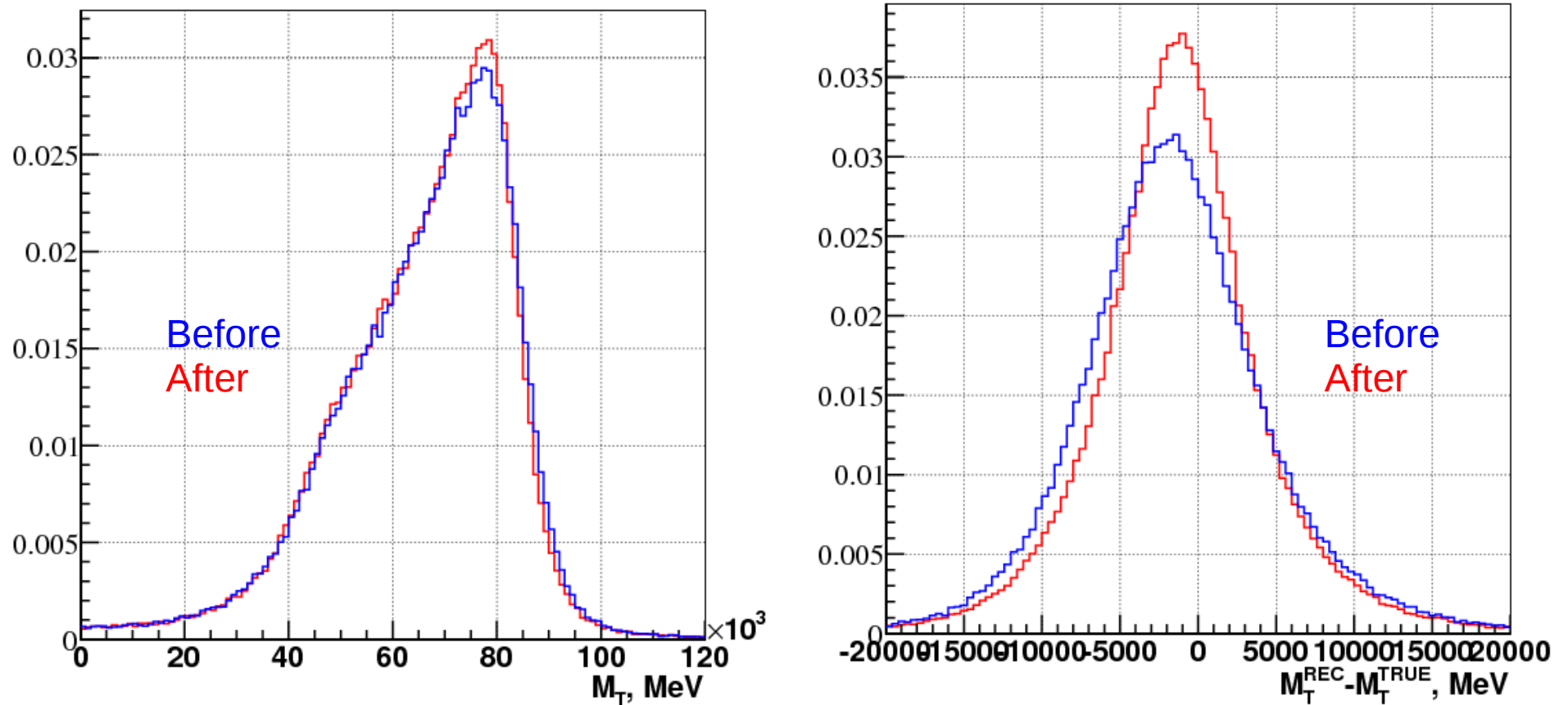
Minimizing chi2 function in each 5 GeV bin of transverse momentum of Z-boson

Calibration



$$10 \text{ GeV}/c < P_z^T < 15 \text{ GeV}/c$$

W affect



Further improvements may base on number of jets and CellOut amount