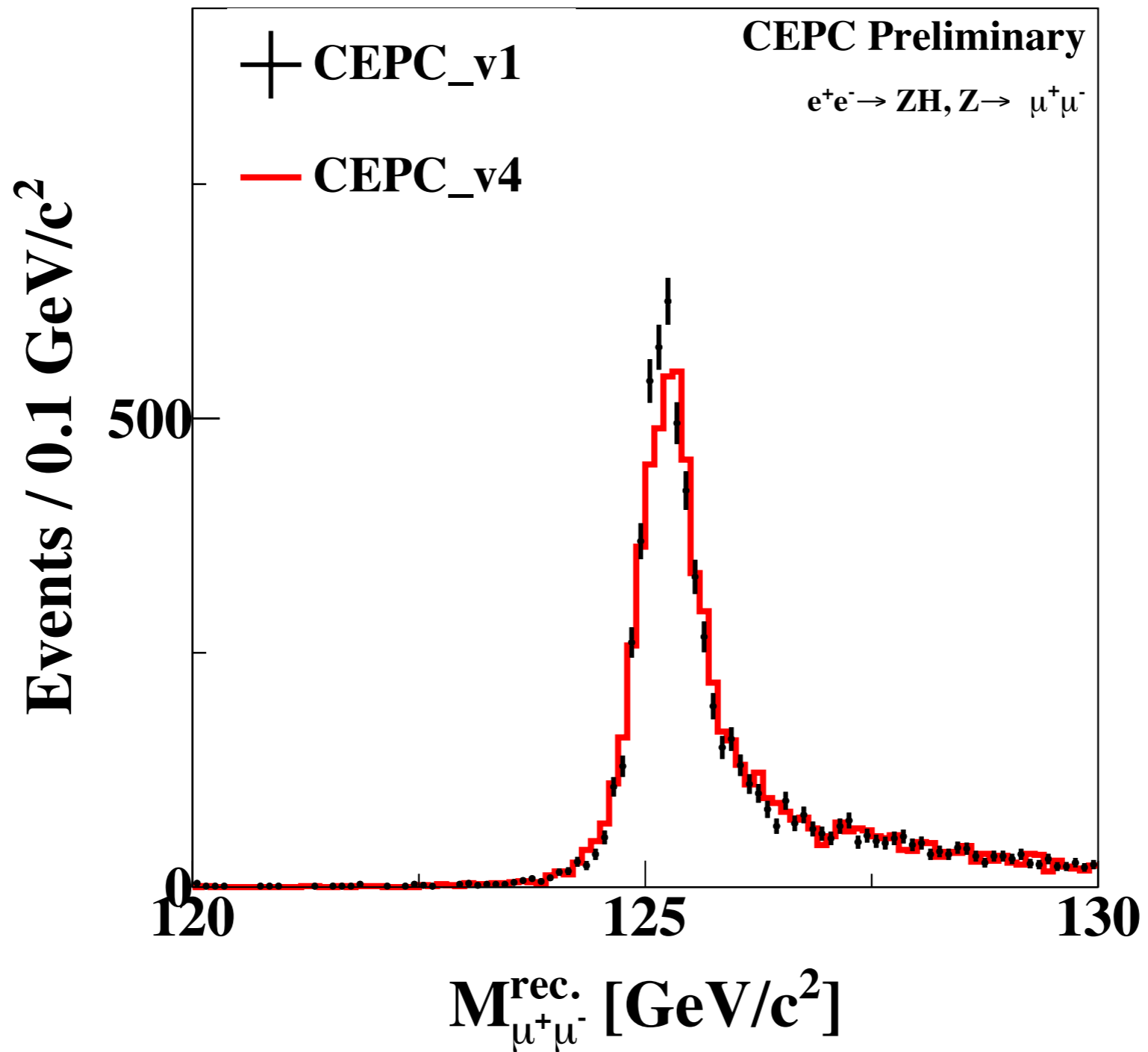


Physics and simulation

Gang LI

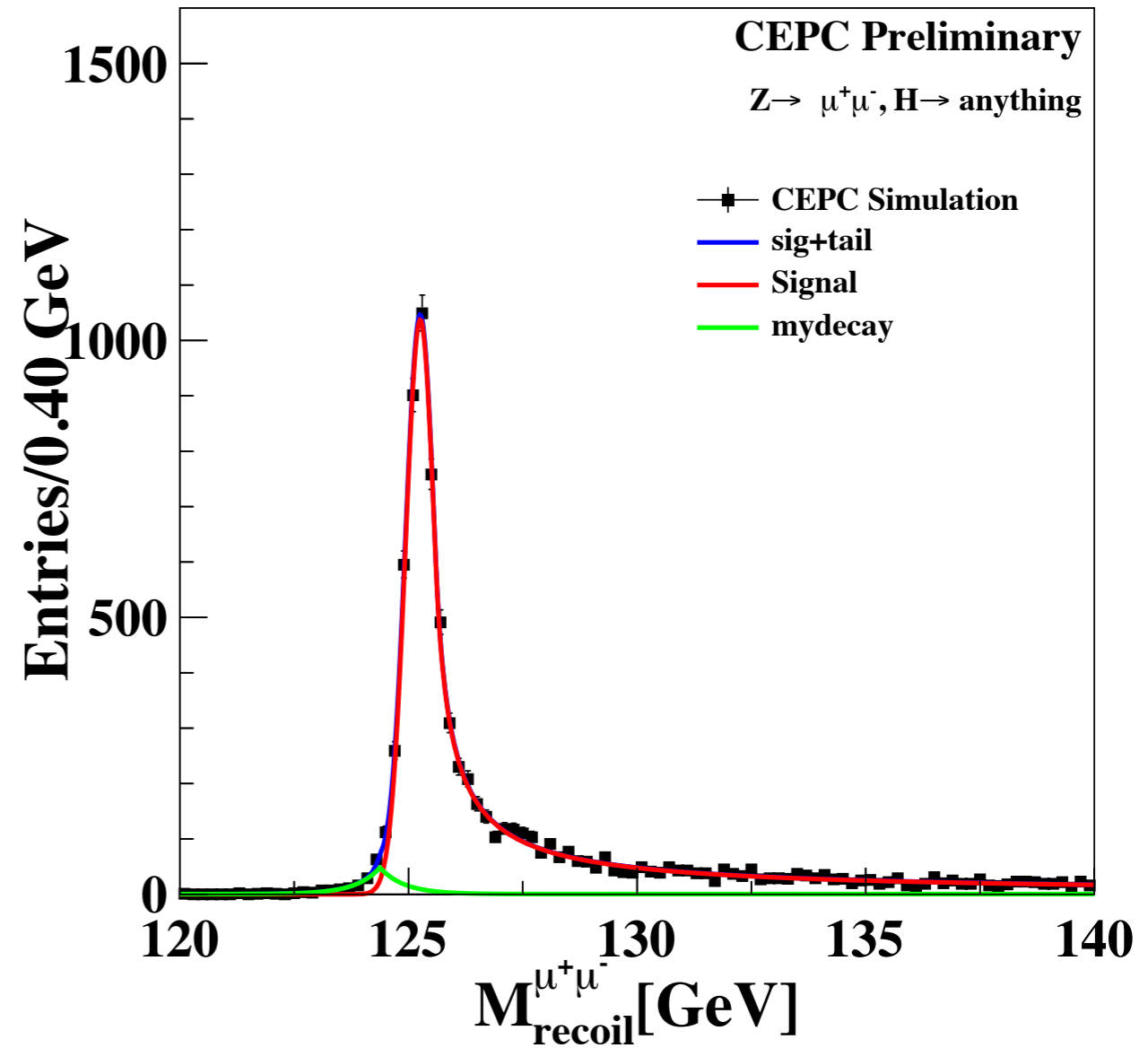
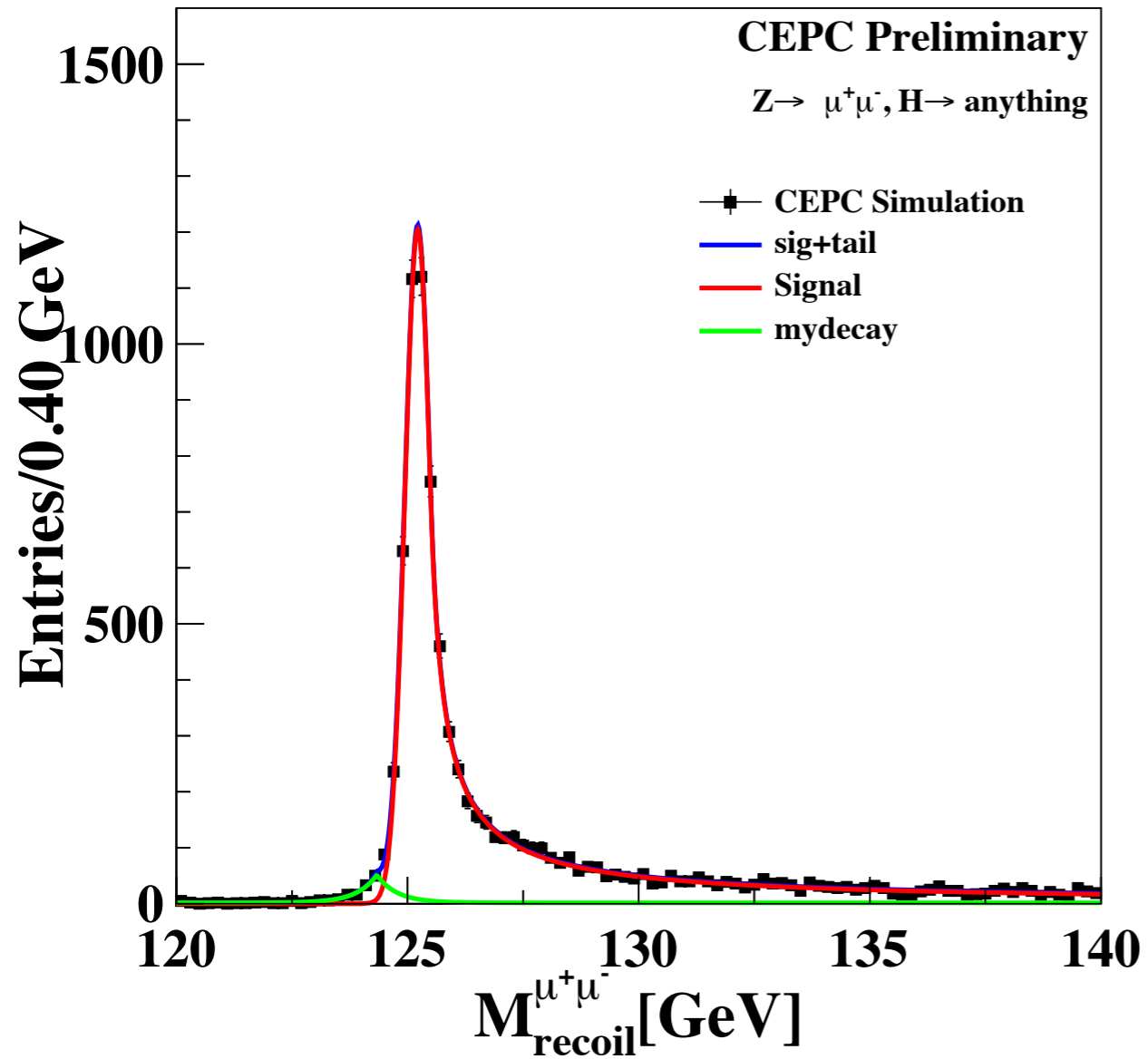
4 bench marks

- ZH, Z- \rightarrow mu+mu- (Gang)
- Higgs \rightarrow mu+mu- (Zhenwei, Kaili, Haifeng)
- Higgs \rightarrow WW/ZZ (Shih-Chieh and Yanping take over)
- Higgs \rightarrow invisible (Xin Mo left, Xin Shi take over)



~10k events each

Eff. :94.4%, 90.8% for v1 and v4



With BaiYu's model
 Resolutions (sigma parameter)
 $v1:v4 = 279 : 324$ (MeV), indicates 14% difference

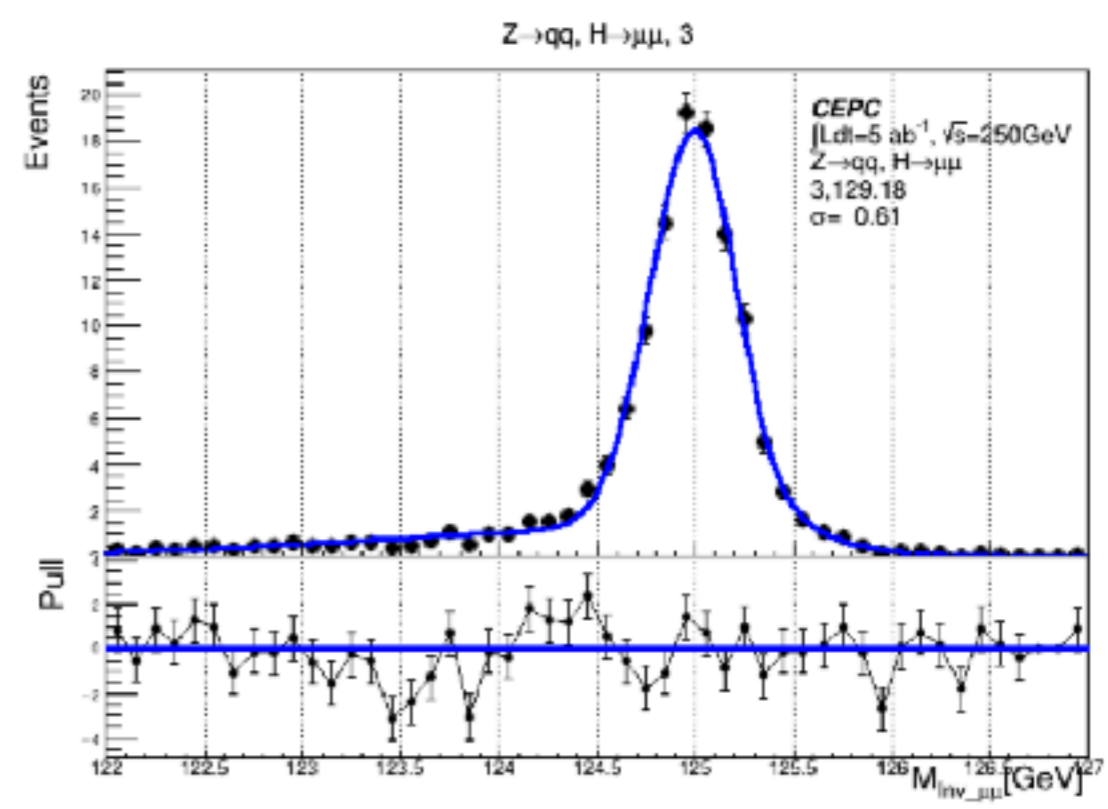
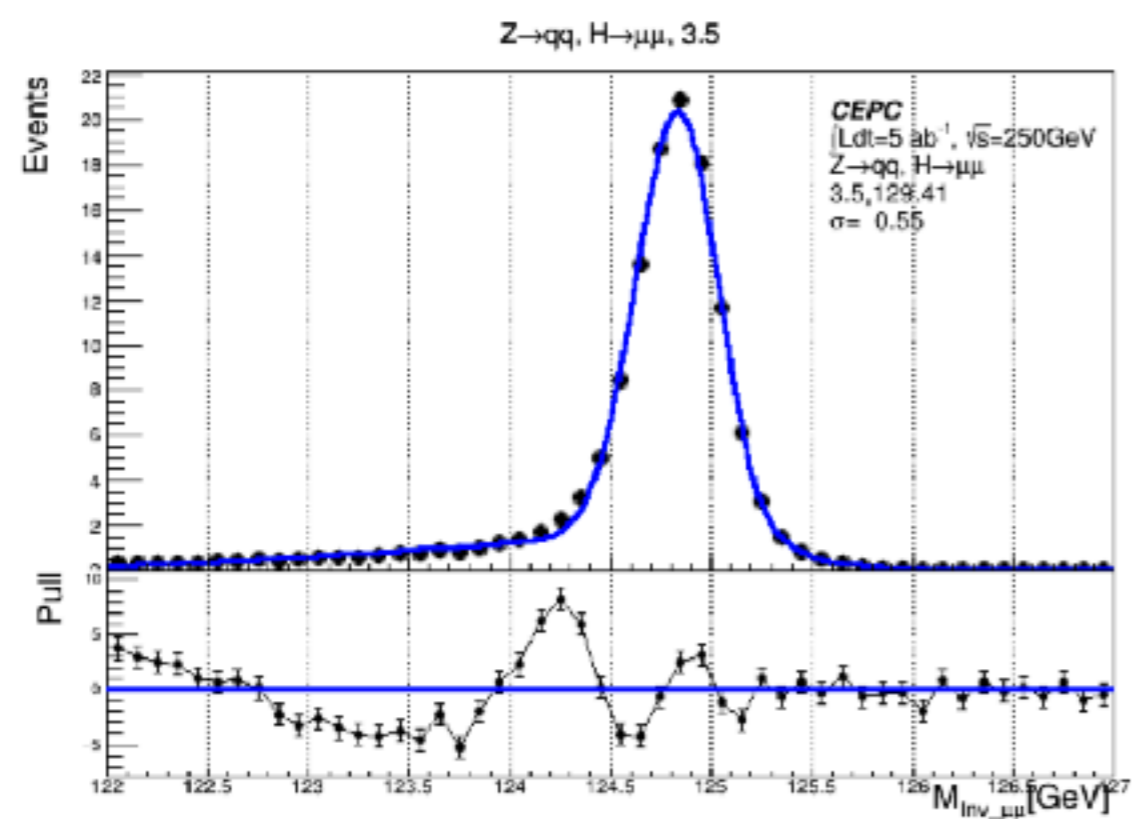
H mass



Use crystal ball+ bifurcated Gaussian to fit:
Mass shift: 0.16;
Resolution: 10.8%

80% $\sigma = 0.21$ Crystal Ball
+20% $\sigma_L = 1.4, \sigma_R = 0.15$ bifurcated Gaussian

80% $\sigma = 0.23$ Crystal Ball
+20% $\sigma_L = 1.5, \sigma_R = 0.15$ bifurcated Gaussian



Higgs Mass: 124.84;

Higgs Mass: 125.00;

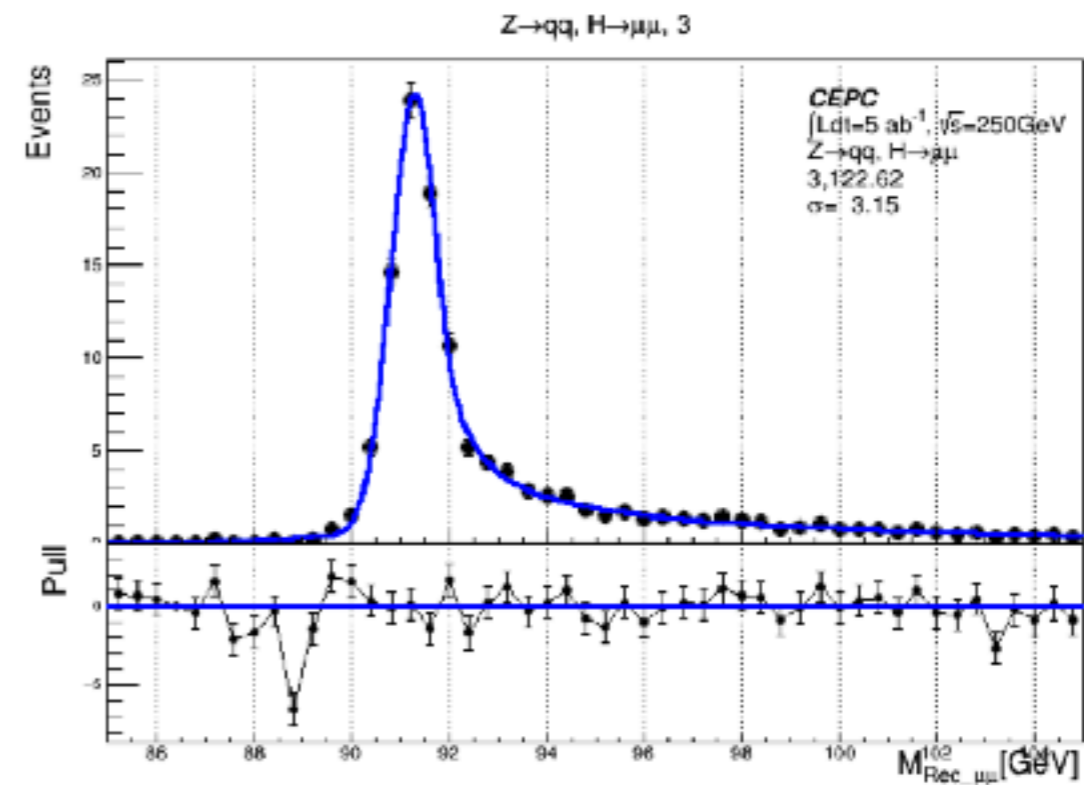
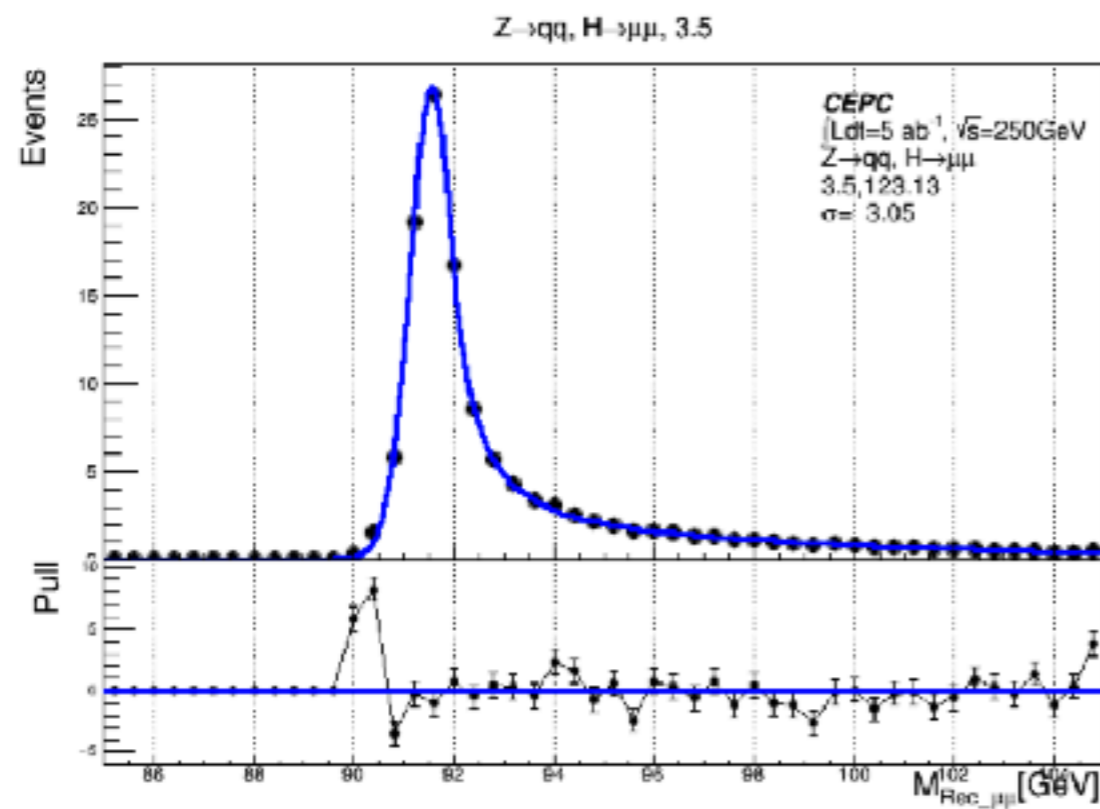
Z mass



Use crystal ball+ bifurcated Gaussian to fit:
Mass shift: 0.27
Resolution: 14.0%

82% $\sigma = 0.43$ Crystal Ball
+18% $\sigma_L = 0.79, \sigma_R = 7.99$ bifurcated Gaussian

89% $\sigma = 0.49$ Crystal Ball
+11% $\sigma_L = 2, \sigma_R = 6.26$ bifurcated Gaussian



Z Mass: 91.56

Z Mass: 91.29