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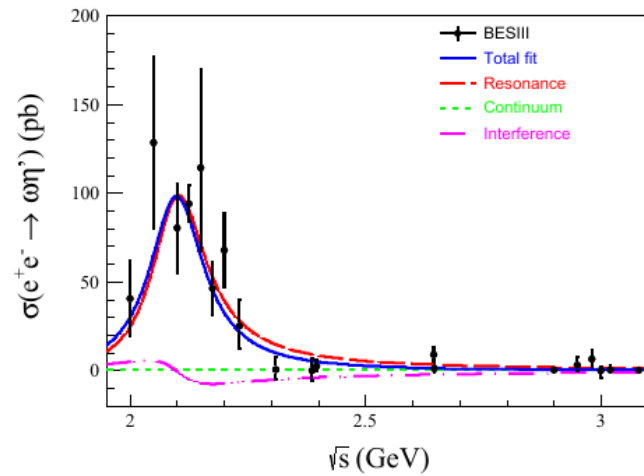
==> The two solutions are actually identical.↵

==> check the two fit solutions further: do they agree with the expected mathematical relations of the ambiguous solution?↓

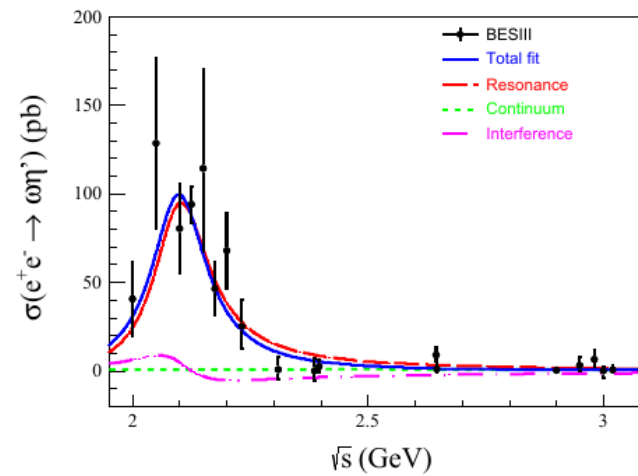
Or are they just one solution?↵

==> Perform some IO test to check the fitting bias↵

↵



(a)



(b)

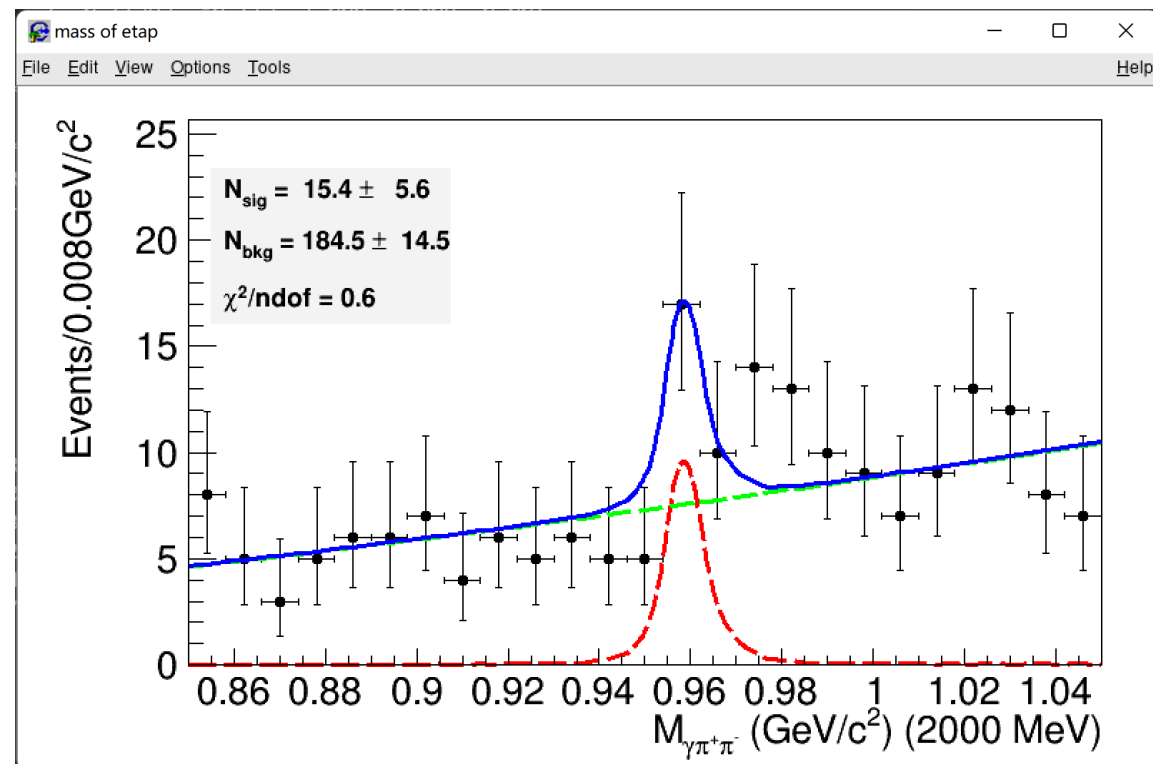
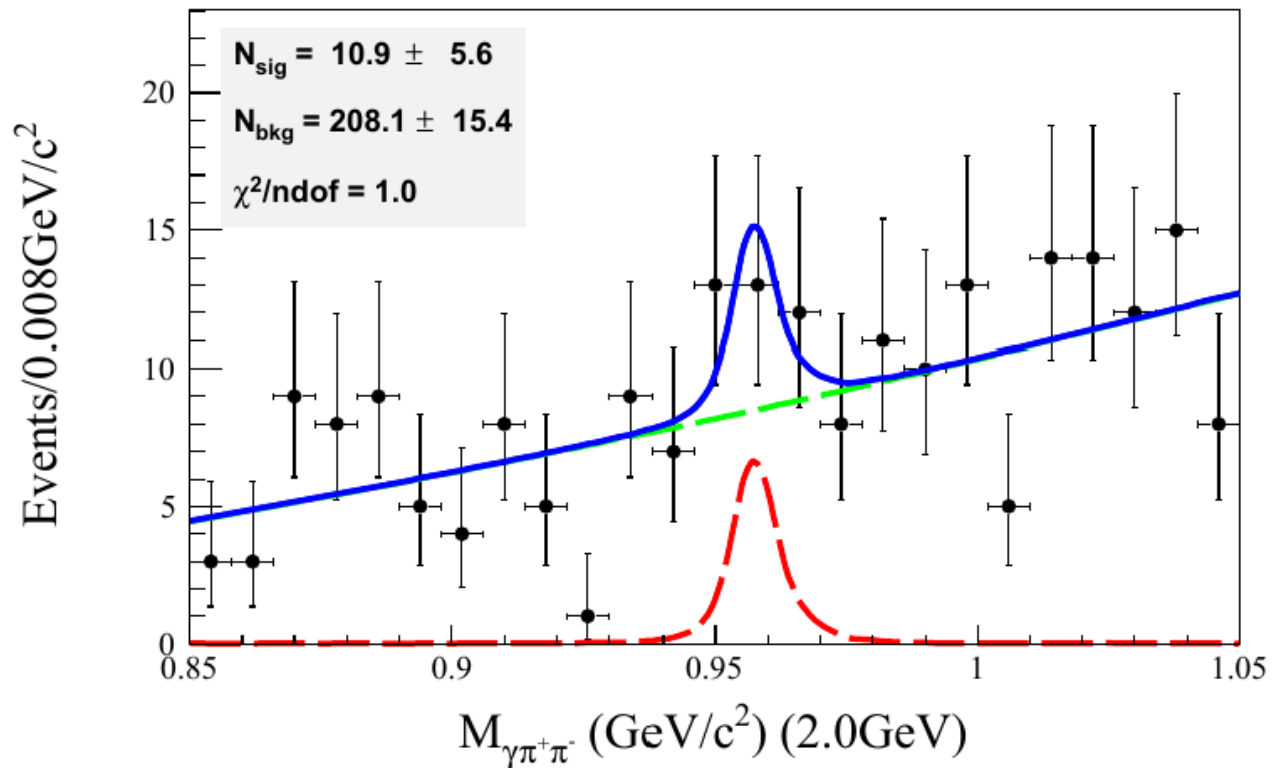
```

TRandom *r = new TRandom;

TString outpath = "/besfs5/groups/tauqcd/wy001/omegaetap_mc/flat/newfit_2
/root/";
TFile f( outpath+"Toy2000.root", "RECREATE");

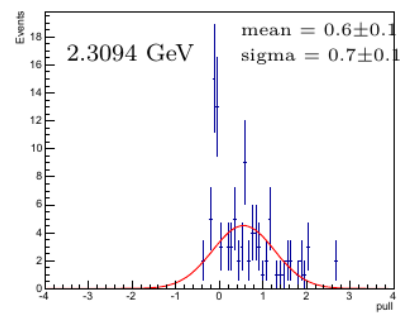
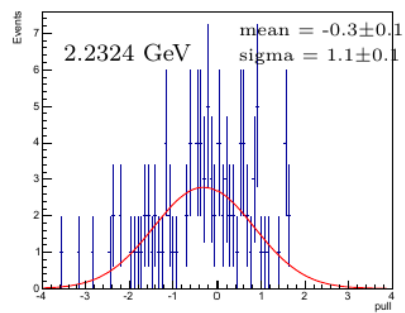
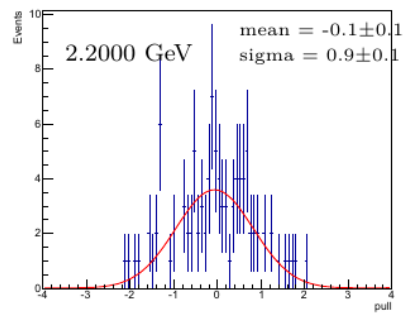
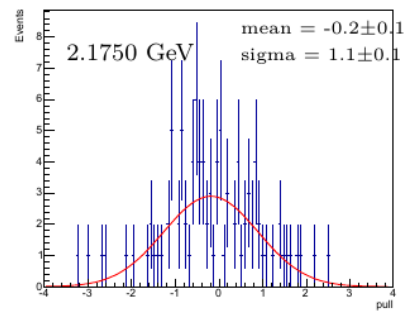
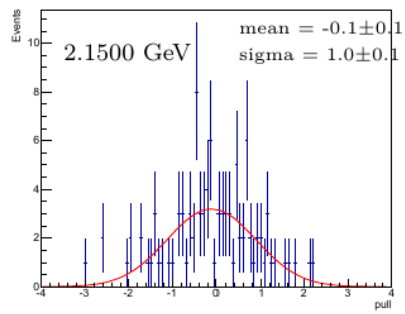
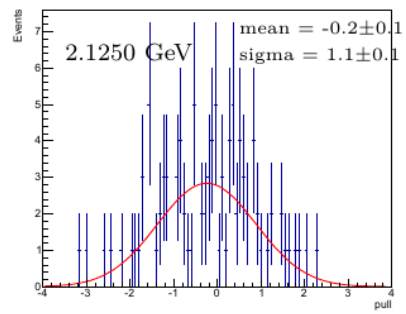
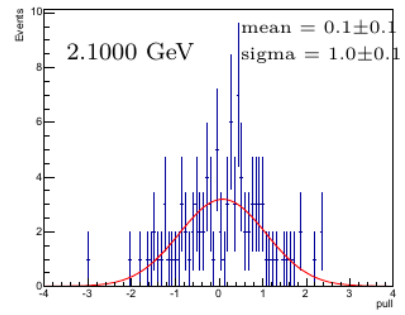
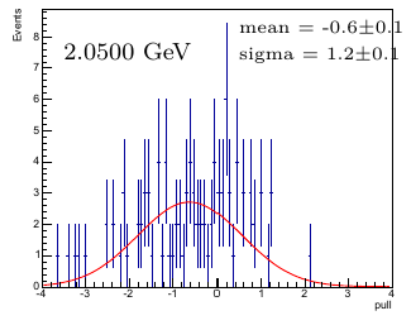
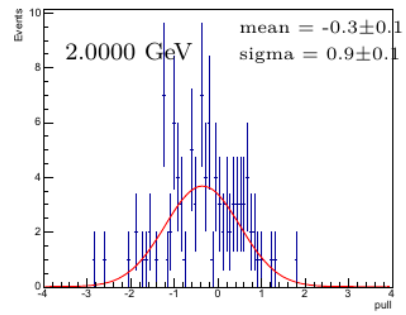
int j = 0;
int NSIG0[100];
int NBKG[100];
while(j<nums){
    int nSIG0 = round(r->Poisson(NSIG_tmp));
    int nBKG = round(r->Poisson(NBKG_tmp));
    if((nSIG0>0)&&(nBKG>0)){
        NSIG0[j] = nSIG0;
        NBKG[j] = nBKG;
        cout<<"NSIG0"<<j <<"="<<NSIG0[j]<<endl;
        cout<<"NBKG " <<j <<"="<<NBKG[j]<<endl;
        toydatas[j] = func_sig0.generate(mass, NSIG0[j], Name("Sig_Bkg"+times
[j]));
        toydatab[j] = func_bkg.generate(mass, NBKG[j], Name("bkg"+times[j]));
        toydatas[j]->append( *toydatab[j]);
        toydatas[j]->Write();
        j++;
    }
}

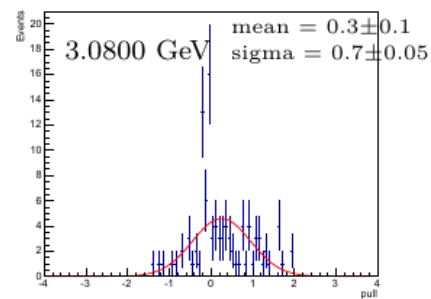
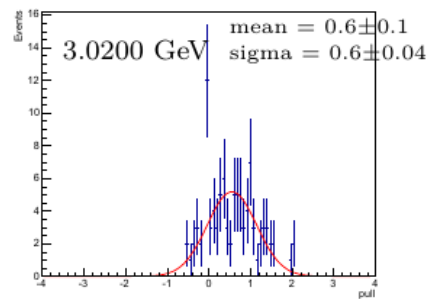
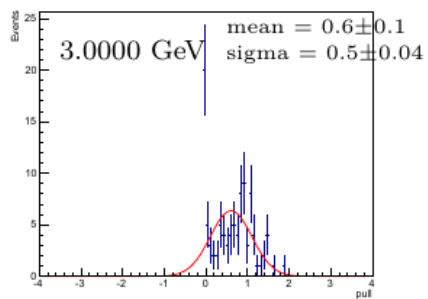
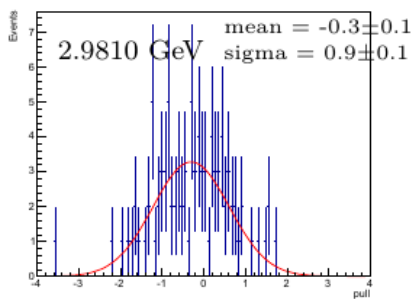
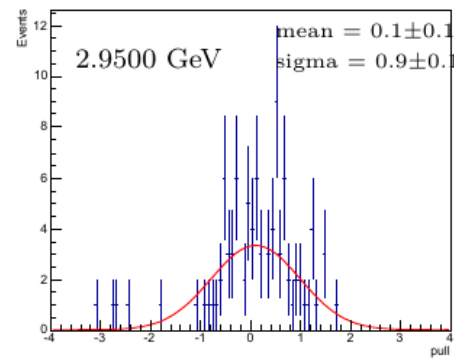
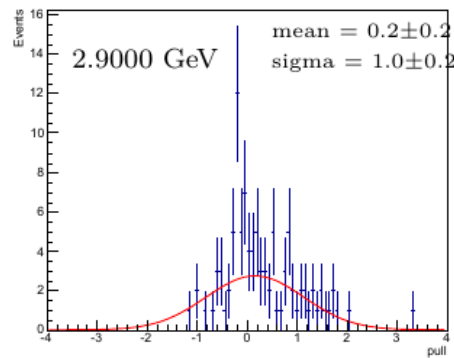
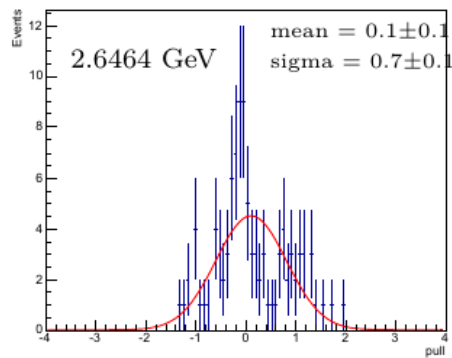
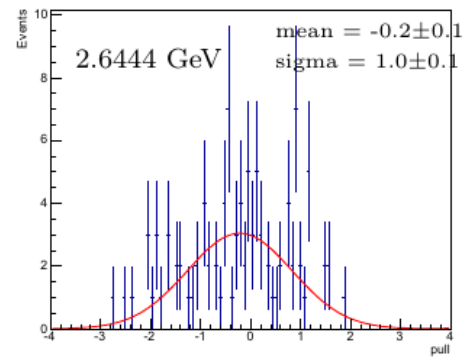
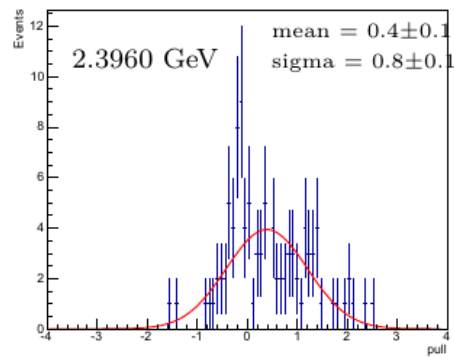
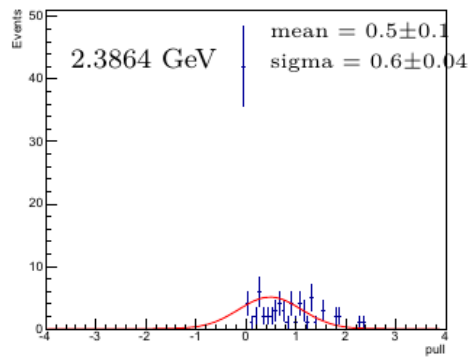
```



```
log2309.out of TOY001 Warning!!!  
log3000.out of TOY002 Warning!!!  
log2900.out of TOY004 Warning!!!  
log3020.out of TOY006 Warning!!!  
log2232.out of TOY007 Warning!!!  
log2646.out of TOY007 Warning!!!  
log2981.out of TOY007 Warning!!!  
log3000.out of TOY009 Warning!!!  
log3080.out of TOY009 Warning!!!  
log2646.out of TOY012 Warning!!!  
log3020.out of TOY012 Warning!!!  
log2309.out of TOY013 Warning!!!  
log2900.out of TOY013 Warning!!!  
log2000.out of TOY014 Warning!!!  
log2900.out of TOY014 Warning!!!  
log2232.out of TOY015 Warning!!!  
log2309.out of TOY016 Warning!!!  
log3000.out of TOY016 Warning!!!  
log2232.out of TOY017 Warning!!!  
log2396.out of TOY017 Warning!!!  
log2232.out of TOY018 Warning!!!  
log2981.out of TOY018 Warning!!!  
log3000.out of TOY018 Warning!!!  
log3080.out of TOY018 Warning!!!  
log3080.out of TOY019 Warning!!!  
log2309.out of TOY024 Warning!!!  
log2646.out of TOY024 Warning!!!  
log3080.out of TOY024 Warning!!!  
log2232.out of TOY025 Warning!!!  
log2309.out of TOY025 Warning!!!  
log3080.out of TOY026 Warning!!!  
log2900.out of TOY028 Warning!!!  
log3000.out of TOY028 Warning!!!  
log2309.out of TOY029 Warning!!!  
log2646.out of TOY029 Warning!!!  
log2950.out of TOY029 Warning!!!  
log3020.out of TOY029 Warning!!!  
log3080.out of TOY029 Warning!!!  
log2646.out of TOY030 Warning!!!  
"warn_list" 144L, 4752C
```

144/1900 warning





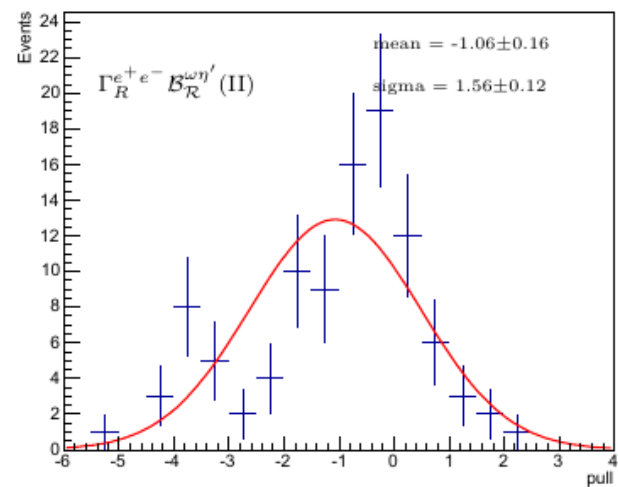
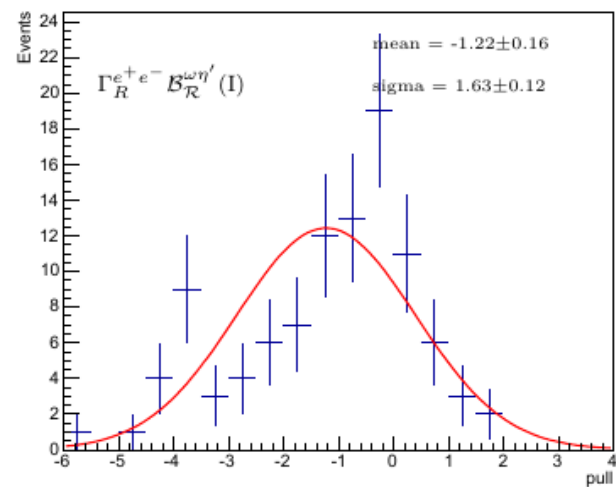
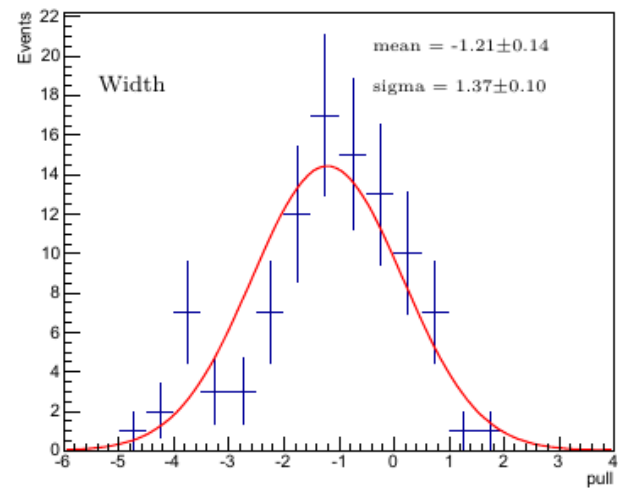
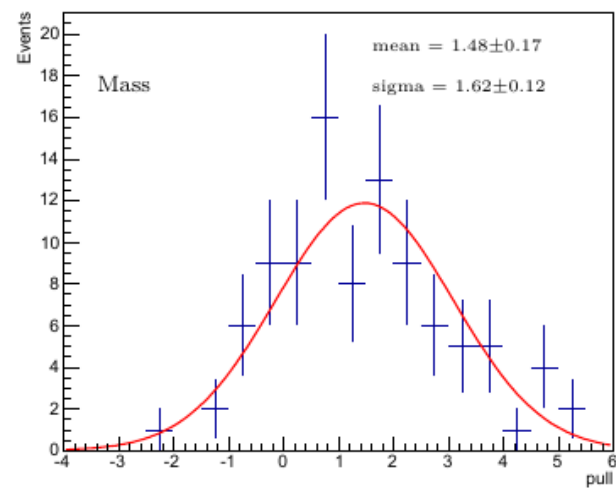
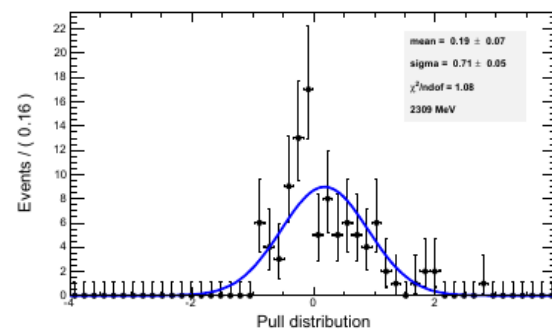
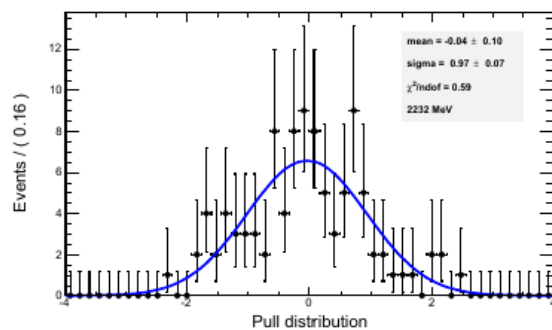
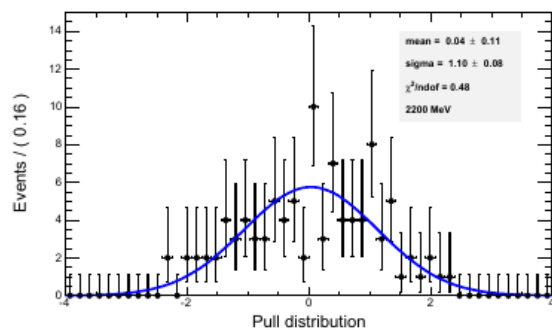
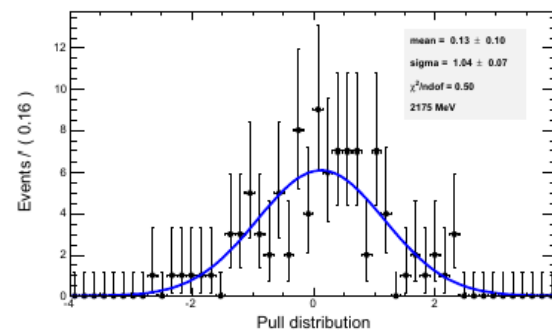
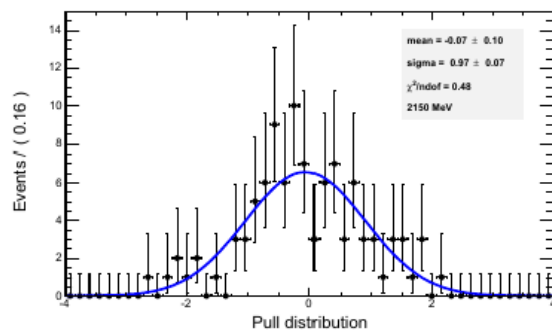
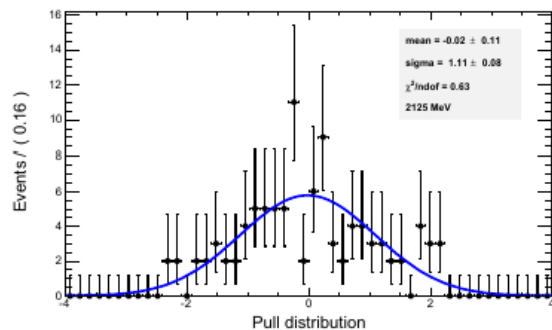
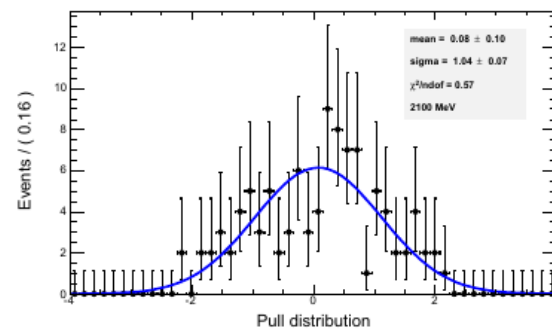
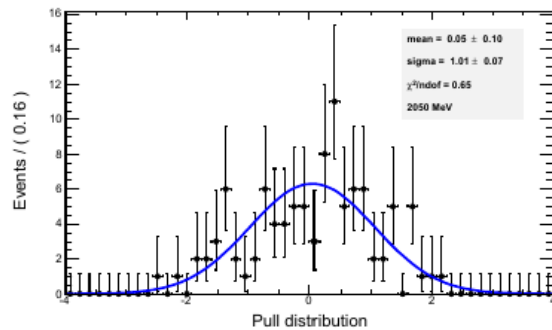
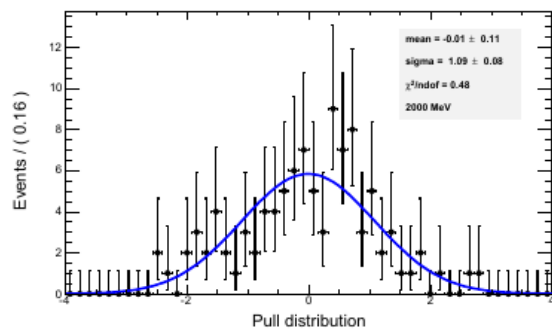
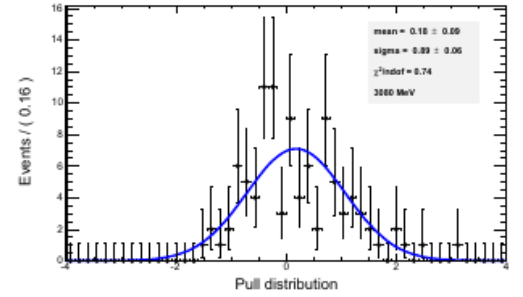
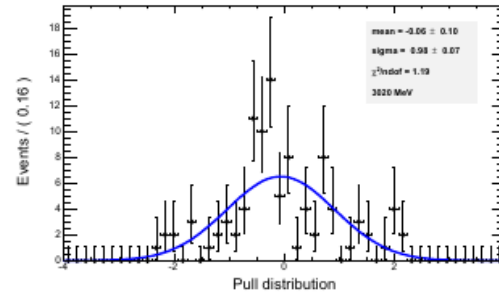
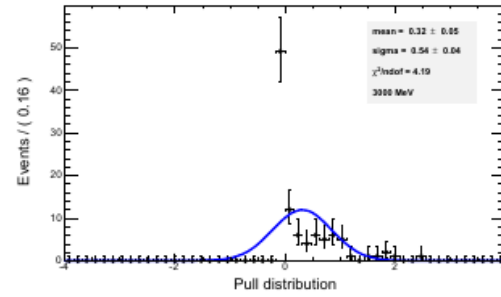
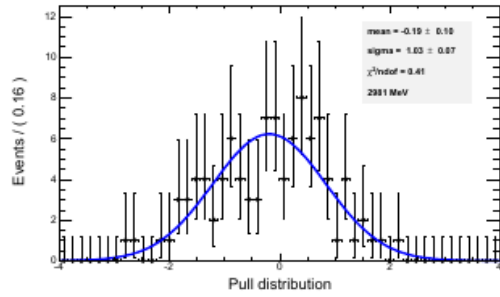
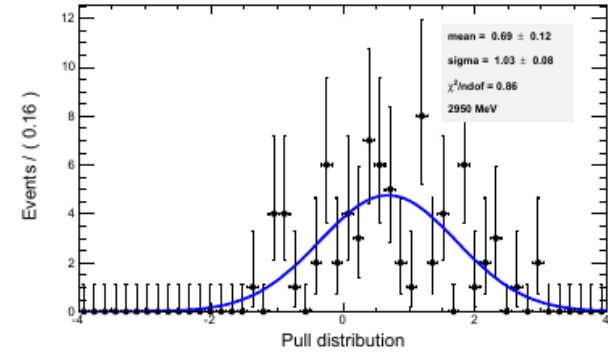
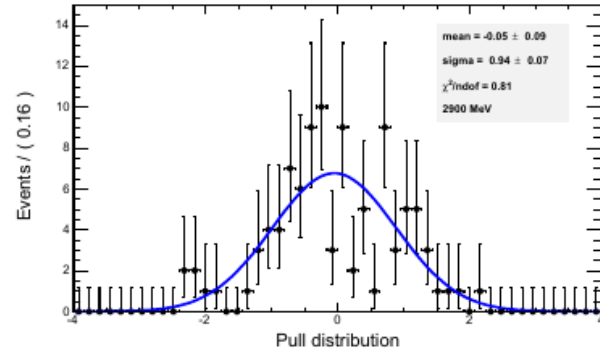
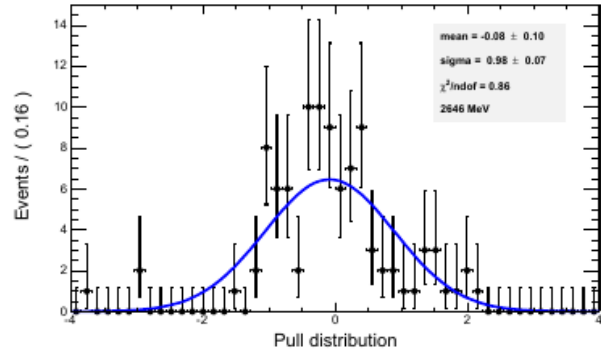
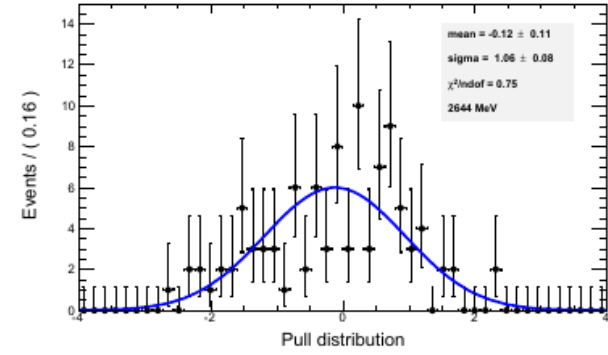
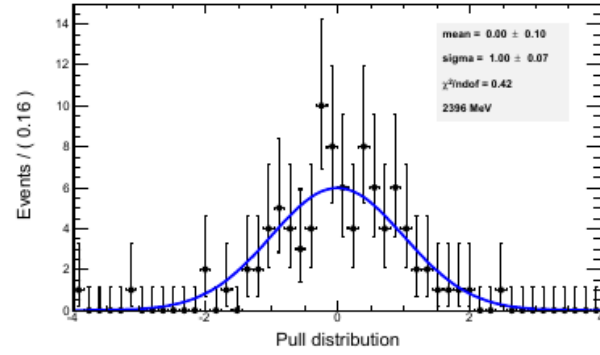
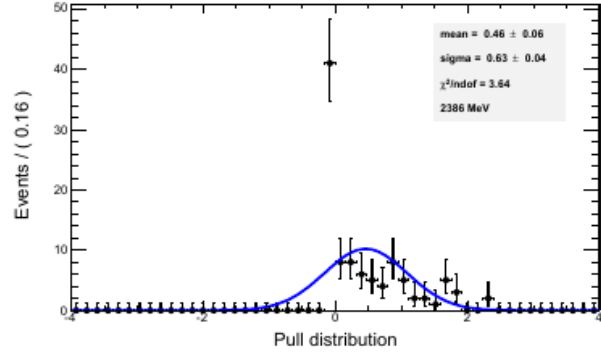
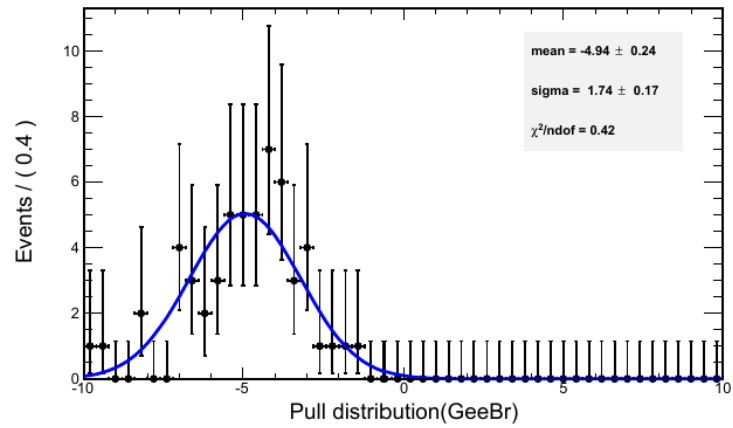
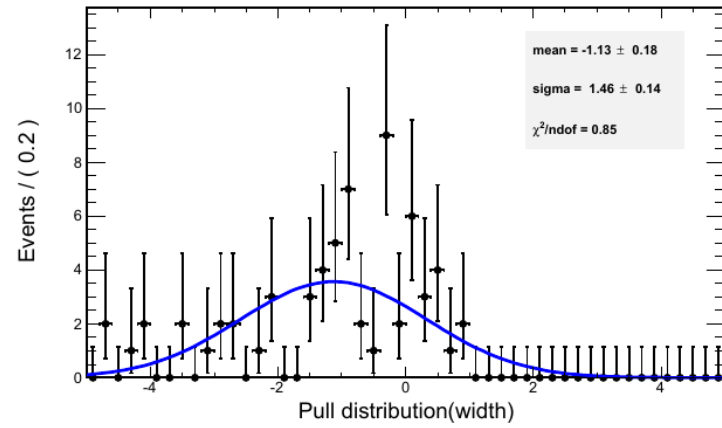
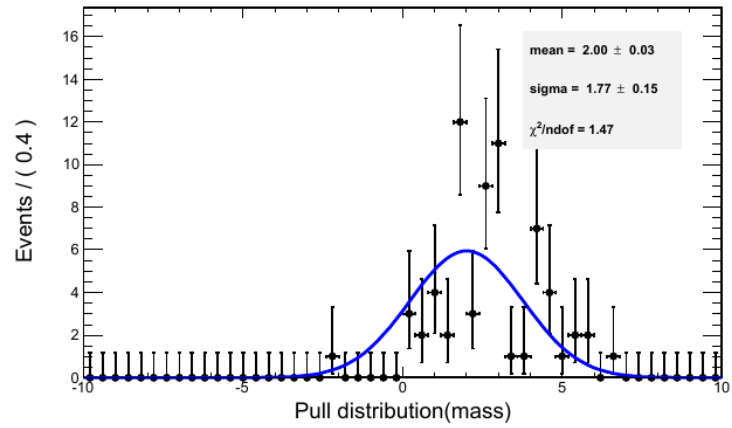


Figure 50: Pull distribution of the sampled resonance parameters.

测试：抽样100次，统计量扩大10倍

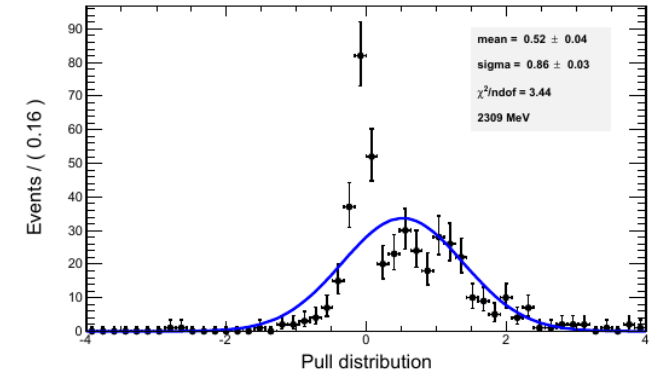
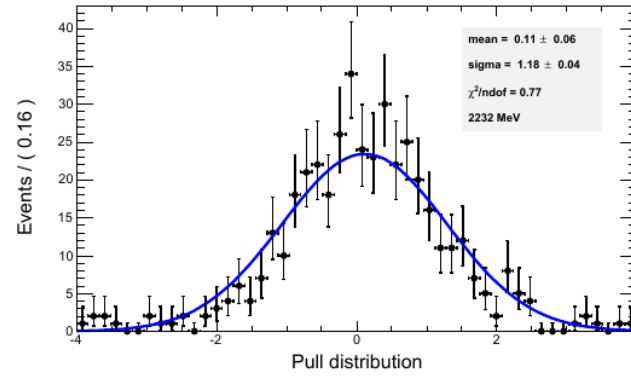
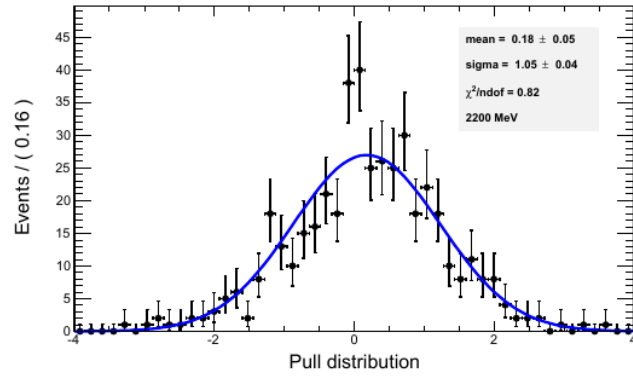
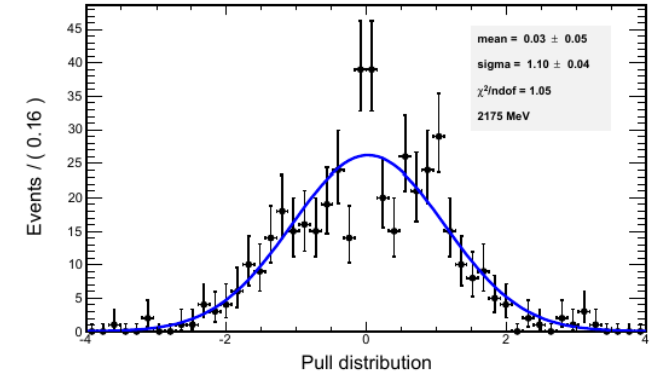
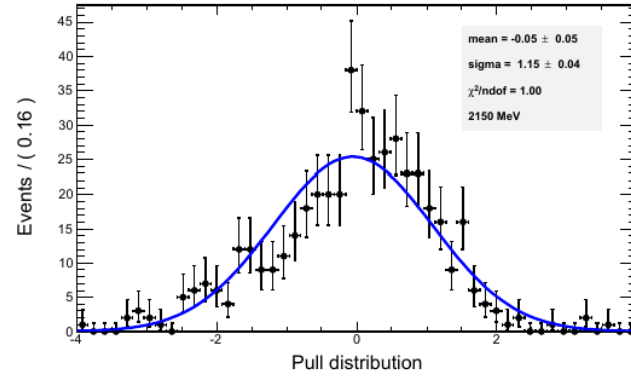
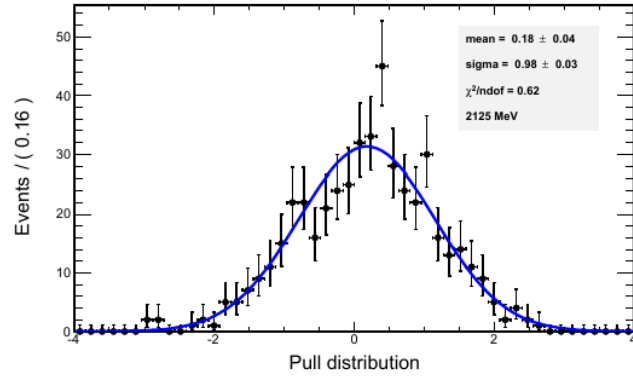
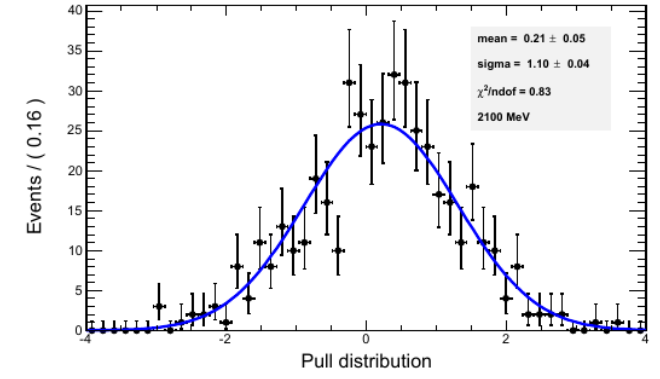
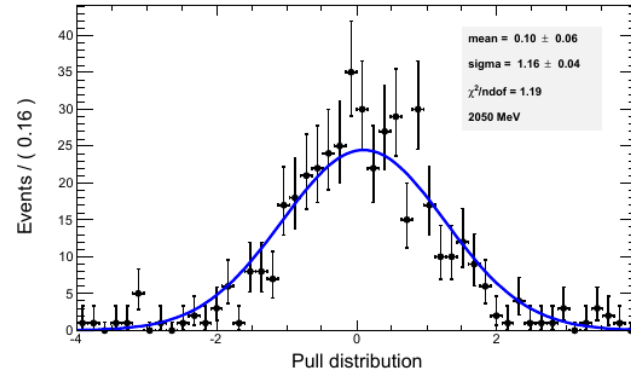
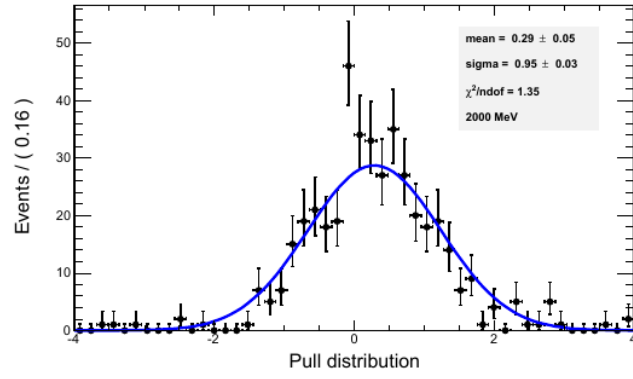


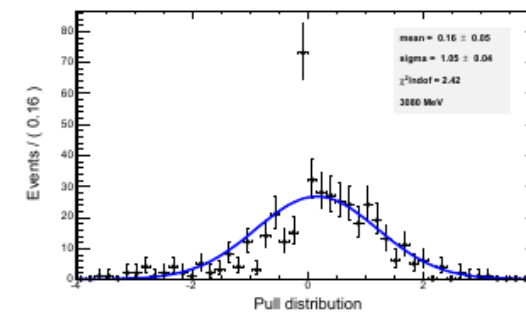
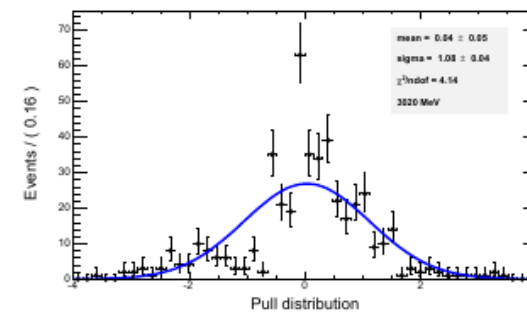
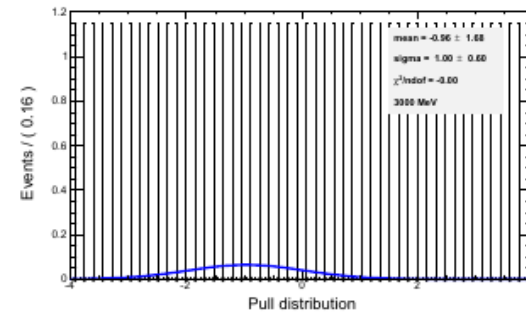
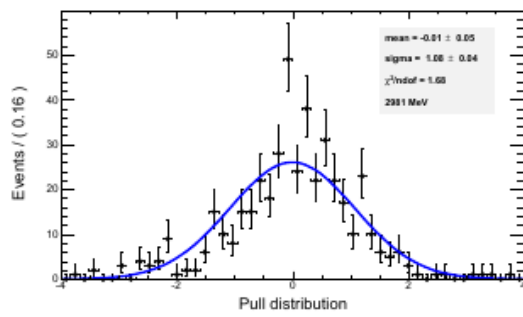
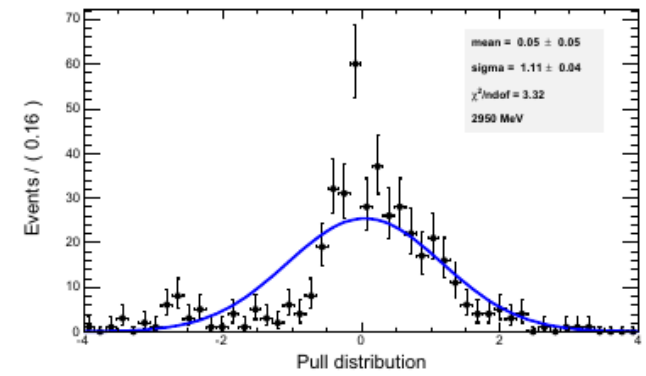
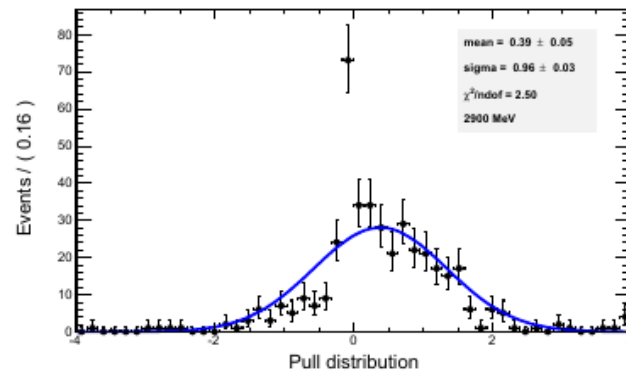
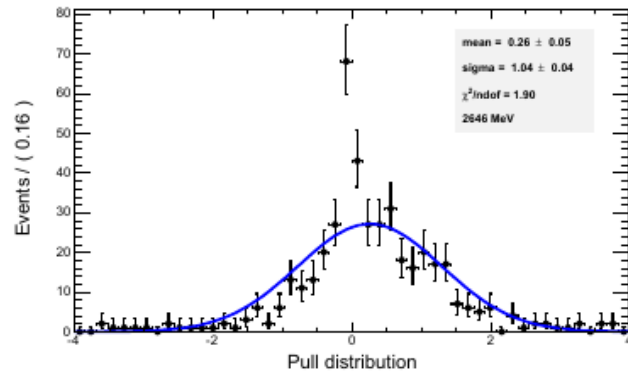
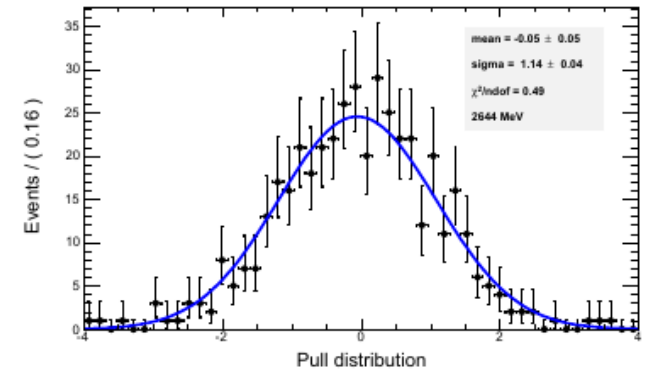
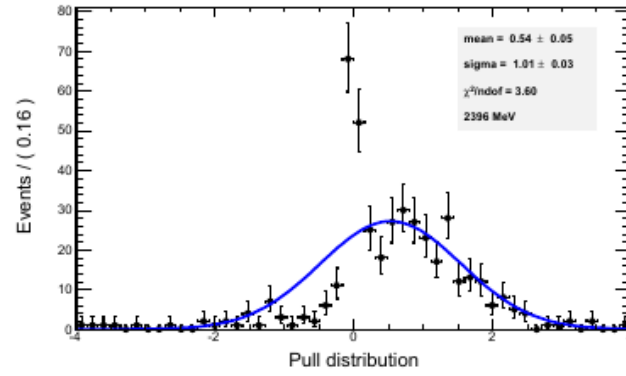
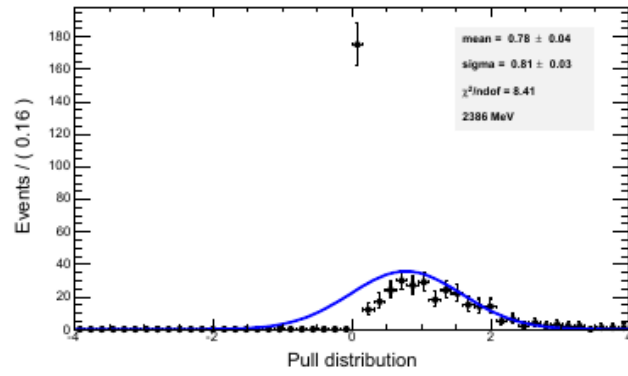




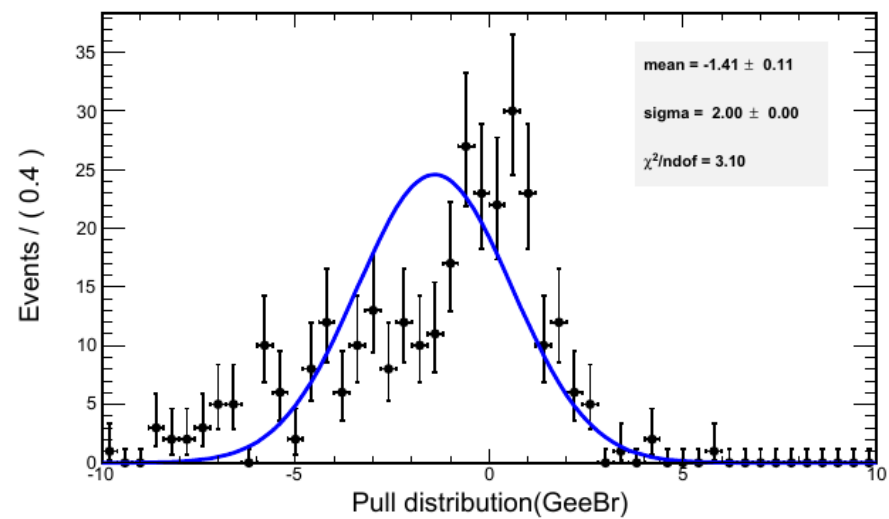
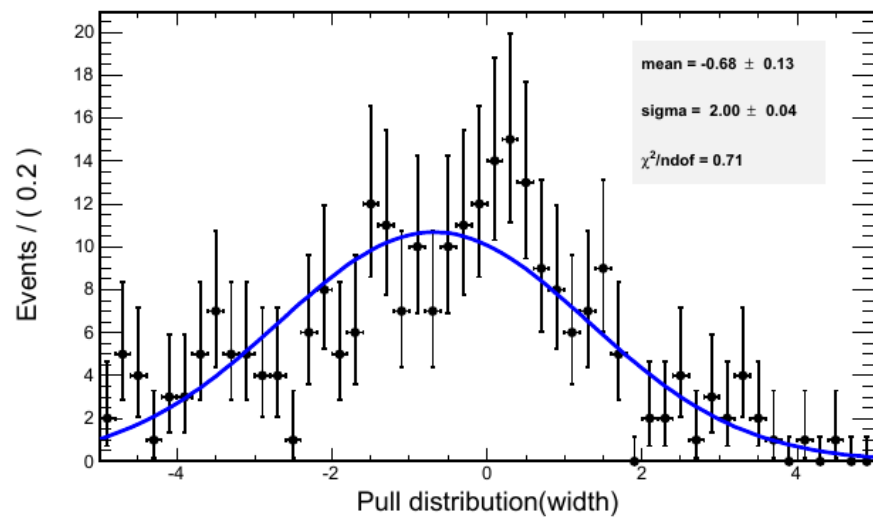
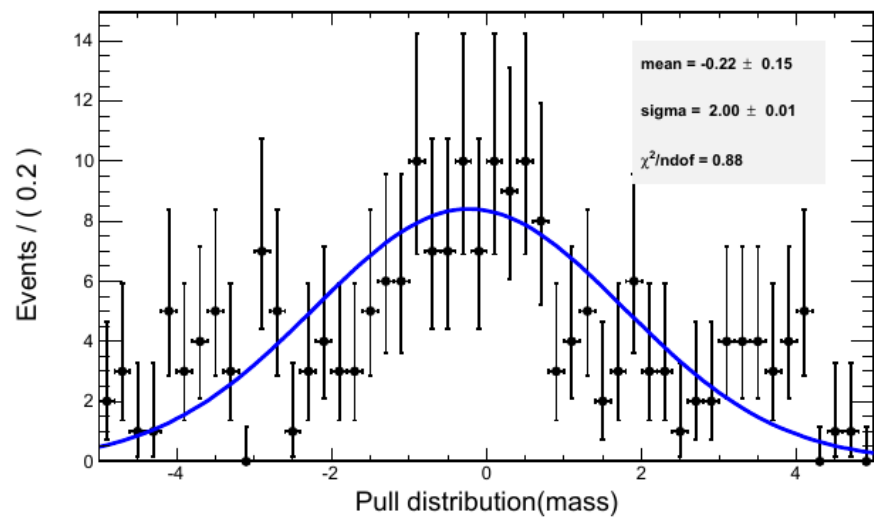
- 方法二：对整体pdf抽样，每个能量点抽样500次：

```
TRandom r;  
r.SetSeed(seed);  
RooDataSet *toymc = func.generate(mass, r.Poisson(ntoy));
```



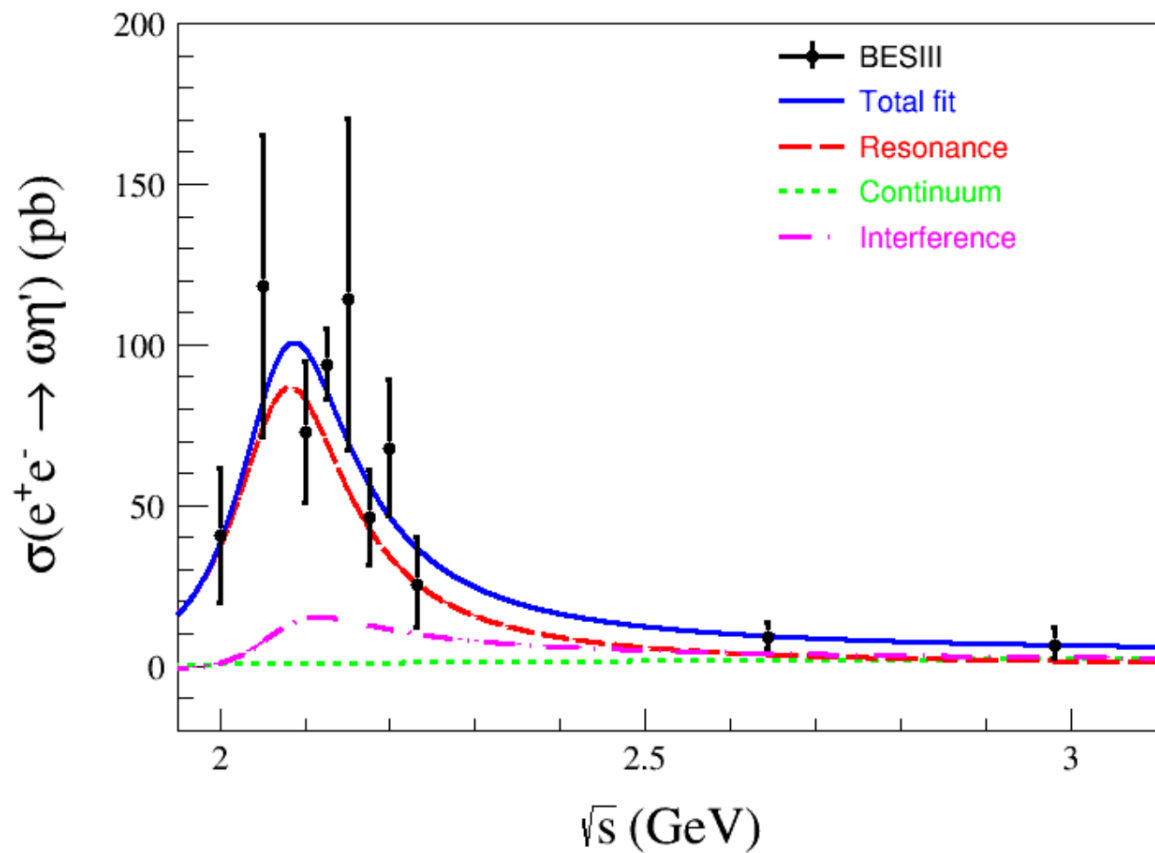


拟合500次lineshape, 只保留拟合成功的



测试：只保留较好的10个能量点

2.0000	40.62740884
2.0500	118.357263
2.1000	72.73462645
2.1250	94.01926591
2.1500	114.2935923
2.1750	46.35415317
2.2000	67.91389384
2.2324	25.13555048
2.6444	9.074657704
2.9810	6.489342039
~	



拟合500次lineshape, 只保留拟合成功的

