iSTEP 2019 ▸
Exam 汇报

报告人 车逾之

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目录

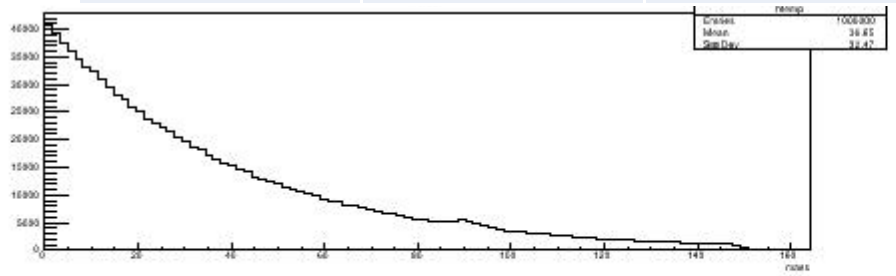
CONTENT

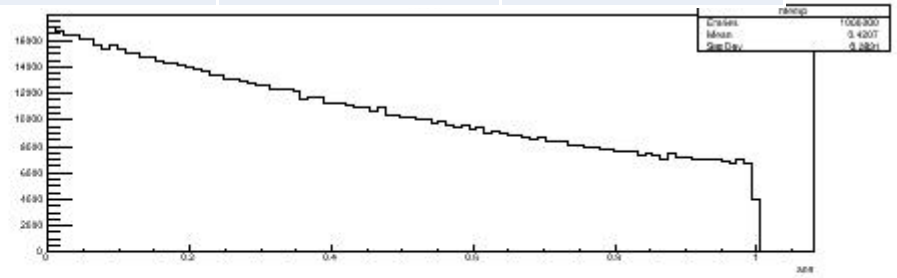
01

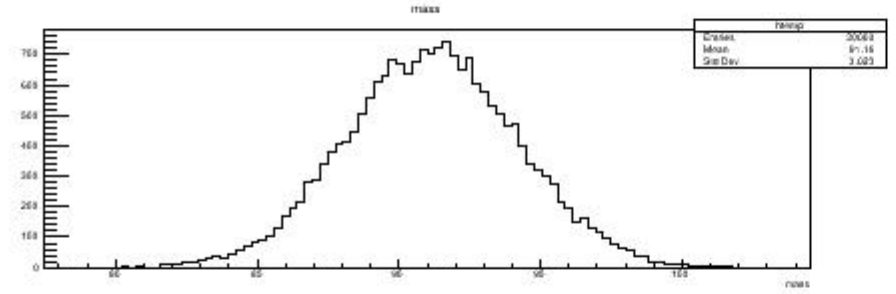
数据特征

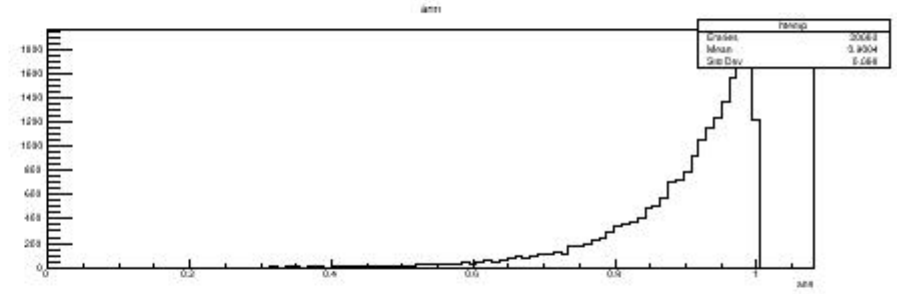
数据特征

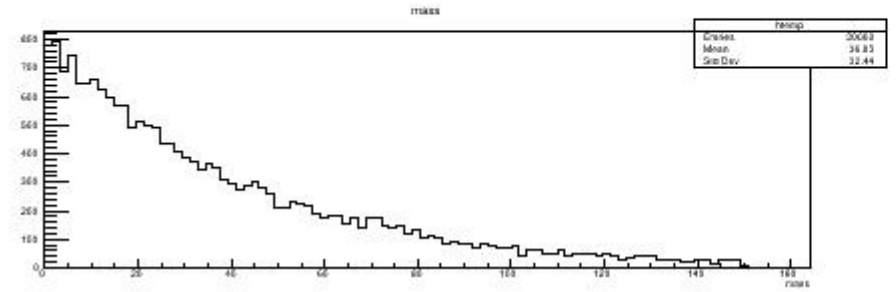
	event1	event2	event3	... ...	eventN
mass	x1	x2	x3	... ...	xN
ann	y1	y2	y3	... ...	yN

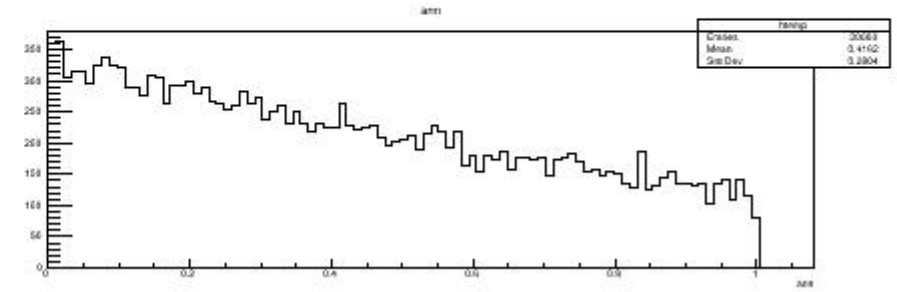












02

设置截断

基本思路

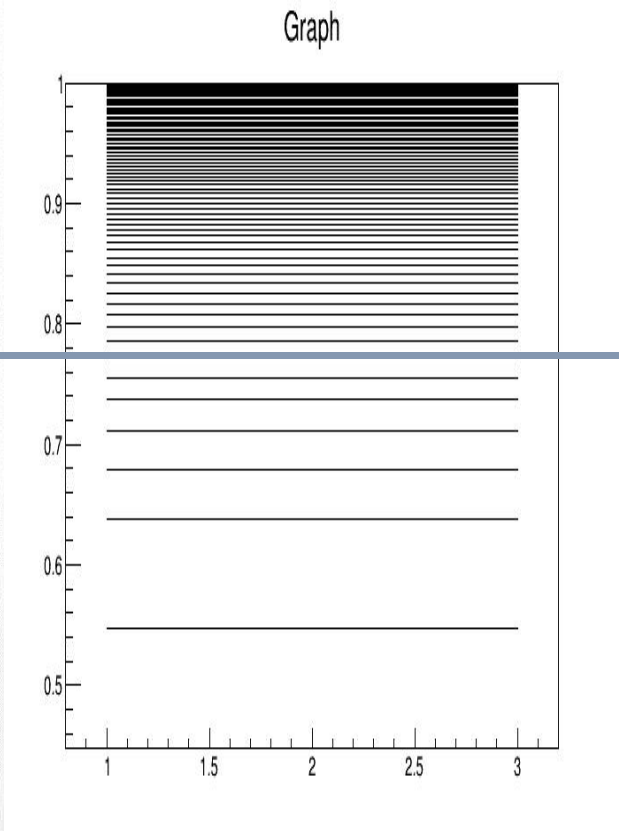
- 找到cut值，保留90%的数据
  - 加载文件，读取信号数据到数组
  - 排序
  - 按照给定90%的比例，找到对应的位置给定cut
- 将cut用于本底数据，对否决或误判的本底事件进行计数。
  - 逐个读取本底数据并判断计数

排序函数： TMath::Sort**

TMath:Sort(数据量，被排序的数组，索引数组)
将数据降序排列后，将对应的索引按顺序填入索引数组中。

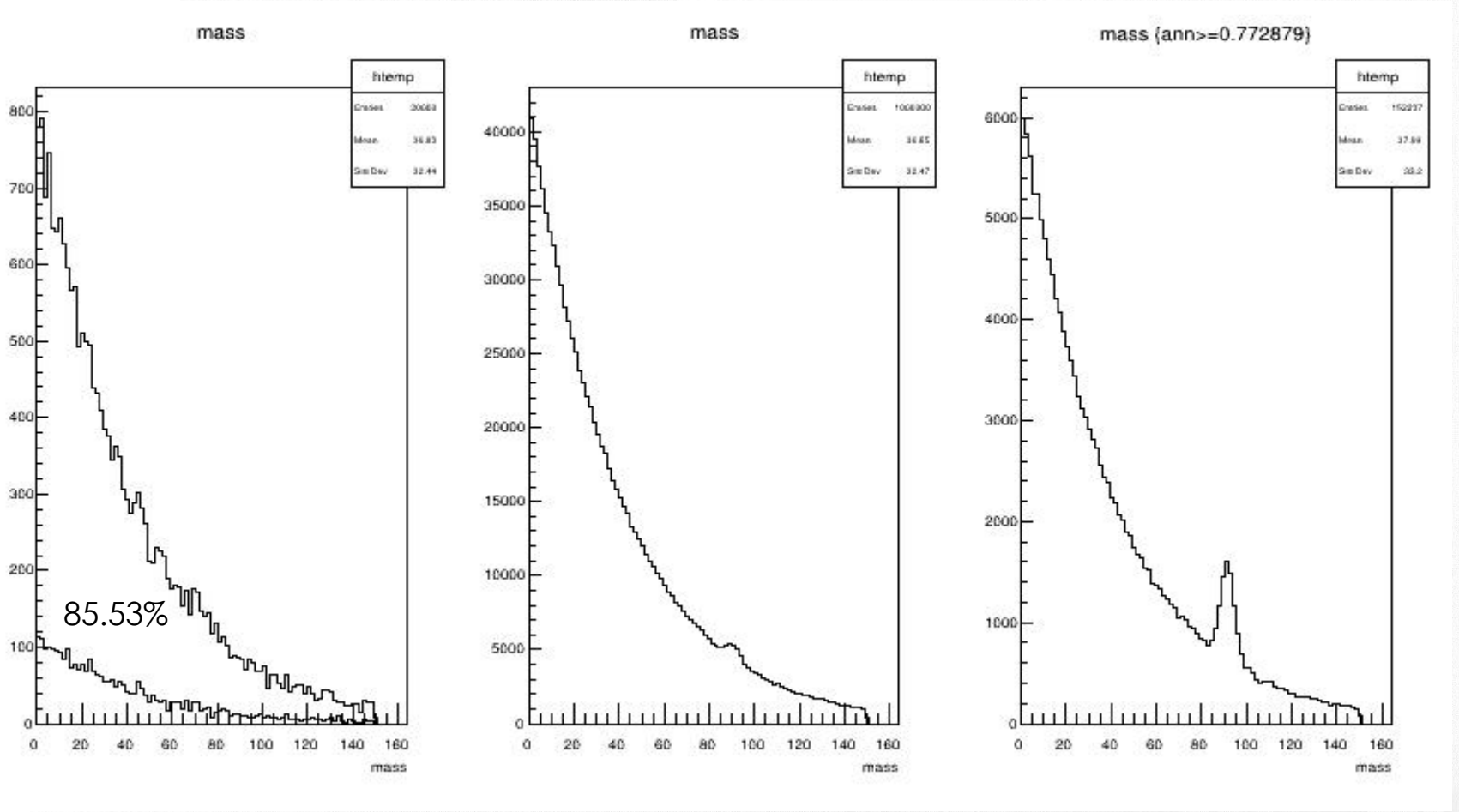
```
Double_t ftemp; // address to store a data
fsig->SetBranchAddress("ann",&ftemp);

Double_t fSigAnn_array[20000]; // for sig_ann data
Int_t findex_array[20000];     // for array index after
sorting

for(int i=0;i<20000;i++)
{
   fsig->GetEntry(i);
   fSigAnn_array[i] = ftemp;
}
TMath::Sort(20000,fSigAnn_array,findex_array);
```

Cut:
0.772879




```
fcut = fSigAnn_array[ findex_array[ (Int_t)TMath::Ceil(20000*fAllowRate) ] ];
```

本底抑制



本底数据

截断前

实验数据

截断后

03

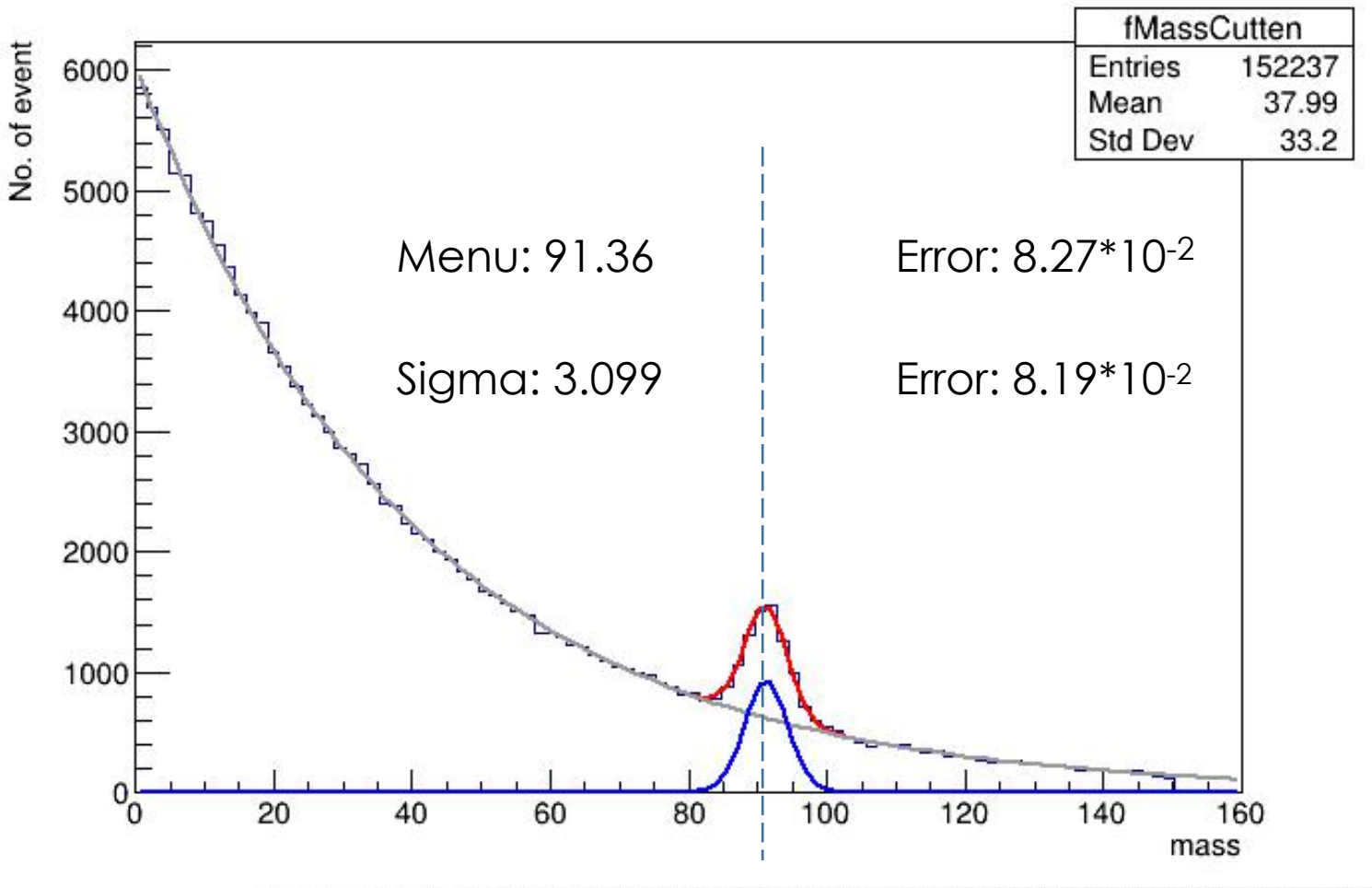
数据拟合

拟合结果

```
TF1* fFit1 = new TF1("fFit1","[0]*exp([1]+[2]*x)",0,160);
TF1* fFit2 = new TF1("fFit2","[0]*TMath::Gaus(x,[1],[2])",0,160);
TF1* fFit = new TF1("fFit","fFit1+fFit2",0,160);
```

```
FCN=56.8627 FROM HESSE    STATUS=NOT POSDEF    40 CALLS       1111 TOTAL
                    EDM=1.29761e-08    STRATEGY= 1     ERR MATRIX NOT POS-DEF
 EXT PARAMETER                APPROXIMATE      STEP         FIRST
 NO.   NAME      VALUE            ERROR          SIZE      DERIVATIVE
  1  p0           5.48640e+01   1.91140e+00   1.06906e-04  -9.58942e-04
  2  p1           4.70507e+00   3.48389e-02   1.94855e-06  -5.26113e-02
  3  p2          -2.50722e-02   8.60849e-05   4.08758e-08  -1.22102e+00
  4  p3           9.34756e+02   2.49030e+01   1.46988e-02  -1.44042e-06
  5  p4           9.13558e+01   8.27207e-02   1.53710e-06  -1.89034e-02
  6  p5           3.09858e+00   8.19535e-02   4.70927e-05  -8.64379e-04
```

拟合结果



Background : 97.03%

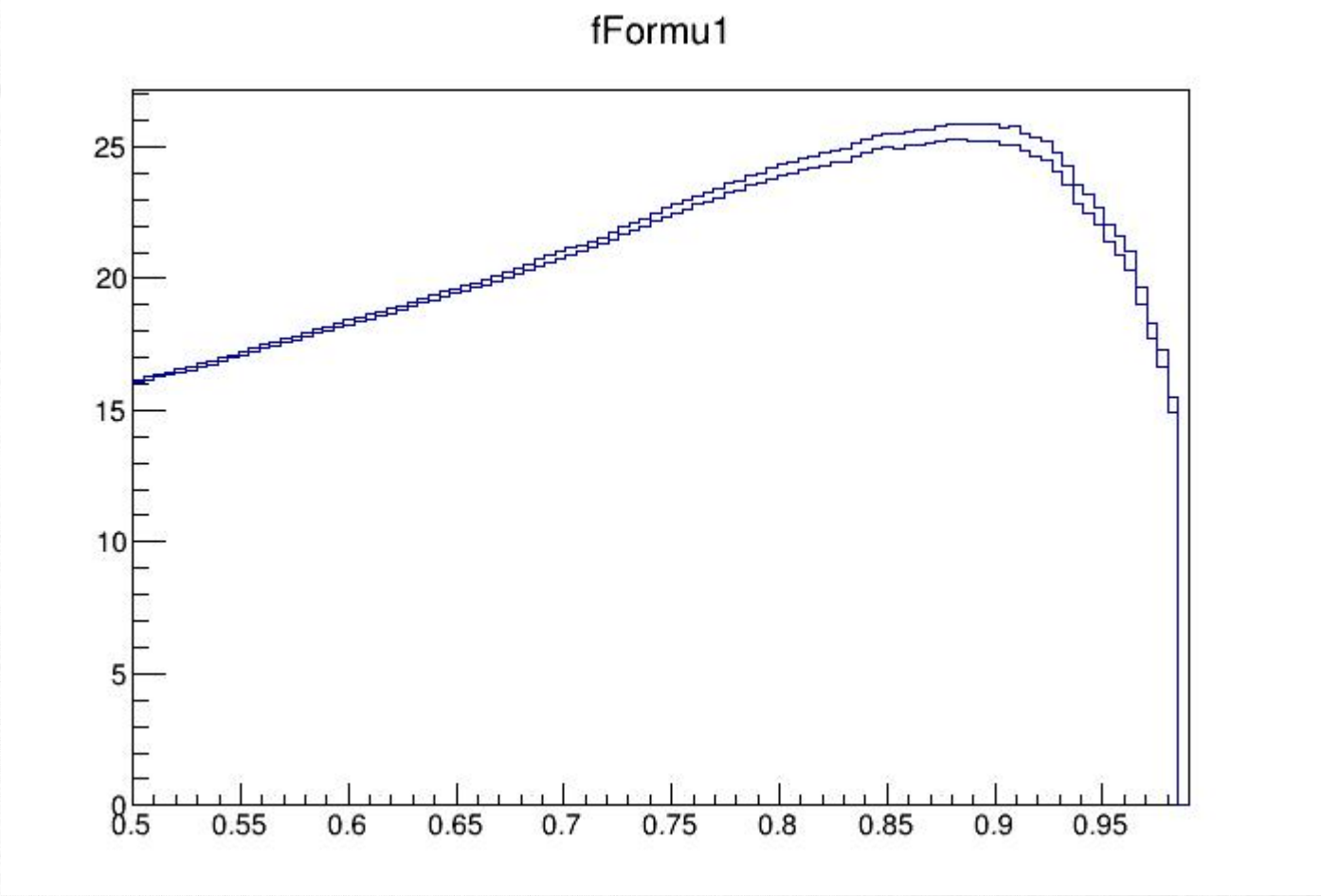
Signal: 2.97%

04

附　录

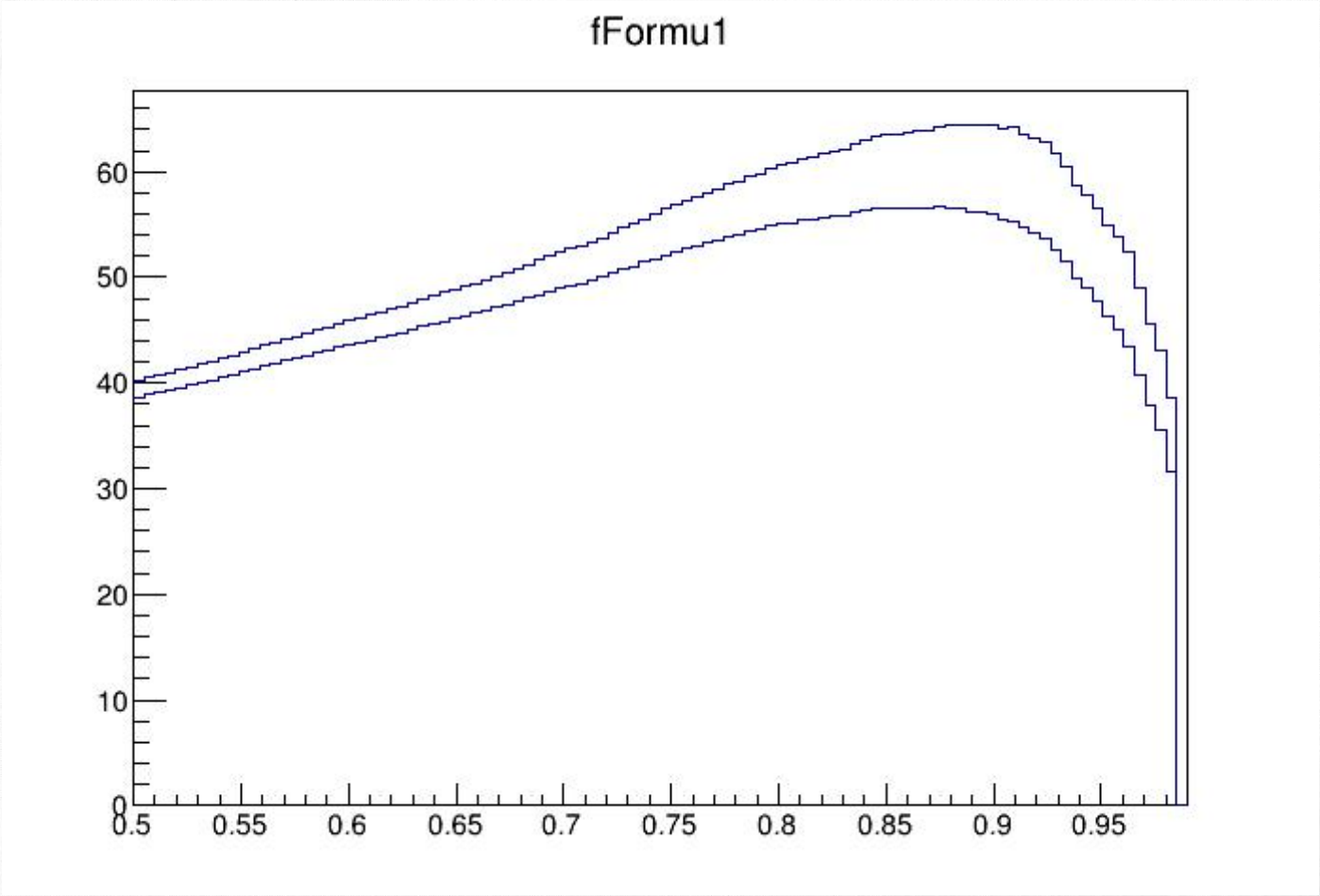
显著性

Background:Signal=203:1



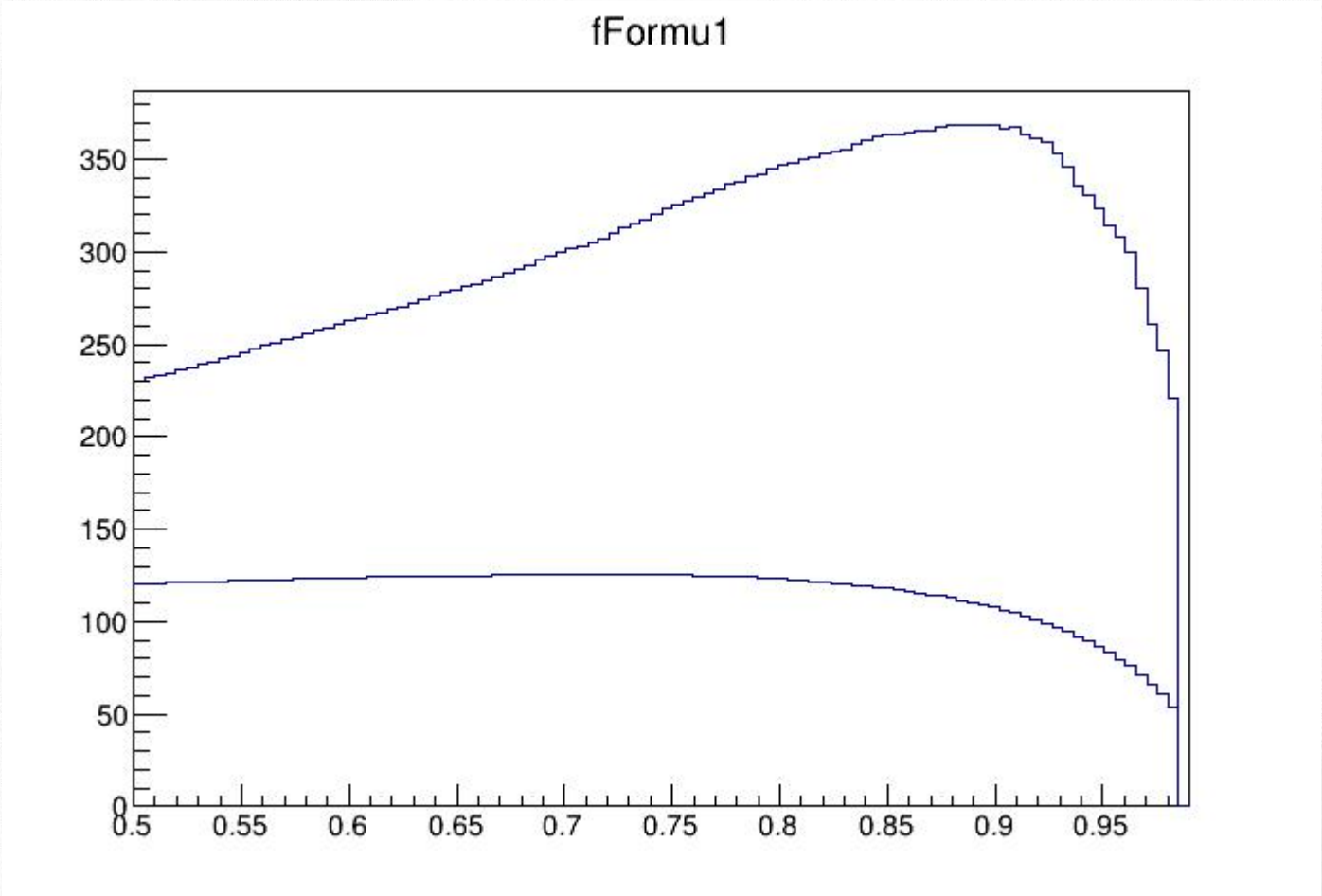
显著性

Background:Signal=23:1

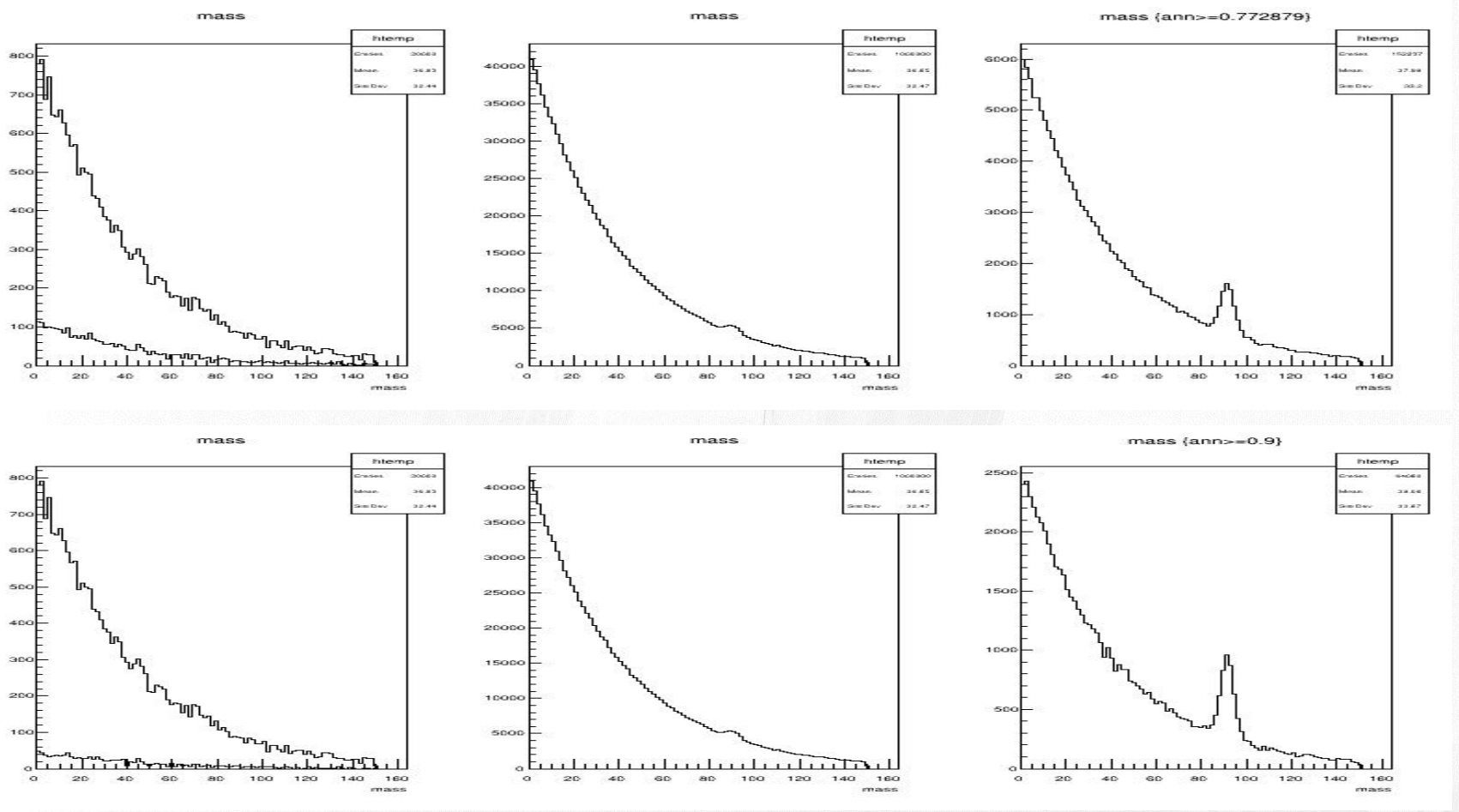


显著性

Background:Signal=1:1



本底抑制



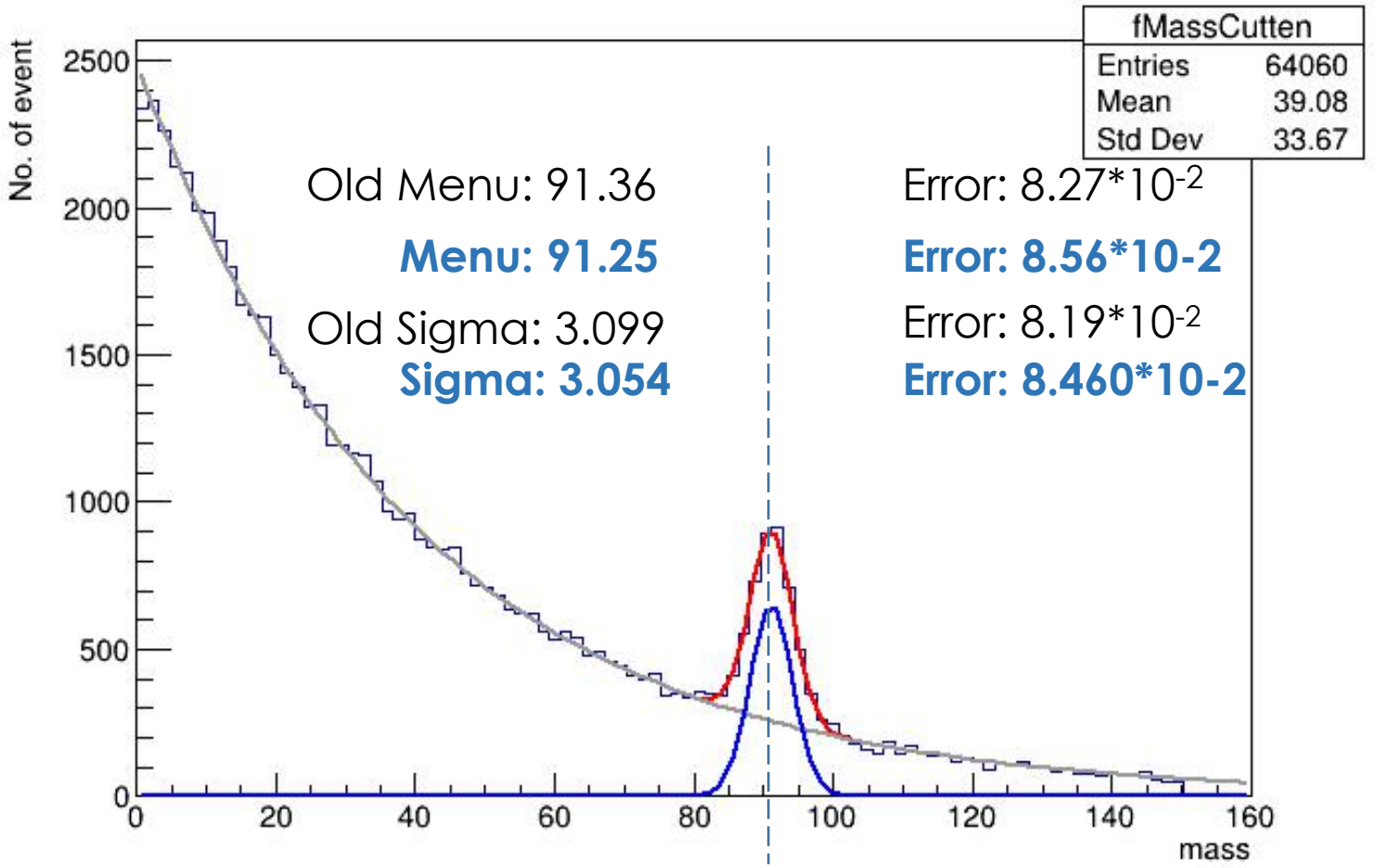
本底数据

截断前

实验数据

截断后

拟合结果


fMassCutten
Entries 64060
Mean 39.08
Std Dev 33.67
No. of event
mass
Old Menu: 91.36
Menu: 91.25
Old Sigma: 3.099
Sigma: 3.054
Error: 8.27*10-2
Error: 8.56*10-2
Error: 8.19*10-2
Error: 8.460*10-2

- THANKS FOR WATCHING -

感　　谢