Pi0 Yield in Skim Files

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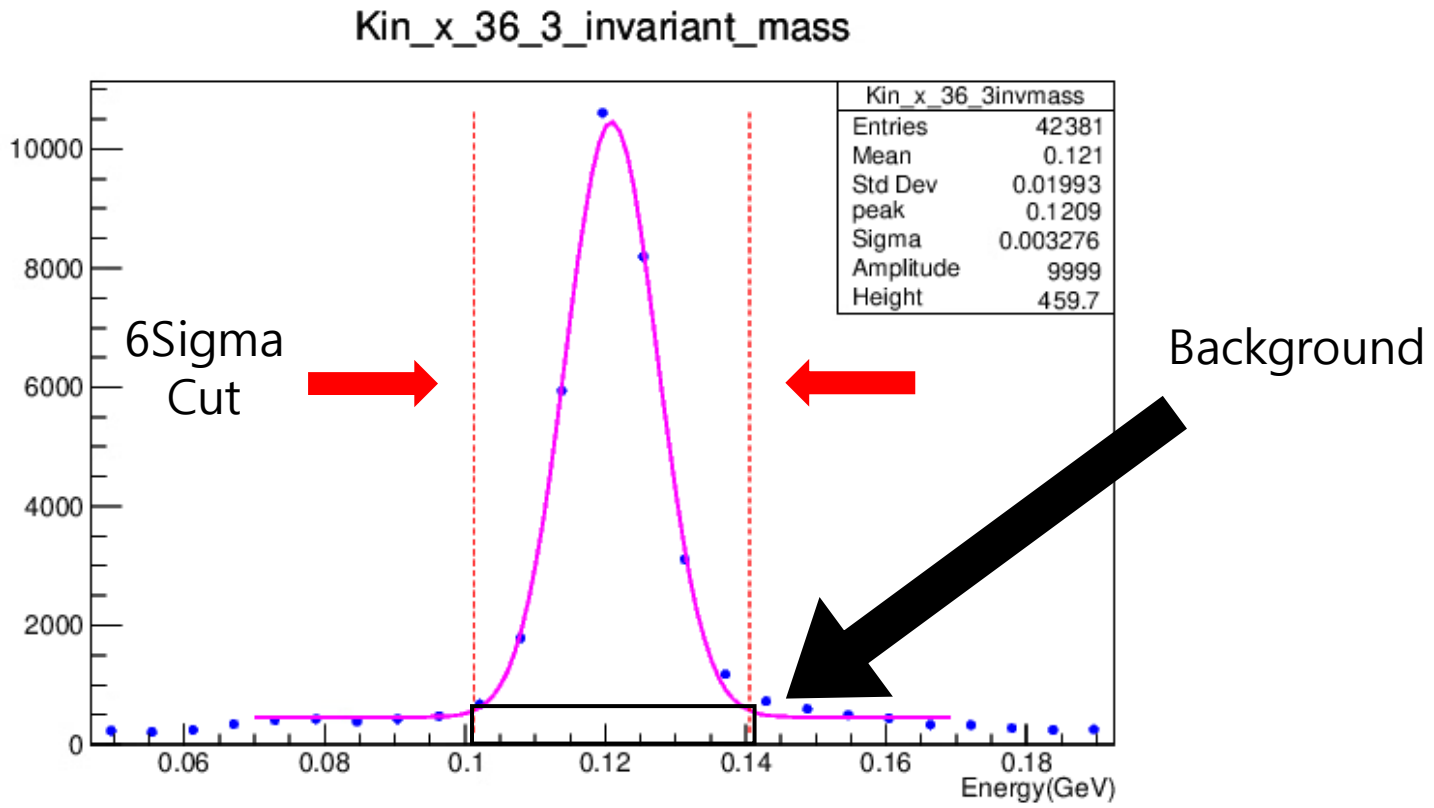
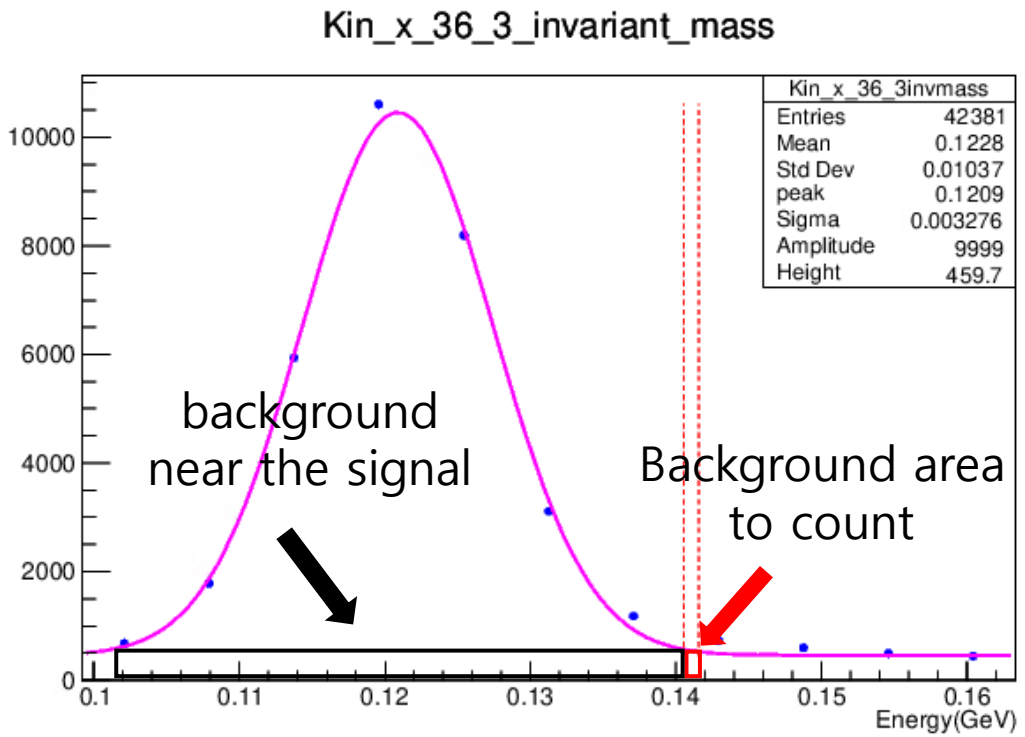
Missing Mass Cut



Example: Kin_x_36 3 invariant pass plot

Background removal using mensuration by parts

- Assuming that the background around the peak is constant
- Count the background for of 0.001(x-axis)
- Calculate the background near the signal by multiplying by a constant



Code

```
if (min_cut < invmass && invmass < max_cut)
{
NofPi0 ++;
}else if (max_cut < invmass && invmass < max_cut+0.001)
{
BagCount ++;
}
```

Pi0 Signal and Background Count

```
Double_t NofBag_a = 1000*BagCount*(max_cut-min_cut);
Double_t NofBag = floor(NofBag_a);
```

Calculate Back ground

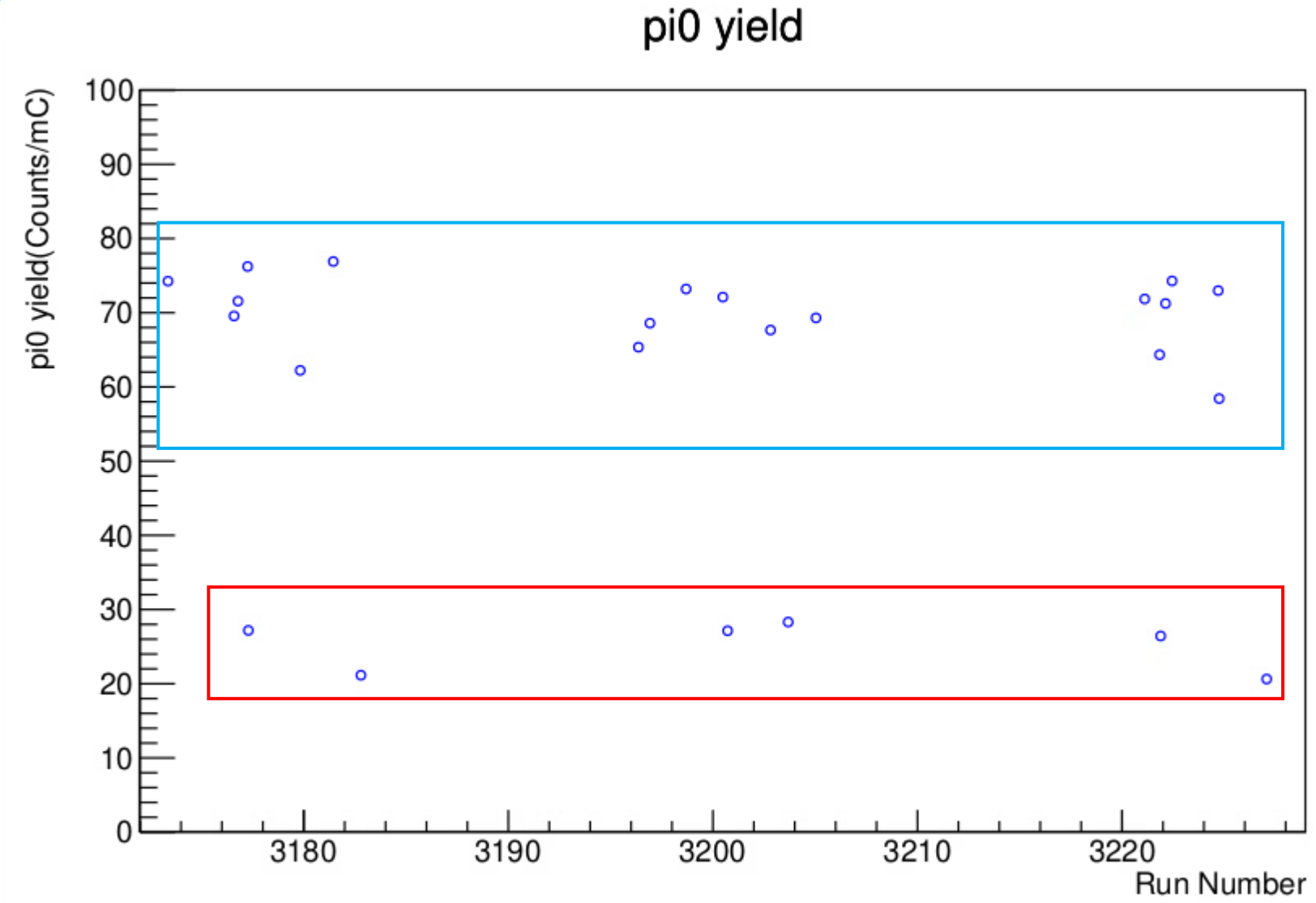
```
Double_t Pi0_Count = NofPi0-NofBag;
Pi0_Yield = Pi0_Count/NofCharge;
```

Find Pi0 yield
(NofCharge = BCM4A Charge)

```
Read the /lustre19/expphy/cache/hallc/c-nps/analysis/online/replays/production/nps_hms_skim_3174_1_-1.root.
NofBag: 1521, NofPi0: 9951, Pi0_Count: 8430, Pi0_Yield: 73.6065
```

Ex) 3174 Run Result

Pi0 yield test plot (LH2 Target)



Divided into two parts
(Why??)