



四川大學
SICHUAN UNIVERSITY

8.8

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01

histogram

Creating Histograms



using various constructors

```
TH1* h1 = new TH1I("h1",  
"h1 title", 100, 0.0, 4.0);  
TH2* h2 = new TH2F("h2",  
"h2 title", 40, 0.0, 2.0, 30, -  
1.5, 3.5);  
TH3* h3 = new TH3D("h3",  
"h3 title", 80, 0.0, 1.0, 100, -  
2.0, 2.0, 50, 0.0, 3.0);
```

cloning a histogram

```
TH1* hc = (TH1*)h1->Clone();
```

projecting histograms

```
TH1* hx = h2->ProjectionX();  
TH1* hy = h2->ProjectionY();
```

create histograms with variable bin widths



```
const Int_t NBINS = 5;  
Double_t edges[NBINS + 1] = {0.0, 0.2, 0.3, 0.6, 0.8, 1.0};  
// Bin 1 corresponds to range [0.0, 0.2]  
// Bin 2 corresponds to range [0.2, 0.3] etc...  
TH1* h = new TH1D(  
    /* name */ "h1",  
    /* title */ "Hist with variable bin width",  
    /* number of bins */ NBINS,  
    /* edge array */ edges );
```

Filling Histograms



```
h1->Fill(x);  
h1->Fill(x,w); // with weight  
h2->Fill(x,y);  
h2->Fill(x,y,w);  
h3->Fill(x,y,z);  
h3->Fill(x,y,z,w);
```

```
Double_t binContent = h->GetBinContent(bin);  
h->AddBinContent(content);  
h->SetBinContent(bin,content);
```

Adding, Dividing, and Multiplying



h1.Scale(const)

TH1F h3 = 8*h1;

TH1F h3 = h1*h2;



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02

Tree

```
root [3] Staus_Nominal->Show(1)
=====> EVENT:1
mcChannelNumber = 506387
ColinearMTauTau = -14839.1
CosChi1         = -2
CosChi2         = -2
EleWeight       = 1
EleWeightId     = 1
EleWeightId_EL_EFF_ID_TOTAL_1NPCOR_PL
EleWeightId_EL_EFF_ID_TOTAL_1NPCOR_PL
EleWeightIso    = 1
EleWeightIso_EL_EFF_Iso_TOTAL_1NPCOR
EleWeightIso_EL_EFF_Iso_TOTAL_1NPCOR
EleWeightReco   = 1
EleWeightReco_EL_EFF_Reco_TOTAL_1NPCO
EleWeightReco_EL_EFF_Reco_TOTAL_1NPCO
```

T->Show(10)

```
root [4] Staus_Nominal->Print()
*****
*Tree      :Staus_Nominal: SmallTree f
*Entries   :      41 : Total =
*          :          : Tree compressio
*****
*Br        0 :mcChannelNumber : mcChanne
*Entries   :      41 : Total Size=
*Baskets    :       1 : Basket Size=
*.....
*Br        1 :ColinearMTauTau : Colinearl
*Entries   :      41 : Total Size=
```

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T->Print()

```
(long long) 41
root [6] Staus_Nominal->Scan("mcChannelNumber")
*****
*      Row * mcChannel *
*****
*      0 *   506387 *
*      1 *   506387 *
*      2 *   506387 *
*      3 *   506387 *
*      4 *   506387 *
*      5 *   506387 *
*      6 *   506387 *
*      7 *   506387 *
*      8 *   506387 *
*      9 *   506387 *
*     10 *   506387 *
*     11 *   506387 *
*     12 *   506387 *
*     13 *   506387 *
*     14 *   506387 *
```

T->Scan("")

The Tree Viewer



T->StartViewer()

