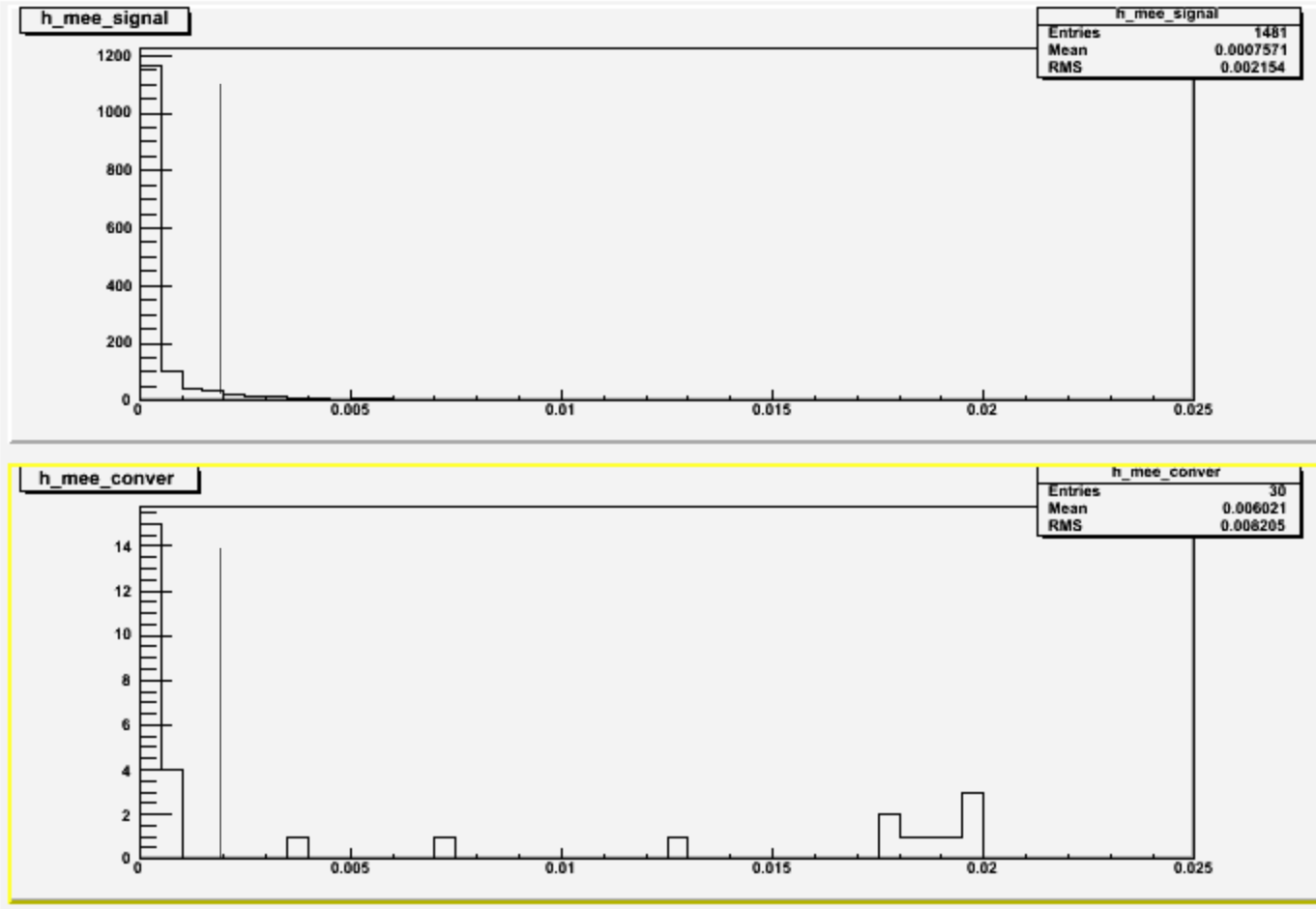


$$D_S^{*+} \rightarrow D_S^+ e^+ e^-$$

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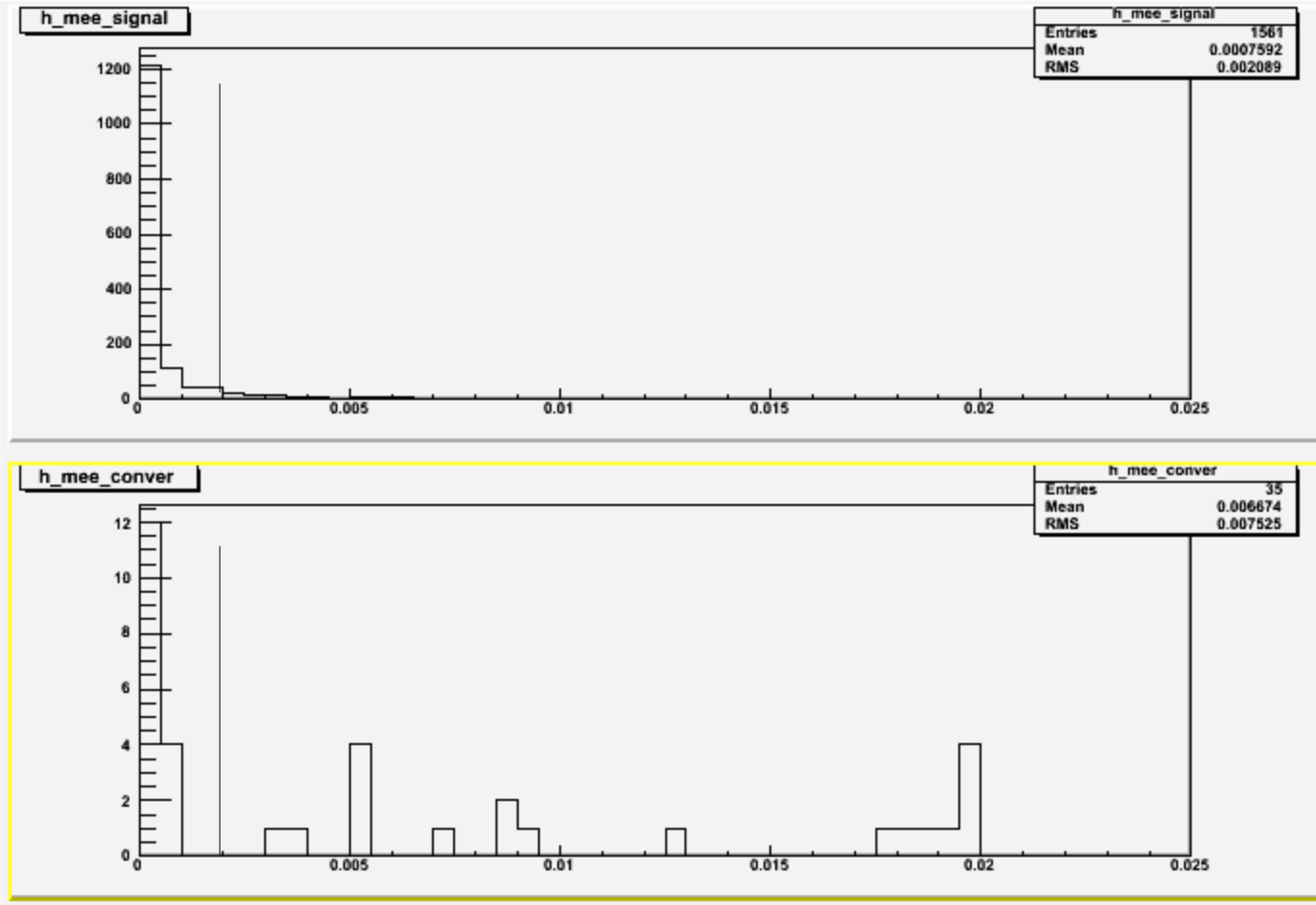
m_{ee}^2 without Vertex Fitting



$$\frac{s}{\sqrt{b}} = 11.92$$

TCut dsPlusMCut = "abs(dsPlusM-1.96849)<0.011";
 TCut MBCCut = "abs(MBC-2.112)<0.004";
 TCut deltaMCut = "abs(DeltaM-0.1438)<0.006";
 TCut diffD0Cut = "(kElectron1D0_reco-kElectron2D0_reco)>-0.006";
 TCut dPhiCut = "(atan2(kElectron1Py_reco, kElectron1Px_reco)-atan2(kElectron2Py_reco, kElectron2Px_reco))<0.1";
 TCut vtxCut = "chisqVtx>0";

m_{ee}^2 with Vertex Fitting



$$\frac{s}{\sqrt{b}} = 13.65$$

TCut dsPlusMCut = "abs(dsPlusM-1.96849)<0.011";
 TCut MBCCut = "abs(MBC-2.112)<0.004";
 TCut deltaMCut = "abs(DeltaM-0.1438)<0.006";
 TCut diffD0Cut = "(kElectron1D0_reco-kElectron2D0_reco)>-0.006";
 TCut dPhiCut = "(atan2(kElectron1Py_reco, kElectron1Px_reco)-atan2(kElectron2Py_reco, kElectron2Px_reco))<0.1";
 TCut vtxCut = "chisqVtx>0";

m_{ee}^2 with Vertex Fitting and Optimized Cuts

With vertex-fitting optimized cuts:

```
TCut dsPlusMCut    = "abs(dsPlusM-1.96849)<0.011";  
TCut MBCCut        = "abs(MBC-2.112)<0.004";  
TCut deltaMCut     = "abs(DeltaM-0.1438)<0.004";  
TCut diffD0Cut     = "(kElectron1D0_reco-kElectron2D0_reco)>-0.005";  
TCut dPhiCut       = "(atan2(kElectron1Py_reco, kElectron1Px_reco)-atan2(kElectron2Py_reco, kElectron2Px_reco))<0.1";  
TCut vtxCut        = "chisqVtx>0";
```

$$\frac{s}{\sqrt{b}} = 14.44$$

However, this significance must be calculated with the generic and continuum backgrounds in place as well.