

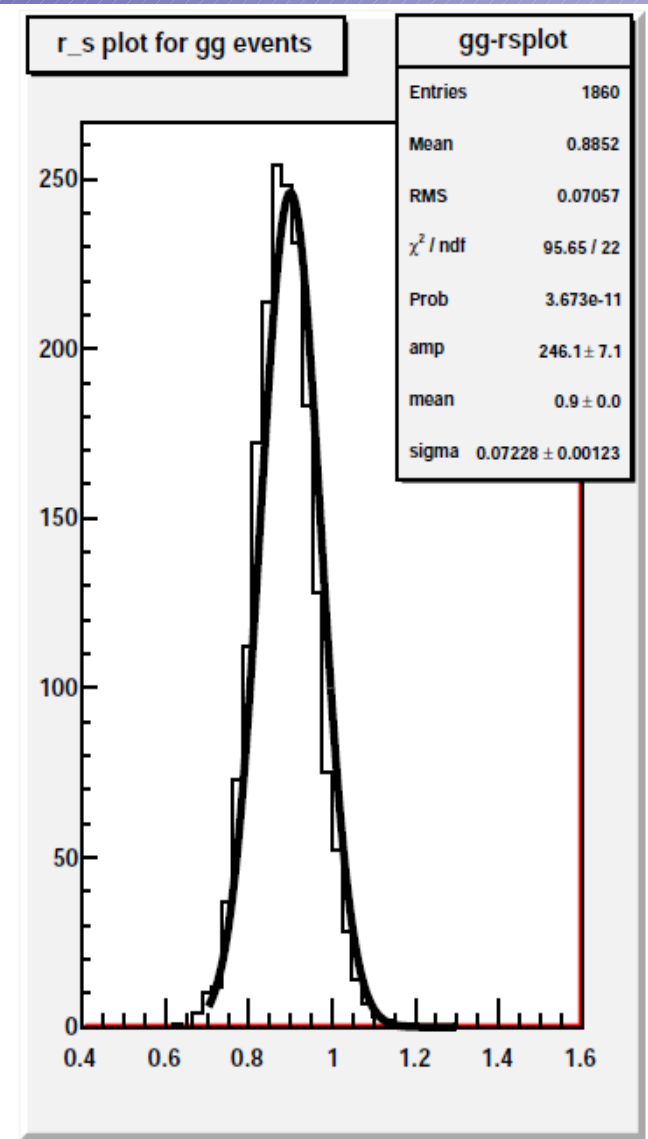
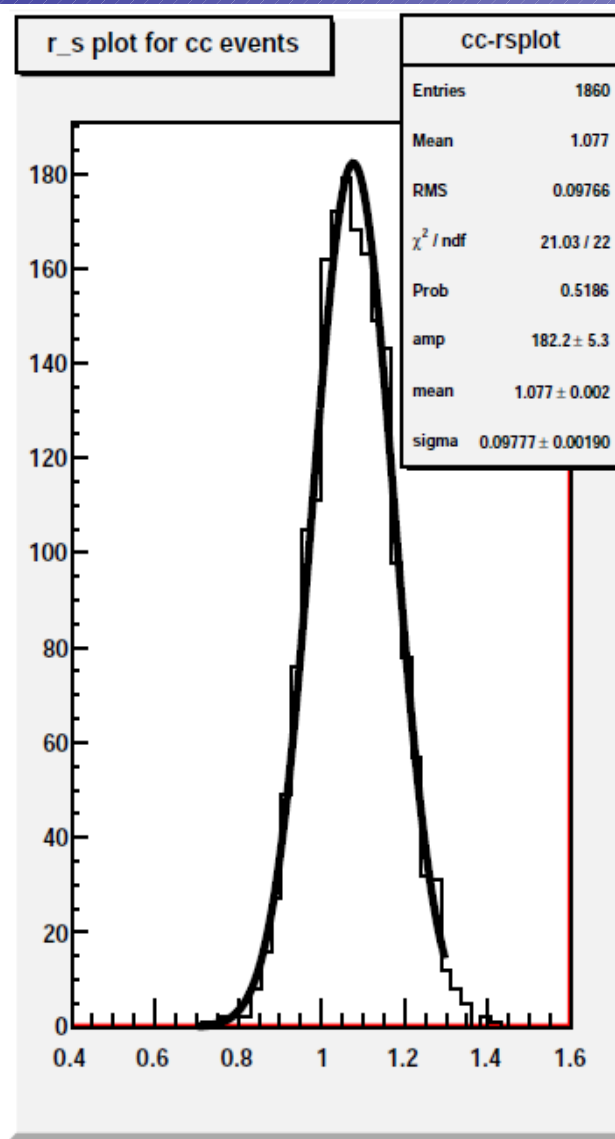
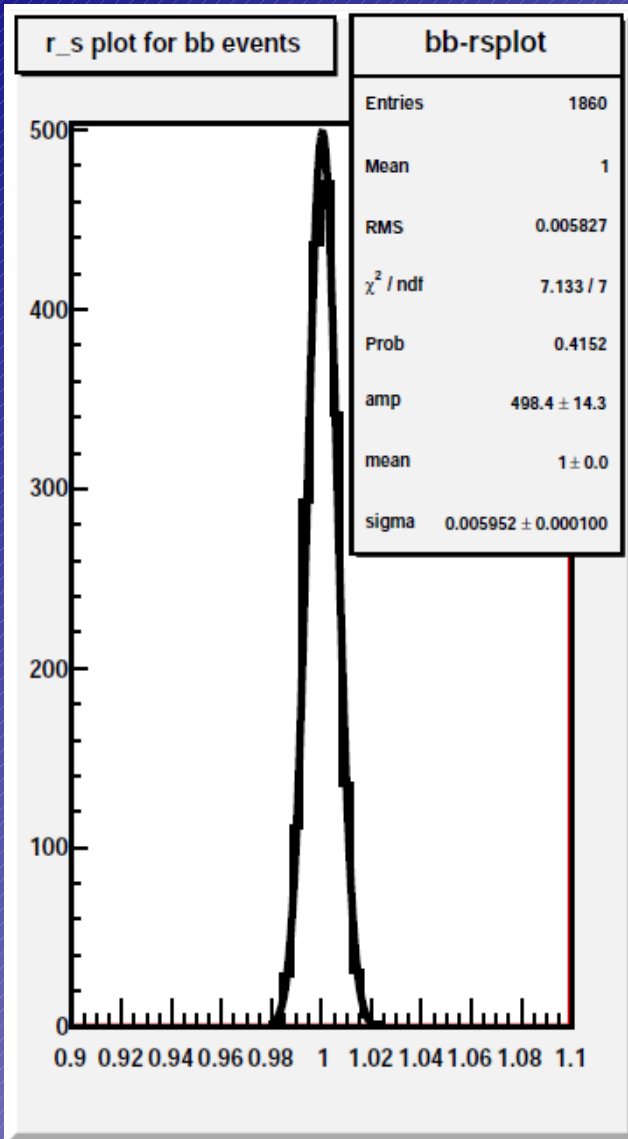
SiD 1 TeV ffH BR Analysis and 250 GeV ZH thoughts

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r_s distributions for 60x60x60 binning of the templates:



$$\frac{\Delta(\sigma \cdot BR)}{\sigma \cdot BR}$$

for different #bins templates

20x20x20 bins:

h->bb̄	→	sigma	6.24714e-03	9.88073e-05
h->cc̄	→	sigma	1.11379e-01	2.04201e-03
h->gg	→	sigma	9.92033e-02	1.73081e-03

25x25x25 bins:

h->bb̄	→	sigma	6.32818e-03	1.00089e-04
h->cc̄	→	sigma	1.12191e-01	2.06801e-03
h->gg	→	sigma	9.78997e-02	1.73164e-03

30x30x30 bins:

h->bb̄	→	sigma	6.13841e-03	9.70885e-05
h->cc̄	→	sigma	1.04590e-01	1.84549e-03
h->gg	→	sigma	9.43471e-02	1.70588e-03

60x60x60 bins:

h->bb̄	→	sigma	5.95225e-03	1.00386e-04
h->cc̄	→	sigma	9.77718e-02	1.89866e-03
h->gg	→	sigma	7.22824e-02	1.23449e-03

100x100x100 bins:

h->bb̄	→	sigma	6.51439e-03	1.35240e-04
h->cc̄	→	sigma	9.36110e-02	1.85658e-03
h->gg	→	sigma	6.48416e-02	1.06240e-03

Comparison to results using BDTG

	'-80/+20'	
	SiD DBD	SID now
H → bb	0.0067	0.0066
H → cc	0.108	0.088
H → gg	0.044	0.046
H → WW*	0.047	0.044

Total Higgs Width from
 $e^+e^- \rightarrow ZH, H \rightarrow ZZ^*$
@ $E_{\text{cm}} = 250 \text{ GeV}$

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Specifications/Issues

- Both four and 6 jet topologies
- Lepton PID important
- Two on-shell Z constraints (but one decay mode has $Z \rightarrow \nu \bar{\nu}$)
- Flavour tagging trained for 4 jets sufficient?
 - OK to use ZZ^* @ 250GeV for training?
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Data Samples

- Signals available?
- Backgrounds:

Ref. Slides: