Spin Studies Status

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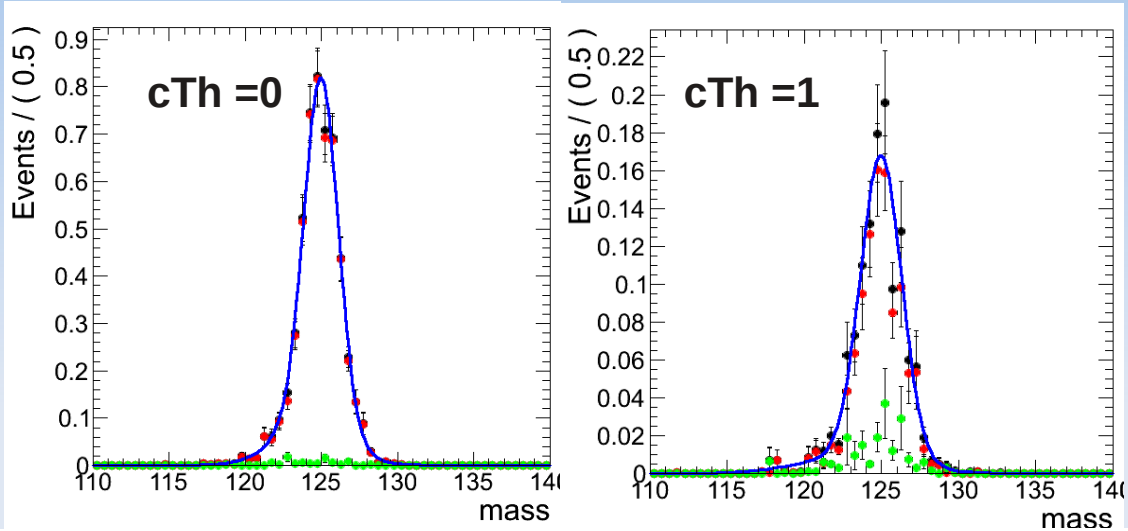
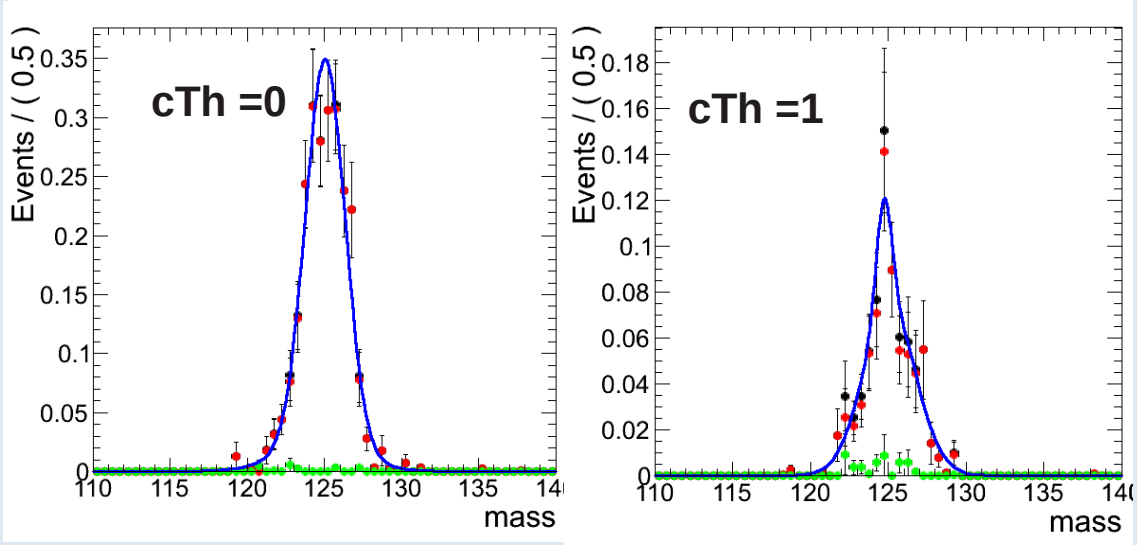
Since last week...

- A bit busy on other stuff
  - I am the L1 DoC for this week (last time for 2012...)
  - PhD 9 Months report... done
- On the Spin analysis
  - Looked at the contribution of Endcaps to:
    - Each signal category
    - Contribution to signal mass “shapes”

BDT Bin 0

SM Higgs



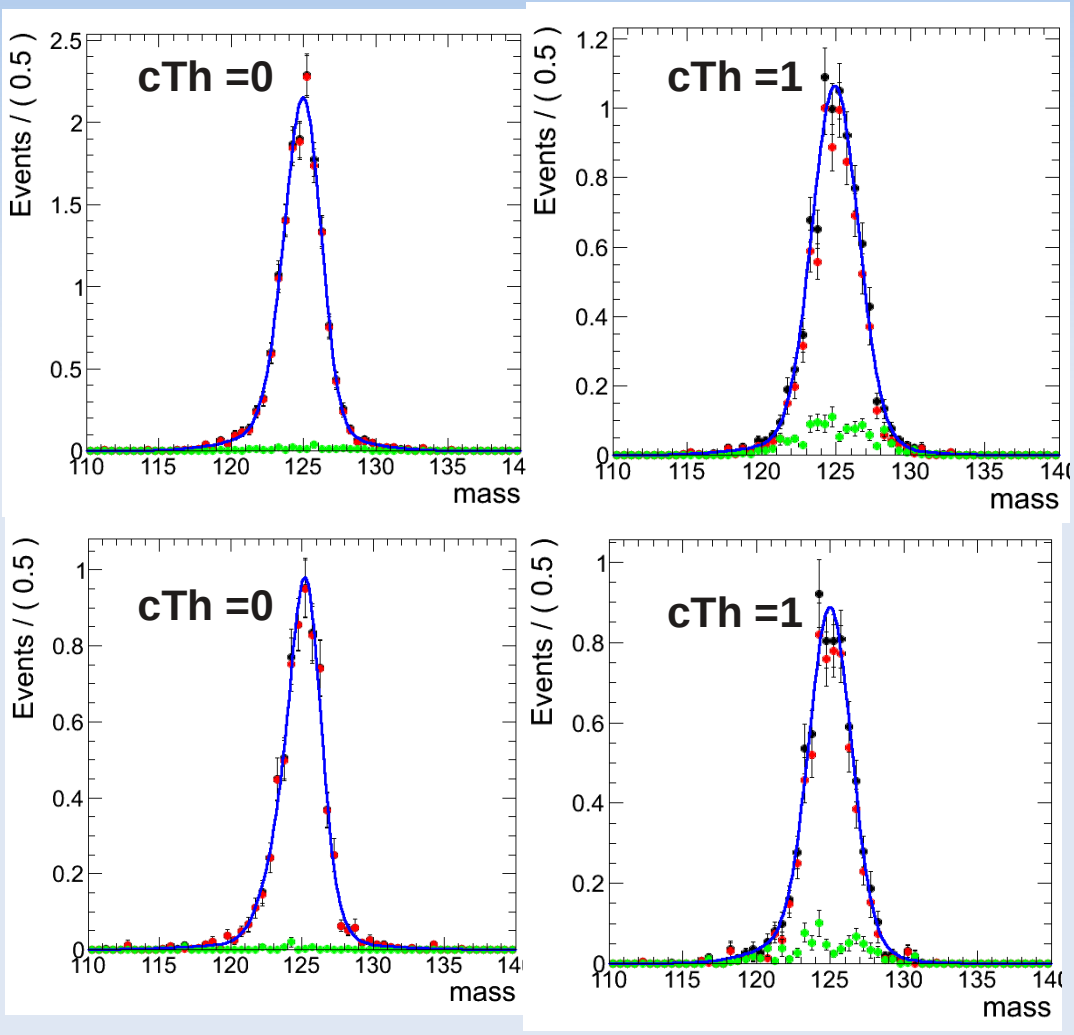


Graviton

- Practically no contribution to cos(Theta*) bin 0 in both samples.
- Some minimal contribution of EX on cos(Theta*) bin 1

BDT Bin 1

SM Higgs

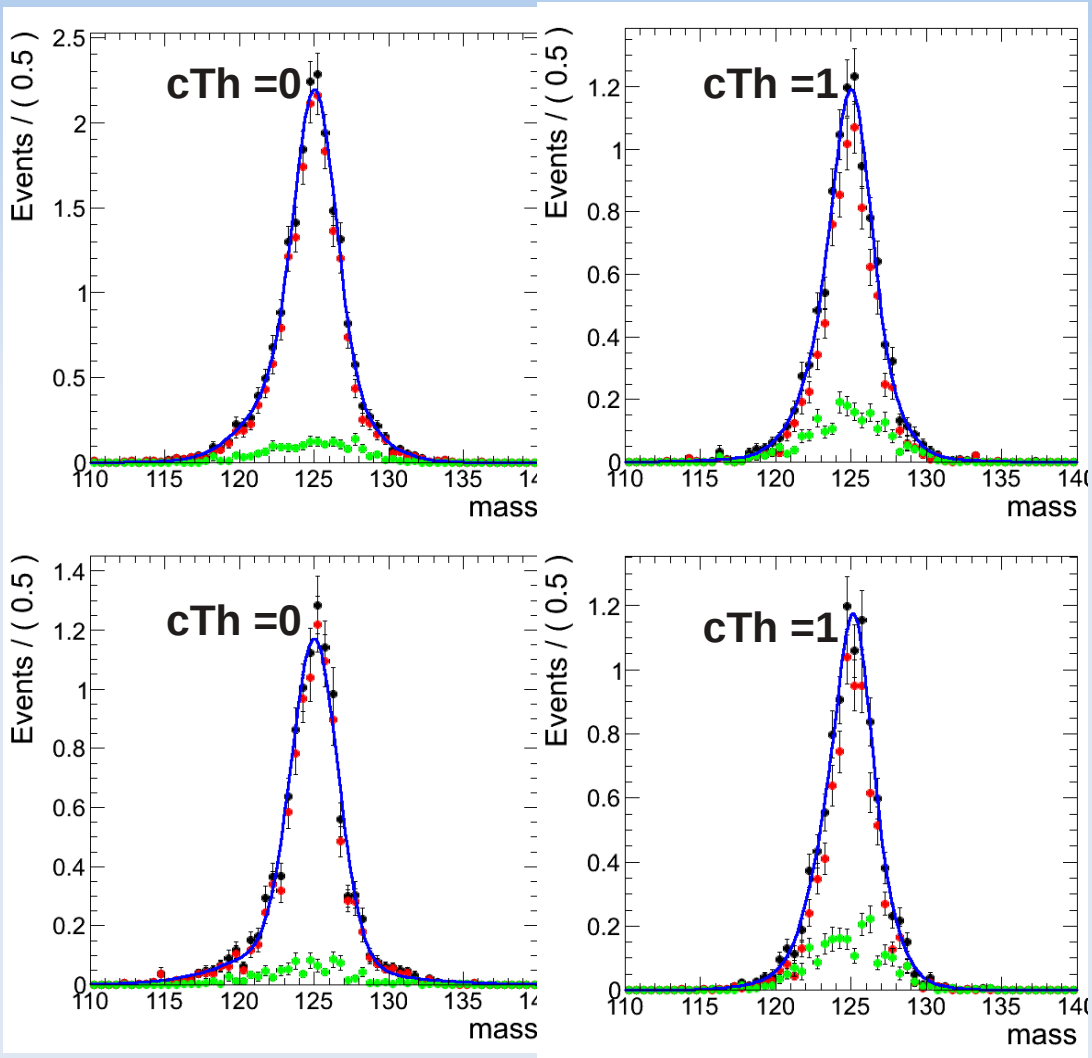


Graviton

- Practically no contribution to cos(Theta*) bin 0 in both samples.
- Some minimal contribution of EX on cos(Theta*) bin 1

BDT Bin 2

SM Higgs

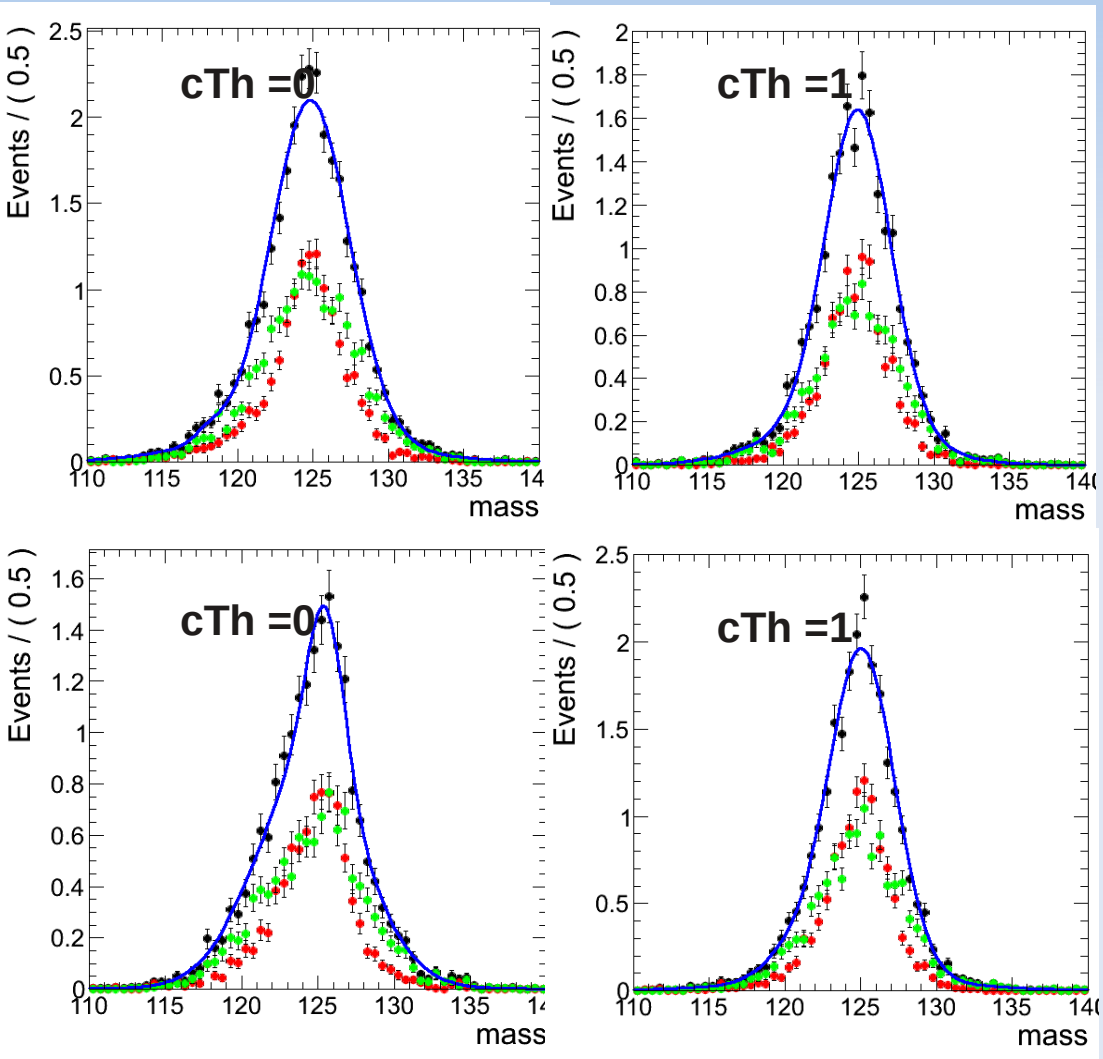


Graviton

- Some minimal contribution to cos(Theta*) bin 0 in both samples.
- EX Contribution started to be relevant to cos(Theta*) bin 1
- Graviton looks more asymmetric, high mass side.

BDT Bin 3

SM Higgs



Graviton

- EX is significant cos(Theta*) bin 0/1 in both samples.
- Graviton again looks more asymmetric, high mass side, only visible on endcap part.

Plots in Numbers

	SM Higgs (Absolute)							
	BDT0		BDT1		BDT2		BDT3	
	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1
BB	5.07	1.03	15.03	7.66	18.40	8.05	13.38	9.45
EX	0.09	0.20	0.25	1.15	1.86	2.10	16.86	10.80

	Graviton (Absolute)							
	BDT0		BDT1		BDT2		BDT3	
	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1
BB	2.38	0.70	6.72	6.21	9.93	7.61	8.68	11.32
EX	0.02	0.05	0.06	0.81	0.95	2.15	10.66	12.88

	Relative BB/Total							
	BDT0		BDT1		BDT2		BDT3	
	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1	cTh0	cTh1
SM Higgs	0.982	0.840	0.984	0.870	0.908	0.793	0.443	0.467
Graviton	0.991	0.937	0.991	0.884	0.912	0.780	0.449	0.468

- Relative yields between BB and EX are very similar across all categories.
- Absolute values are different due to same initial cross section and different BDT signal efficiency

For next week

- Look at other control plots
- Look at relative contribution from each category
- Do the analysis without the relative yields constraint (Paul suggestion?)