Tagging boosted jets
Application to $t\bar{t}H$

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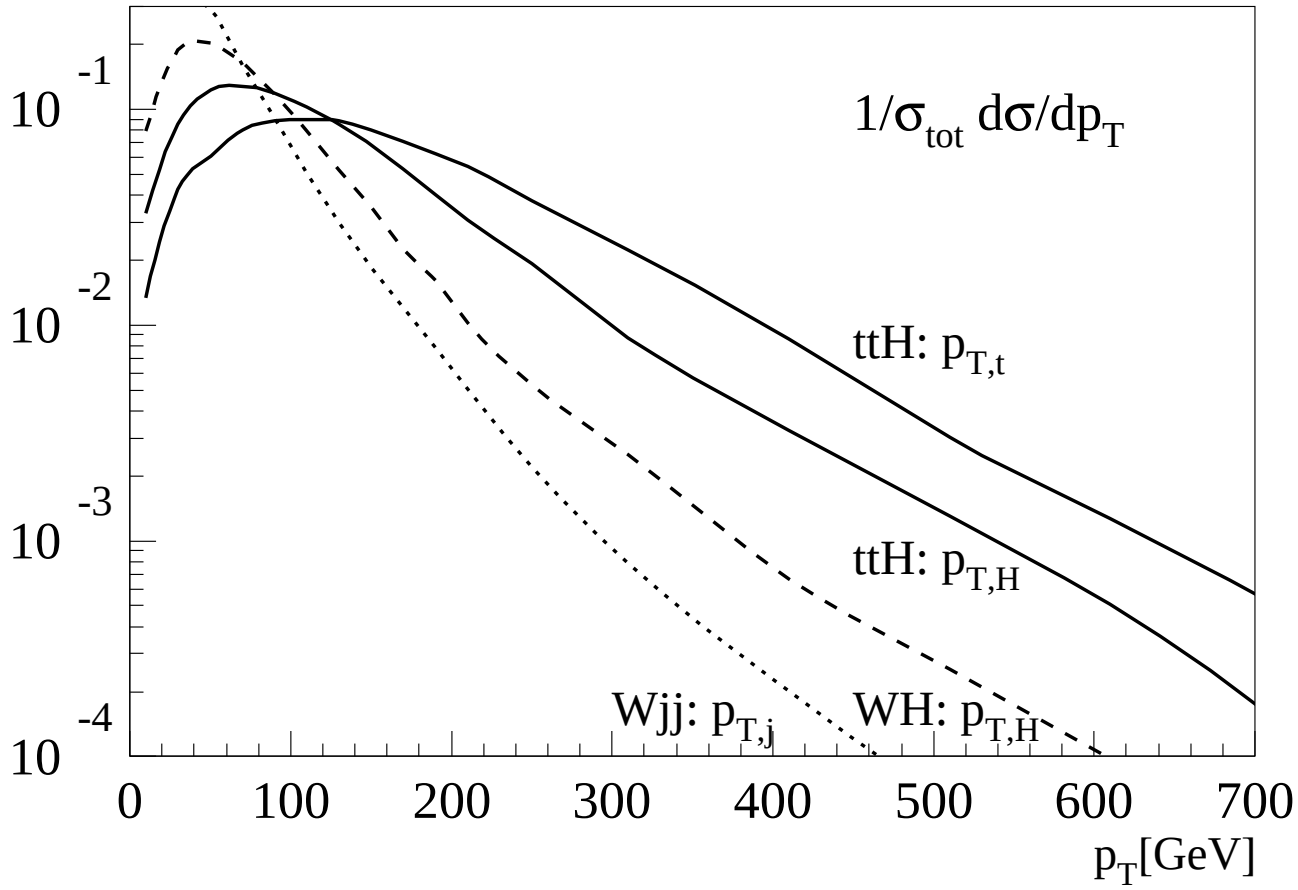
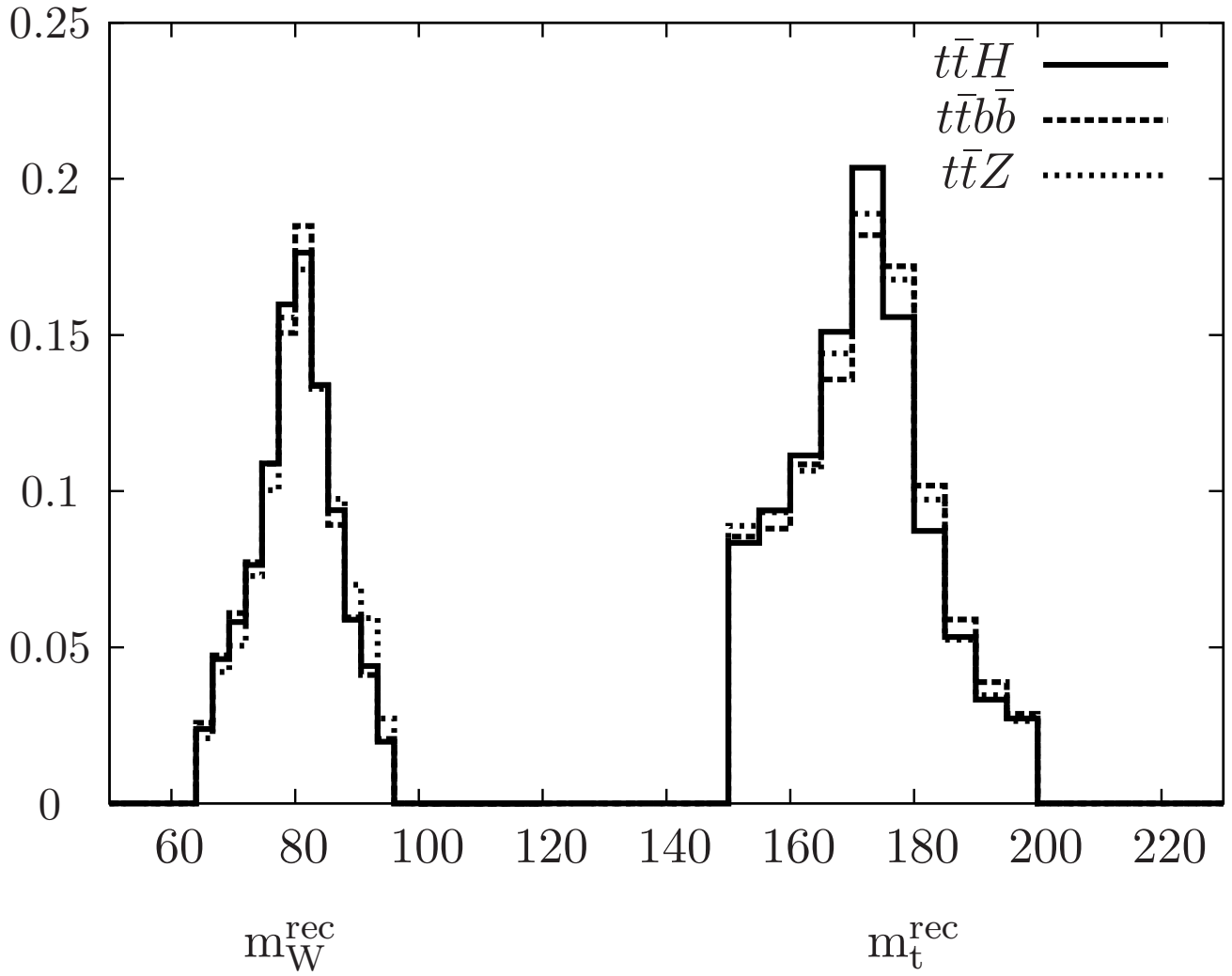
p_t distribution



ttH more often boosted than WH and Wjj

reconstructed W and t



Reconstrucion efficiencies (1/2)

Reconstructed events for $m_H = 120$ GeV, 1 fb^{-1}

	signal	$t\bar{t}Z$	$t\bar{t}b\bar{b}$	$t\bar{t}$+jets
after kinem cuts	24.1	6.9	191	4160
after top tag	10.2	2.9	70.4	1457
after Higgs tag	3.2	0.47	13.8	121
with 2 b tags	1.0	0.08	2.3	1.4
with 3$^{\mathrm{rd}}$ b tag	0.48	0.03	1.09	0.06

Reconstrucion efficiencies (2/2)

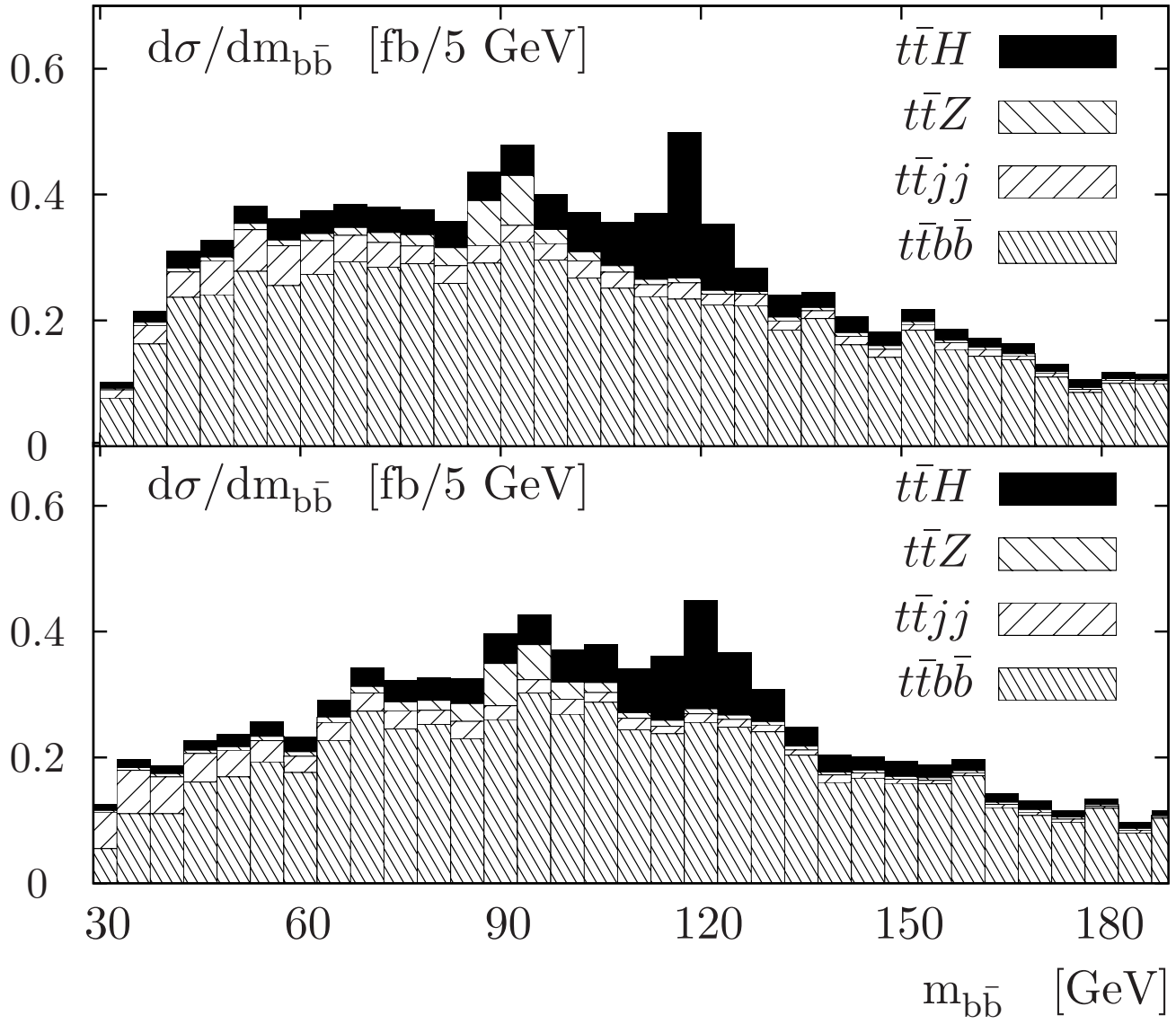
Integrated lumi of 100 fb^{-1}:

		S	B	S/B	$S/\sqrt{B}$
2 b	$m_H = 115$ GeV	120	380	1/3.2	6.2
	120 GeV	100	380	1/3.8	5.1
	130 GeV	51	330	1/6.5	2.8
3 b	$m_H = 115$ GeV	57	118	1/2.1	5.2
	120 GeV	48	115	1/2.4	4.5
	130 GeV	29	103	1/3.6	2.9

- better significance with 2 b tags
- better S/B for 3 b tags
- ATLAS: 30 fb^{-1}, no systematic uncertainties
  $\Rightarrow$ significance 1.8-2.2σ, $S/B \sim 1/9$.

Reconstructed H

Reconstructed Higgs (including 3 b tags)



no UE

with UE