Progress Update
Kinematic Fit

8th April 2021

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Kinematic fitter

$$P_{\text{gof}} = \exp\left(-\chi^2/2\right)$$

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-> Number of measured Particles  : 4
-> Number of unmeasured particles: 0
-> Number of constraints         : 2
-> Number of degrees of freedom  : 2
-> Number of parameters A        : 0
-> Number of parameters B        : 12
-> Maximum number of iterations  : 30
-> Maximum deltaS                : 0.01
-> Maximum F                     : 0.1
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-> Status                        : 0
-> Number of iterations          : 5
-> S                             : 35.7374
-> F                             : 0.00126087
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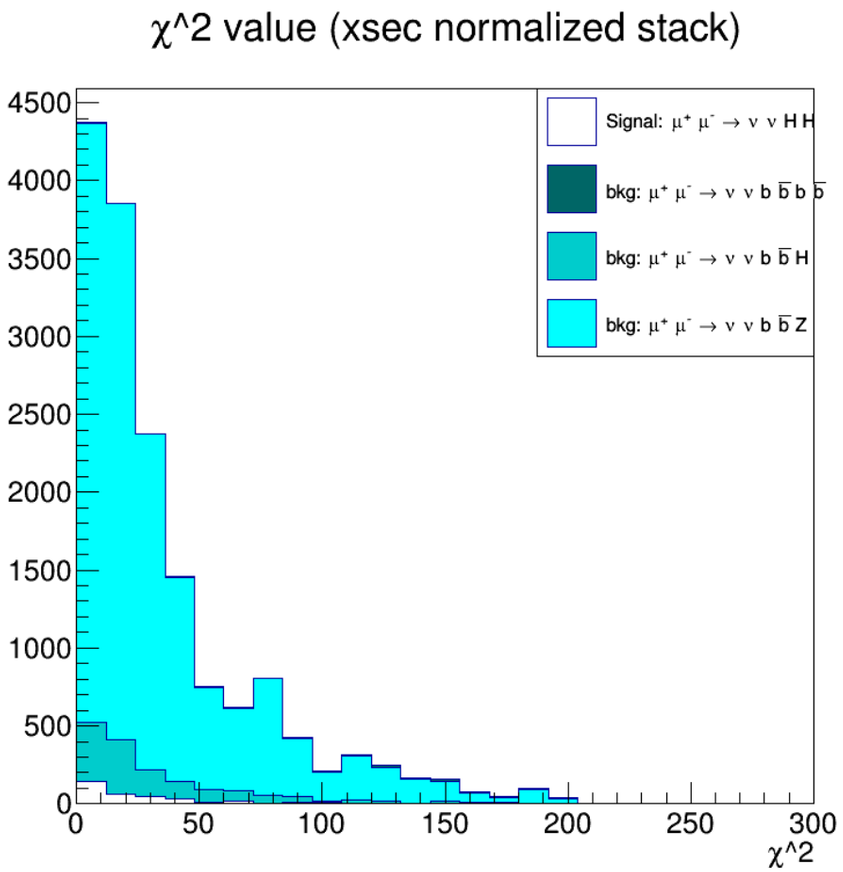
Figure 1: Output of the kinematic fitter

- The S value is the chi-squared value for the fit
- We run a fitter for each of the events and order the jets by pT, picking the lowest two and highest two to be the Higgs candidates

Stacked plots



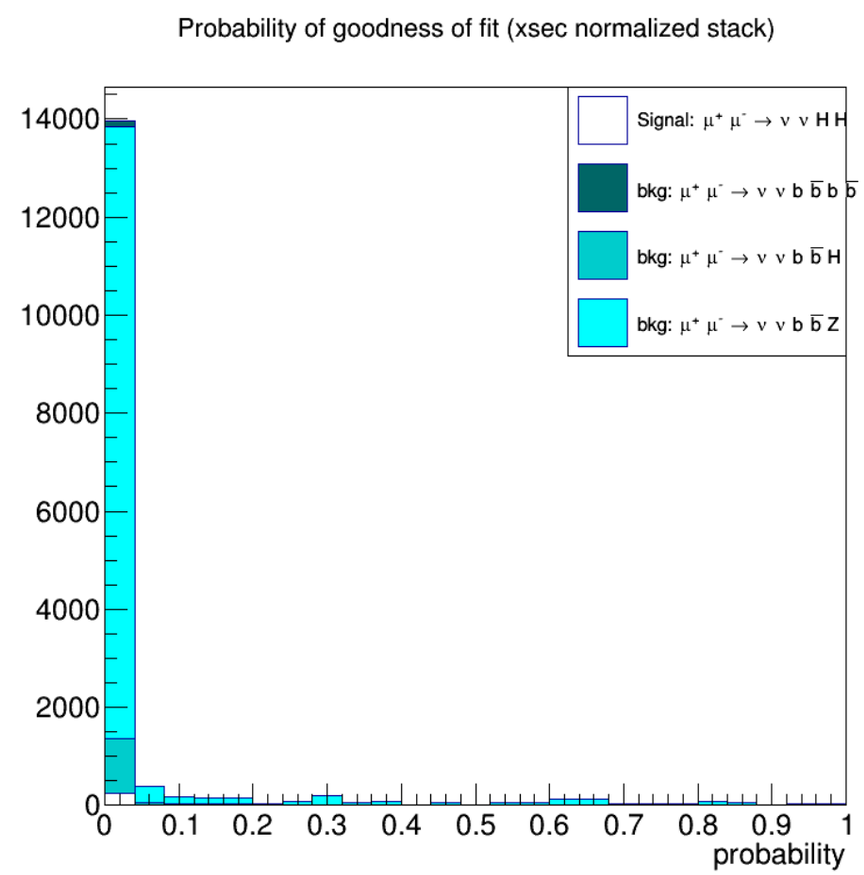


Figure 2: xsec normalised stacks for chi squared and the goodness of fit probability

Stacked plots (2)

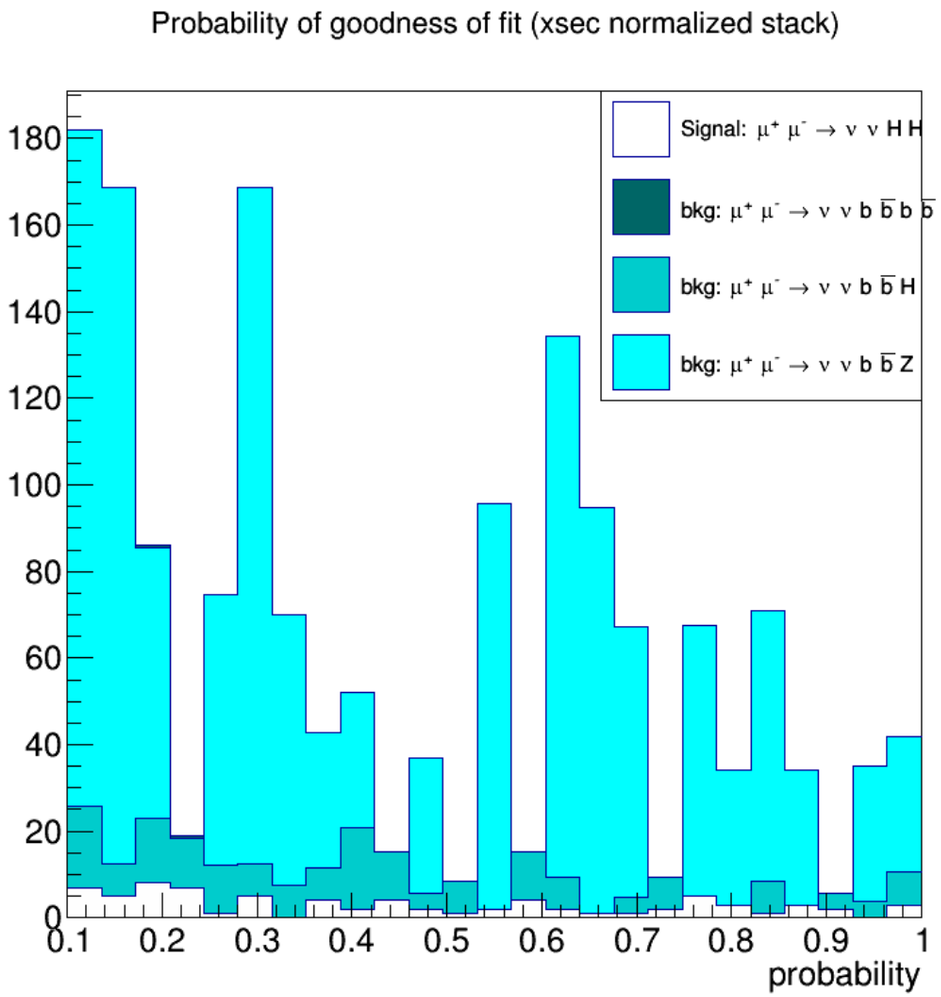
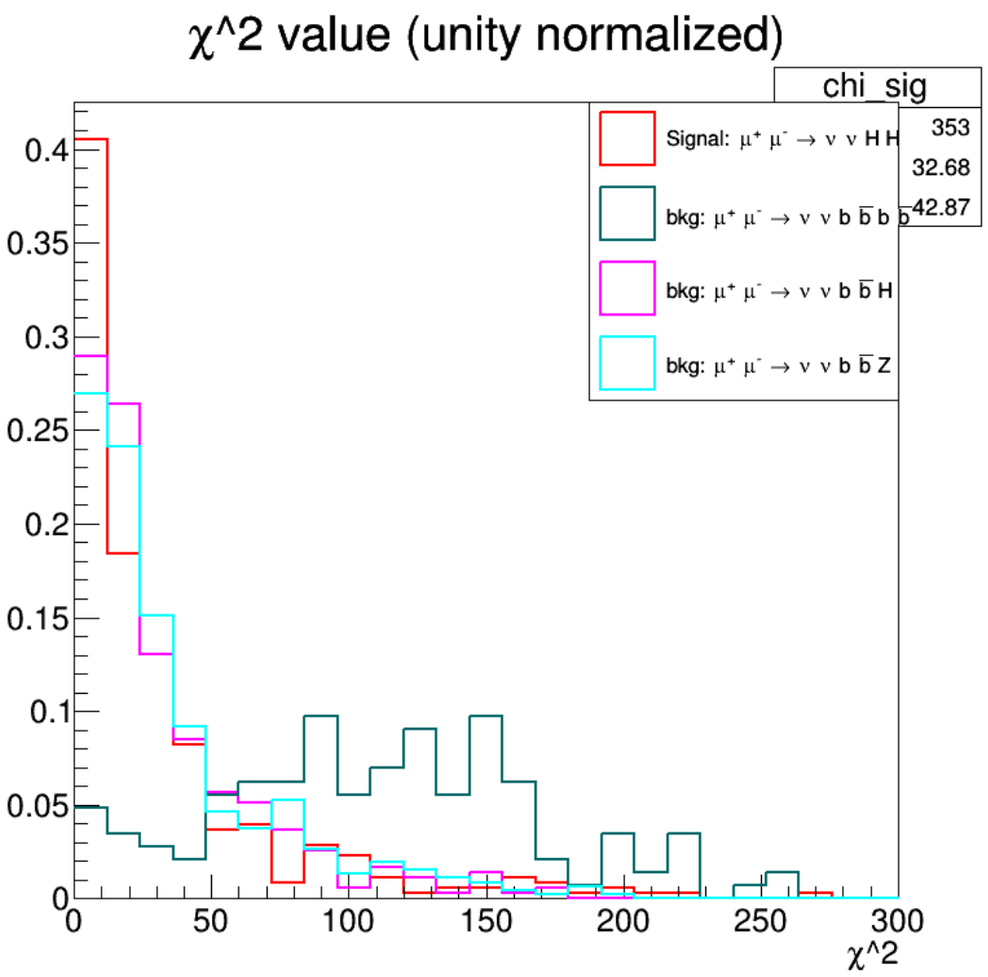


Figure 3: xsec normalised stacks for the goodness of fit probability

Normalised plots



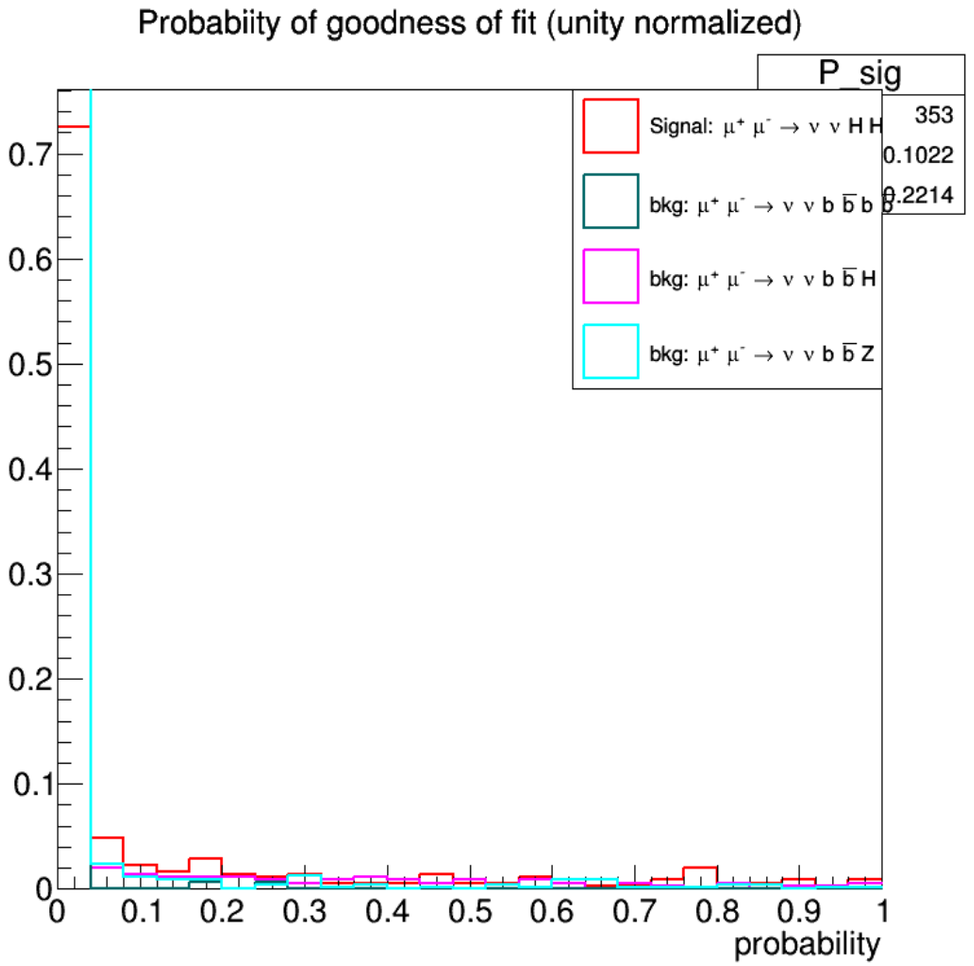
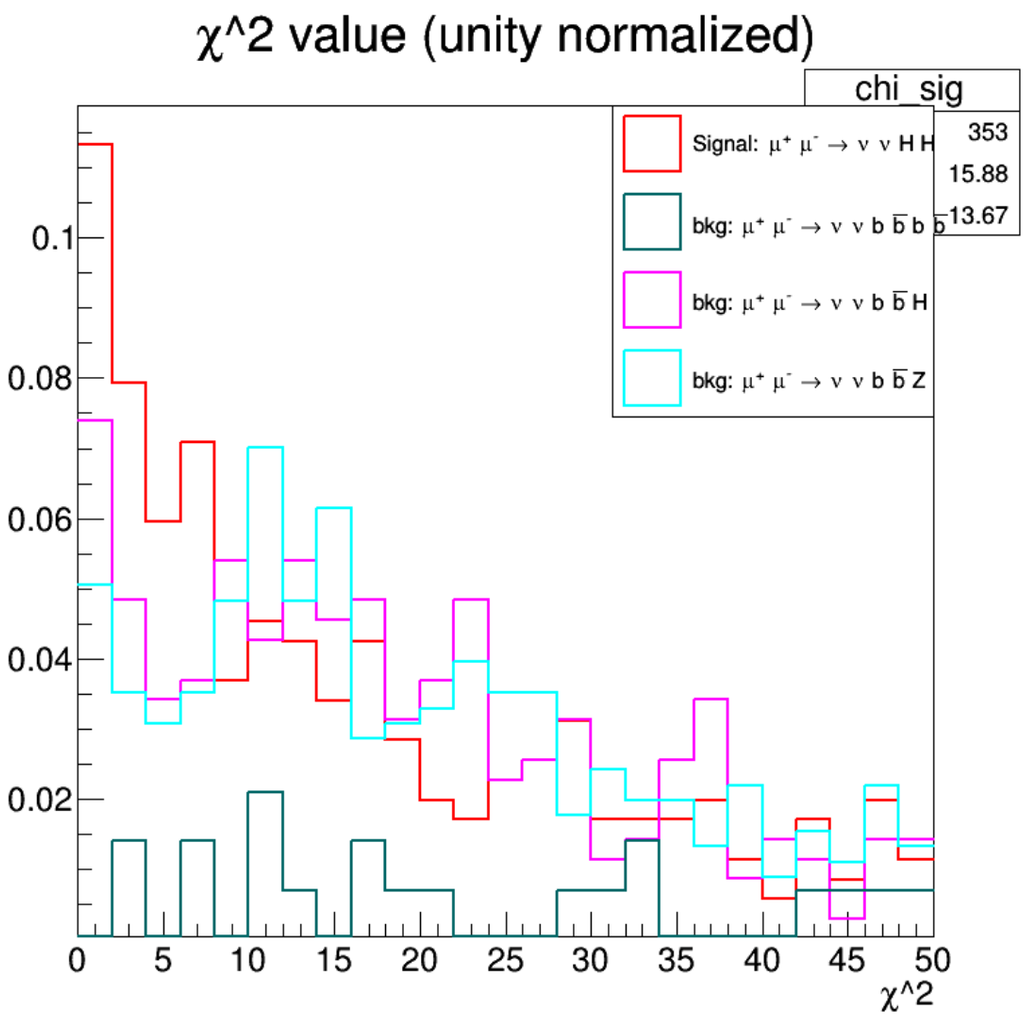


Figure 4: Unity normalised stacks for the chi squared and goodness of fit probability

Normalised plots (2)



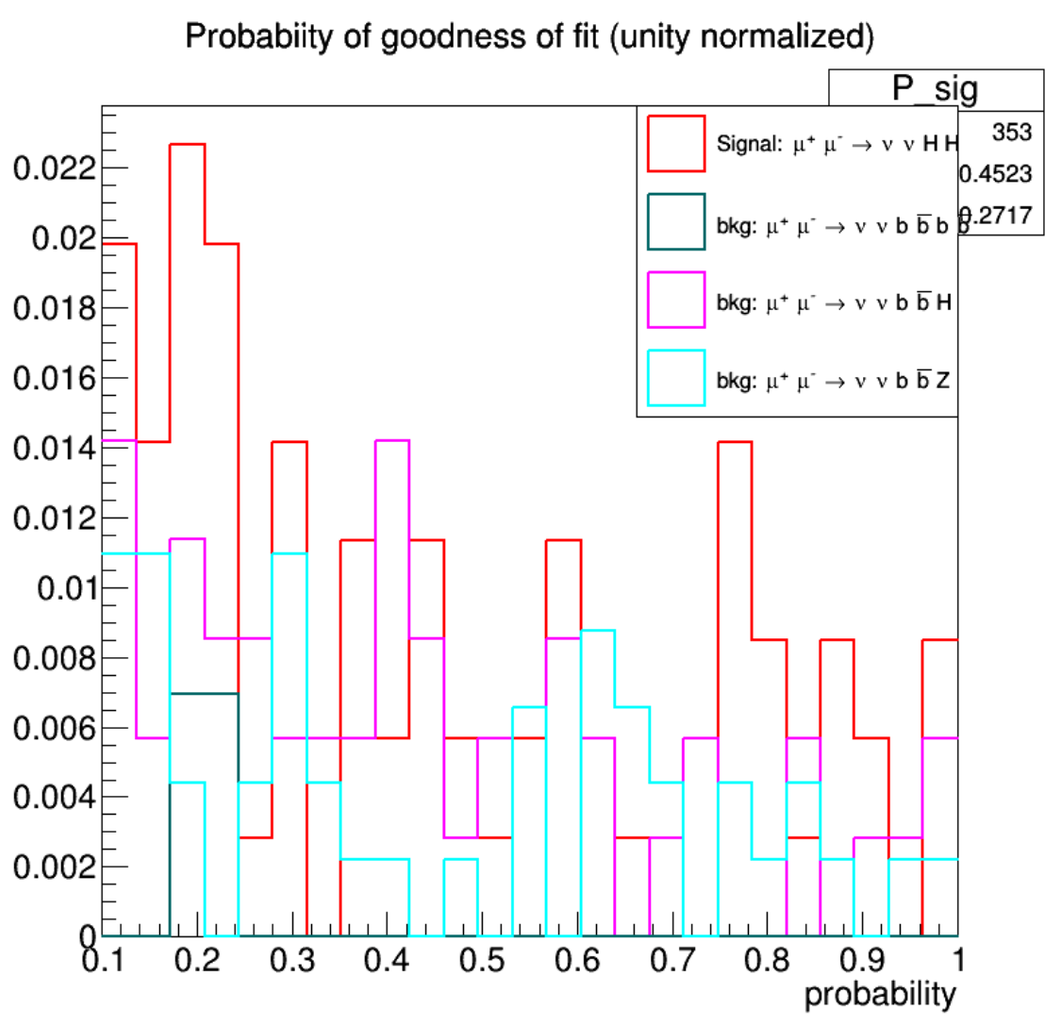


Figure 4: Unity normalised stacks for the chi squared and goodness of fit probability