Template Fit

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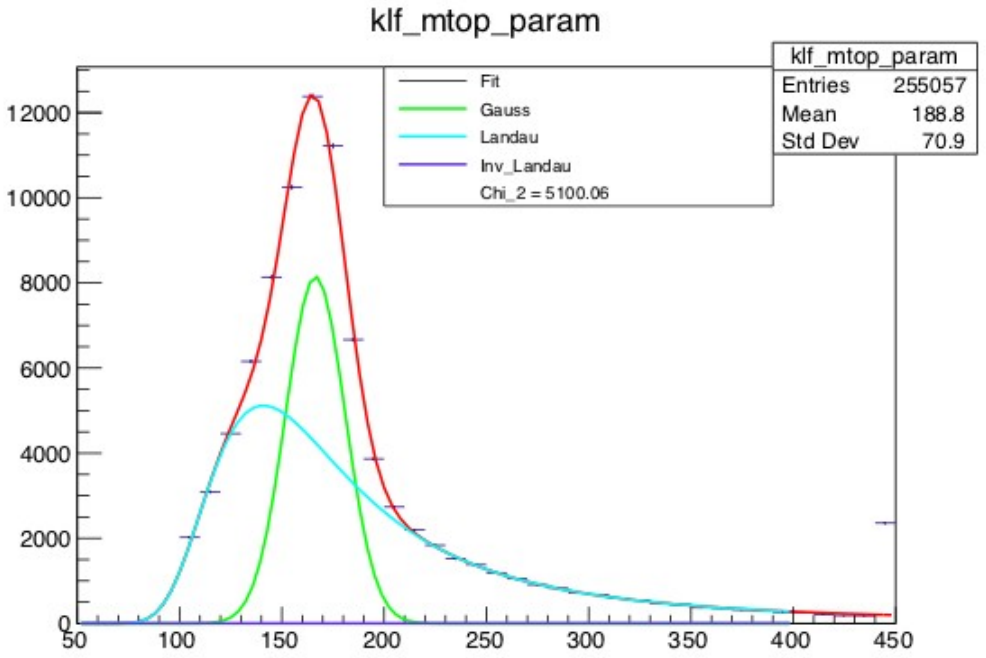
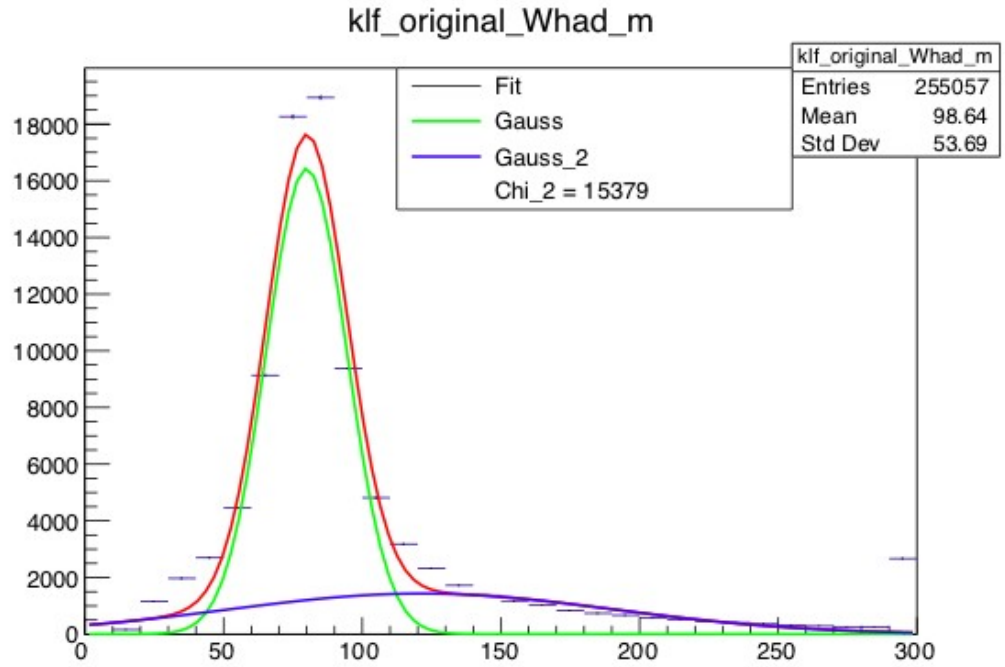
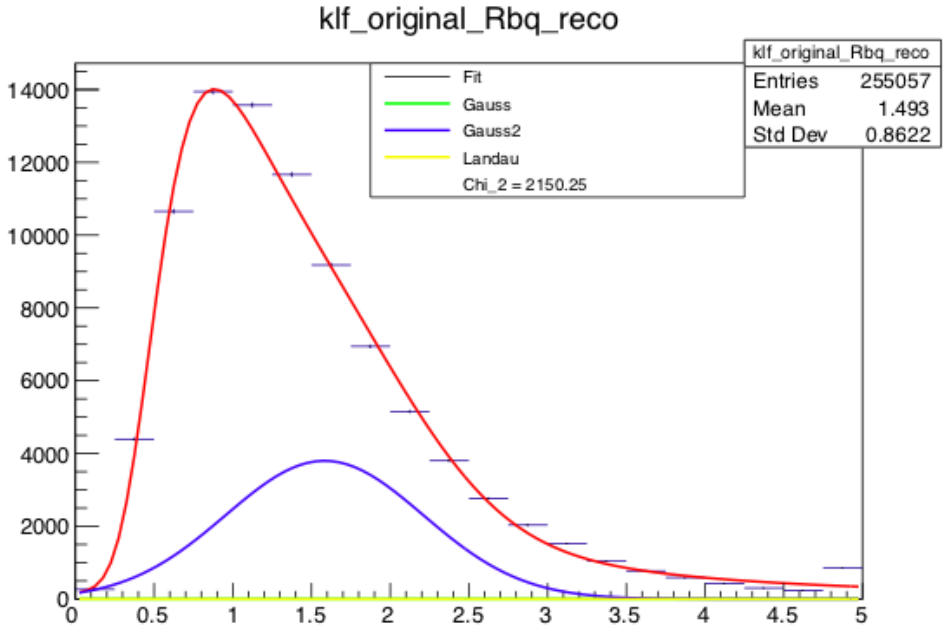
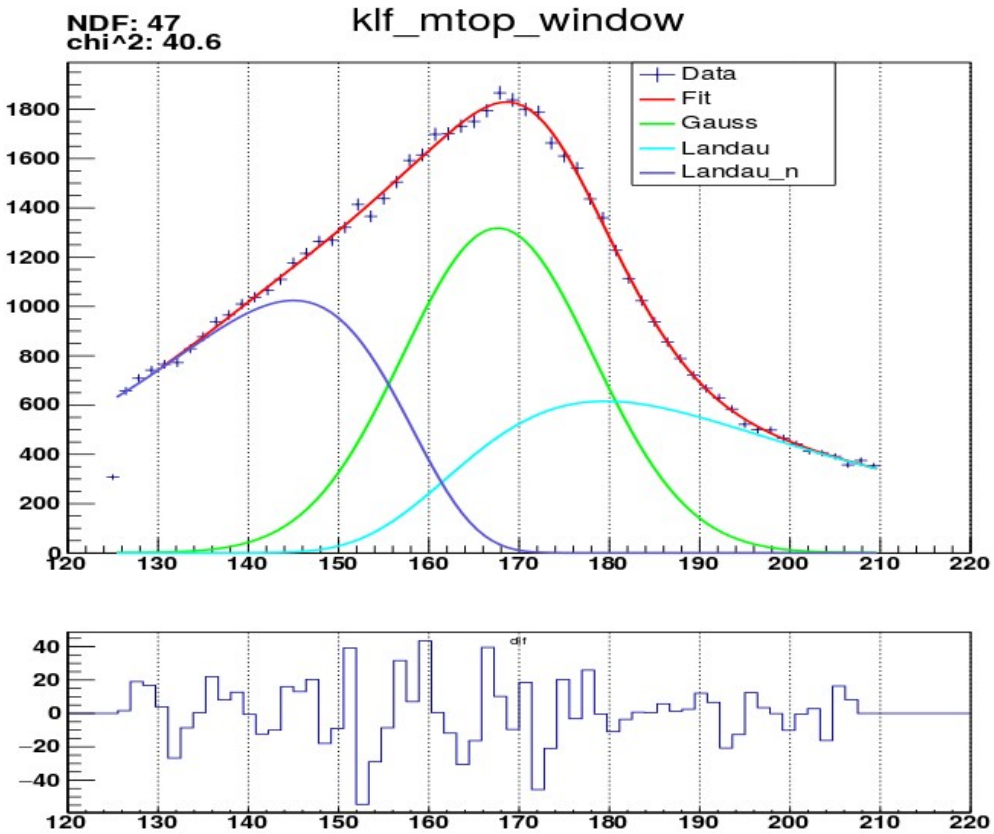
Samples 2015

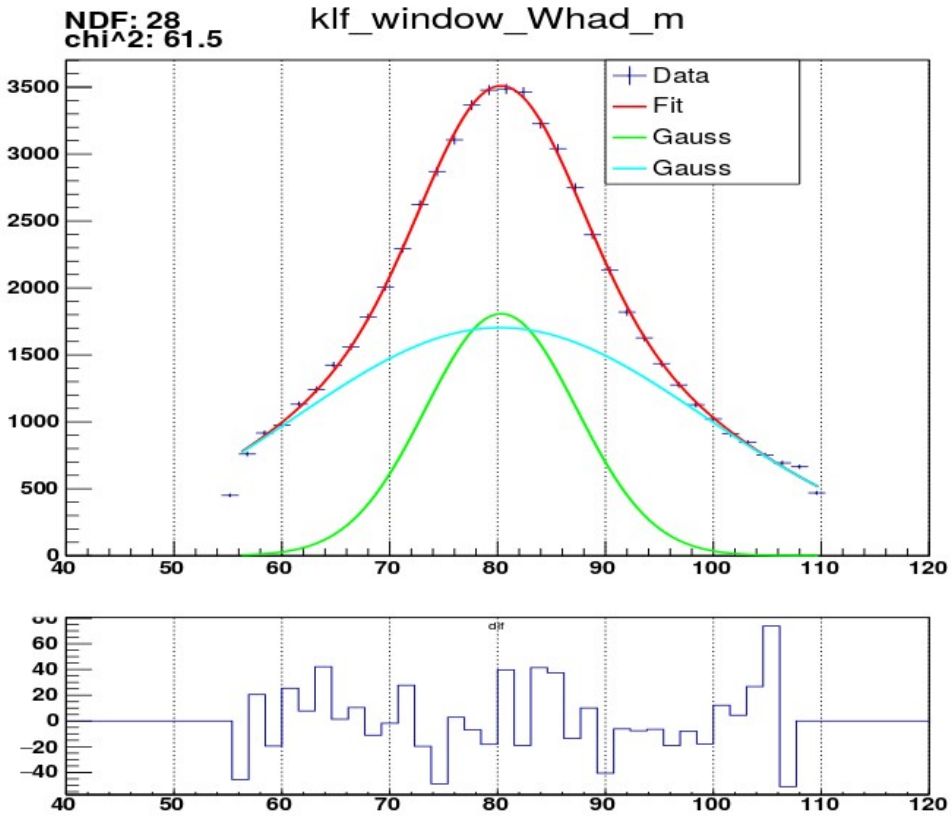




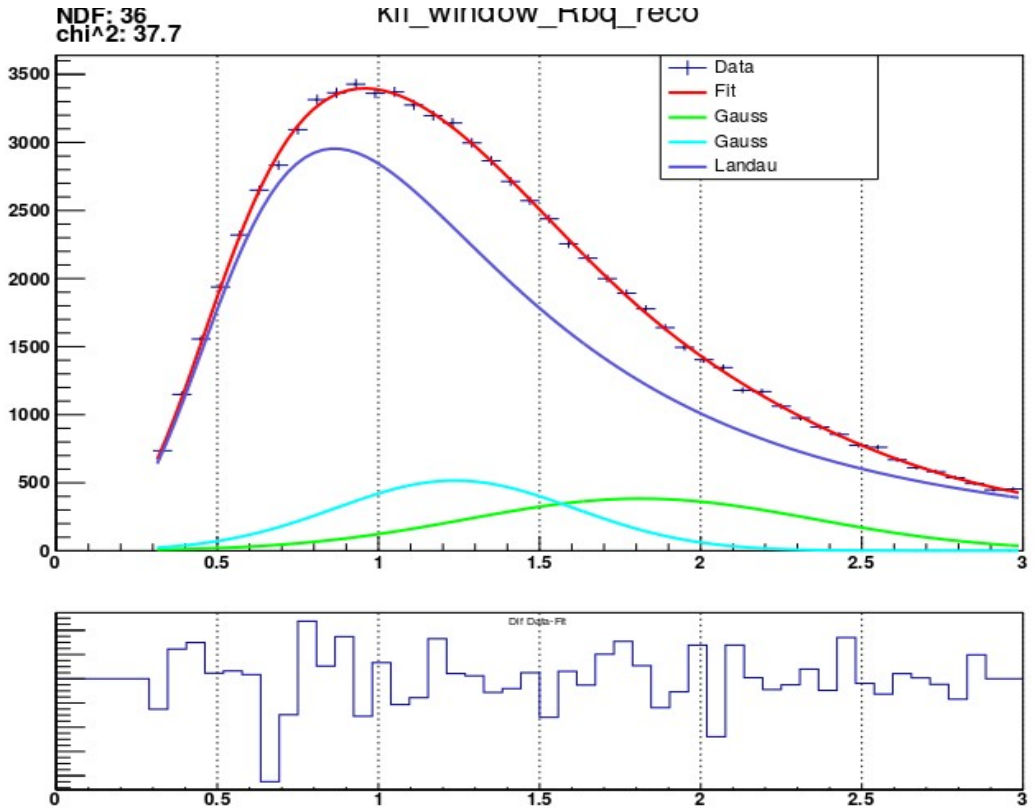


Update


NDF: 47
chi^2: 40.6
klf_mtop_window
Data
Fit
Gauss
Landau
Landau_n
dif


NDF: 28
chi^2: 61.5
klf_window_Whad_m
Data
Fit
Gauss
Gauss
dif

Update


NDF: 36
chi^2: 37.7
Data
Fit
Gauss
Gauss
Landau
3500
3000
2500
2000
1500
1000
500
0
0
0.5
1
1.5
2
2.5
3

Backup

How do we want to measure the top-quark mass?

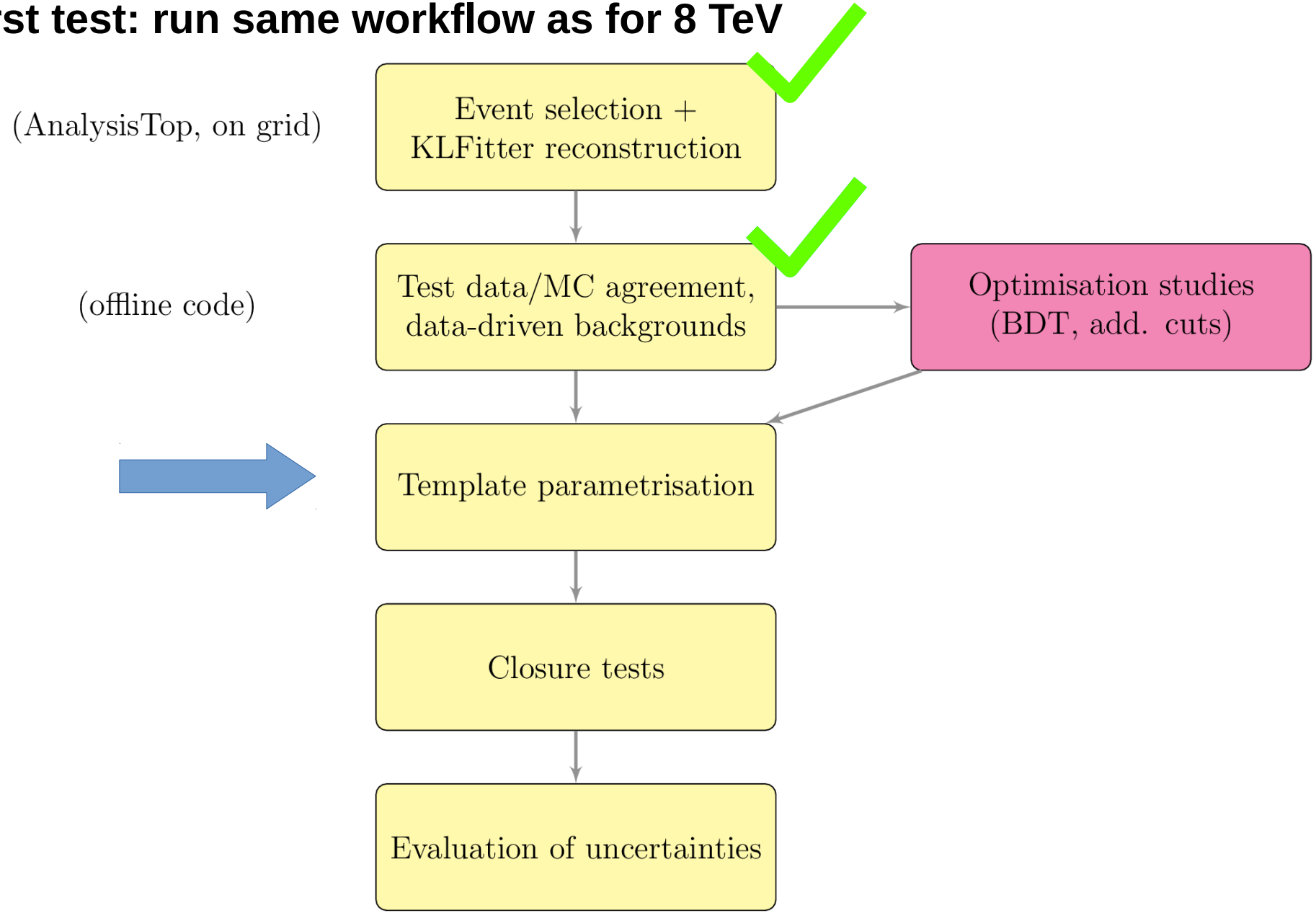
- use same approach as in l+jets channel for 8 TeV:
- measurement is based on a **3D-Template method:**
- Variable 1: $m_{\mathrm{top}}^{\mathrm{reco}}$ from reconstructed event
- Variable 2: $m_{\mathrm{W}}^{\mathrm{reco}}$ from chosen jet permutation, sensitive to JSF
- Variable 3: $R_{bq}^{\mathrm{reco},1b} = \frac{p_{\mathrm{T}}^{b_{\mathrm{tag}}}}{(p_{\mathrm{T}}^{W_{\mathrm{jet}_1}} + p_{\mathrm{T}}^{W_{\mathrm{jet}_2}})/2}$, $R_{bq}^{\mathrm{reco},2b} = \frac{p_{\mathrm{T}}^{b_{\mathrm{had}}} + p_{\mathrm{T}}^{b_{\mathrm{lep}}}}{p_{\mathrm{T}}^{W_{\mathrm{jet}_1}} + p_{\mathrm{T}}^{W_{\mathrm{jet}_2}}}$.

  from chosen jet permutation, sensitive to bJSF

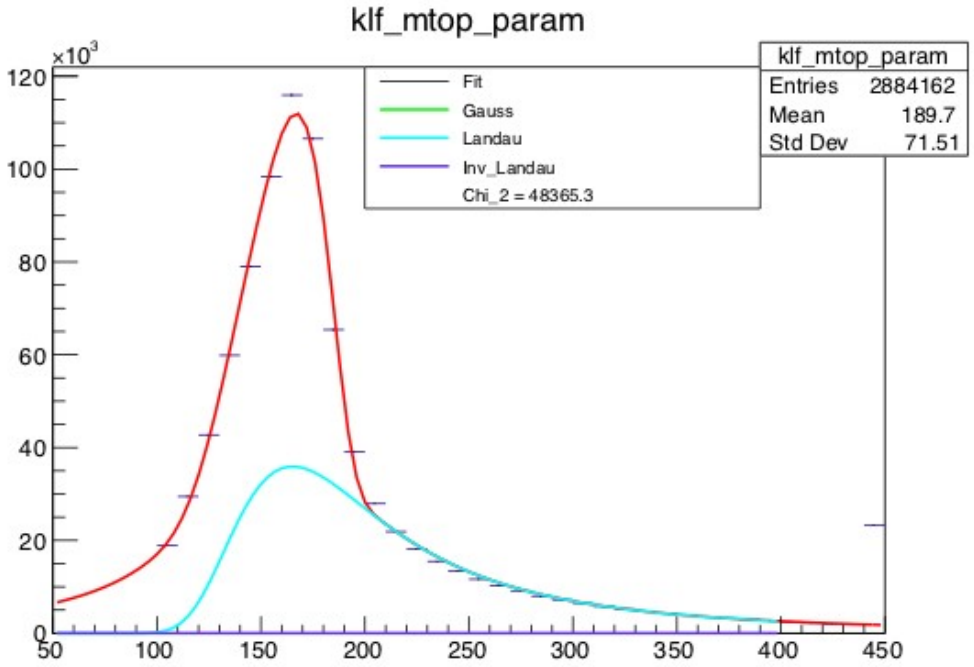
- need full reconstruction of $t\bar{t}$ final state
- template parametrisation of the 3 variables
- unbinned likelihood fit is performed

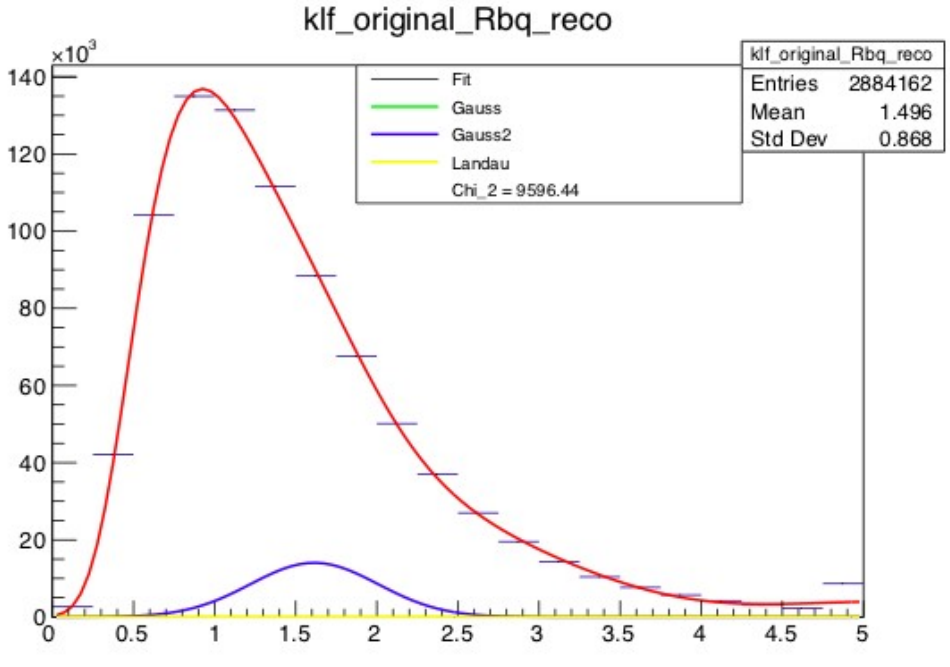
Plan for 13TeV analysis:

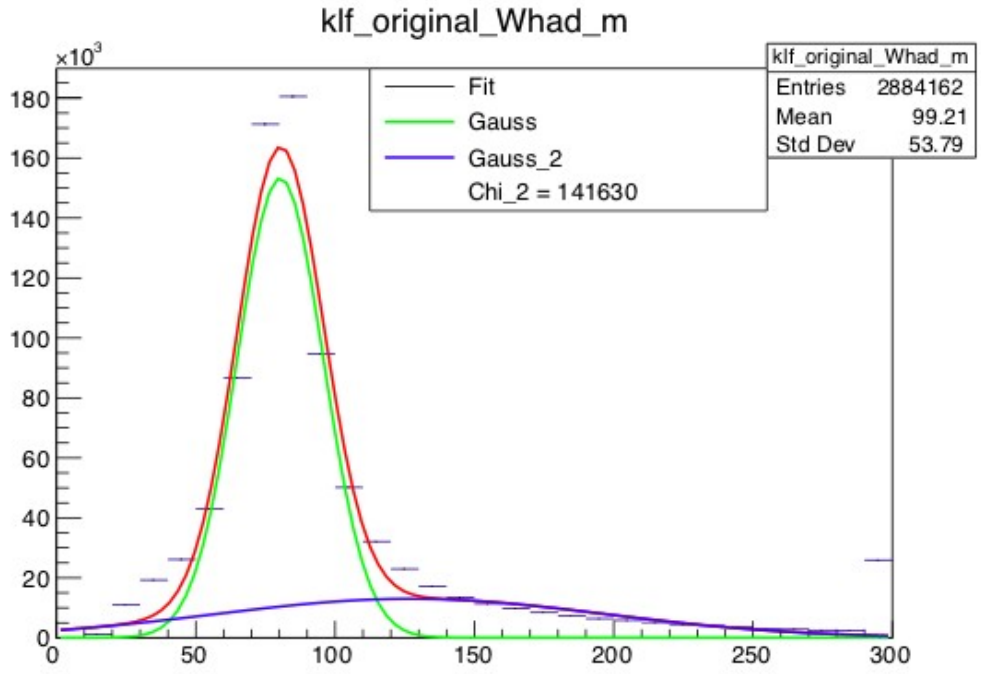
First test: run same workflow as for 8 TeV



Samples 2016







Next steps

- Improve fit → start parameters
- Apply cuts (in PlotFactory)
- Improve code
- Integrate fit in PlotFactory