

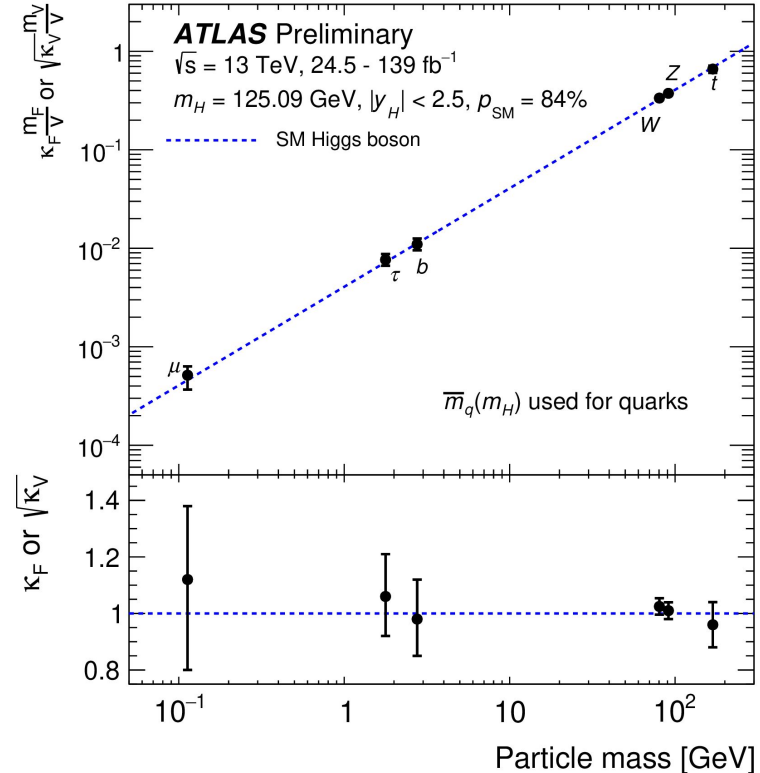
Summary: Novel Experimental Techniques for Higgs boson Measurements in ATLAS

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Higgs Properties

- Necessary to develop new techniques for many measurements, which may be applicable to other physics analyses or experiments
- In this talk, focus on details from a few key Higgs measurements
 - VH, $H \rightarrow cc$
→c-tagging, MC statistical uncertainty
 - VH, $H \rightarrow bb$
→systematic uncertainties, MC statistical uncertainty
 - VBF $H \rightarrow bb$
→Z background estimation
 - $H \rightarrow \tau\tau$
→Z background estimation
 - $t\bar{t}H$ (multilepton)
→non-prompt lepton rejection
 - $H \rightarrow ll\gamma$
→Close-by electron identification



Conclusion

- Measurements of the Higgs boson thus far do not give strong indication of BSM properties
- There is still large room for BSM effects and many Higgs properties that have yet to be measured with sensitivity to the SM (e.g. the Hcc and HHH couplings) - developing new techniques is necessary
- For more information about individual measurements, see the following talks:
 - $H \rightarrow bb$: [Maria Giovanna Foti](#)
 - $H \rightarrow cc$: [Maria Mironova](#)
 - $t\bar{t}H$: [John Stakely Keller](#)
 - $H \rightarrow \tau\tau$: [Frank Sauerburger](#)
 - $H \rightarrow l\bar{l}\gamma$: [Tom Neep](#)