

## **Extraction of the top quark pole mass from differential cross sections (12+3)**

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We present a measurement of the top quark pole mass, based on a method developed at IFIC where the mass is determined from the normalized differential cross section for associated production of a top quark pair with an energetic jet. The new result is based on the di-lepton channel, using 140/fb of pp collision data at  $\sqrt{s} = 13$  TeV, collected by the ATLAS experiment in run 2 of the Large Hadron Collider. The top quark pole mass is extracted by comparing the measured differential cross section to fixed-order predictions for the  $pp \rightarrow t\bar{t} + \text{jet}$  process and the  $2\rightarrow 7$  process that includes top quark decay and non-resonant contributions. The measurement reaches a precision below 1 GeV, making it the most precise ATLAS top quark pole mass determination to date.

The analysis was approved by the top group on the 7th of November and will be unblinded in the next weeks. It can be presented as “work in progress” at our meeting.

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