

## **Review of the First $W$ Boson Mass Measurement with the ATLAS Detector**

*Friday, June 1, 2018 2:00 PM (20 minutes)*

A precise measurement of the  $W$  boson mass represents an important milestone to test the overall consistency of the Standard Model. Since the discovery of a Higgs Boson, the  $W$  boson mass is predicted to 7 MeV precision, while the world average of all measurements is 15 MeV, making the improved measurement an important goal. Large samples of leptonic decays of  $W$  and  $Z$  bosons were collected by the ATLAS detector with efficient single lepton triggers in the 7 TeV data set corresponding to an integrated luminosity of 4.6 fb<sup>-1</sup>. With these samples the detector and physics modelling has been studied in great detail and enabled a  $W$  boson mass measurement with a precision of 19 MeV, which will be presented in this talk. Special focus will be drawn on the modeling of the production processes of  $W$  bosons in proton-proton collisions, that are crucial for this measurement.

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