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## Precision measurements of $W$ production at ATLAS

The indirect determination of the  $W$ -boson mass from global electroweak fits outperforms the precision of its experimentally measured value. An improved experimental measurement is therefore one of the goals of the LHC physics program. The talk will present a re-analysis of the mass of the  $W$  boson at a centre-of-mass energy of 7 TeV using a profile likelihood fit, which improves the precision of the mass determination by 15% by fully exploiting the information present in data. The talk will also present the transverse momentum of the  $W$  and  $Z$  boson measured from the hadronic recoil at 5 and 13 TeV using dedicated LHC runs with reduced instantaneous luminosity. The measurement provides a fundamental input to reduce the physics-modeling uncertainties in future  $W$ -boson mass determinations.

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