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Measurements and interpretations of $W^\pm Z$ production cross-sections in pp collisions at $\sqrt{s}=13$ TeV with the ATLAS detector

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The study of $W^\pm Z$ diboson production is of great interest as an essential test of the Standard Model (SM) and as an effective tool for searching for new physics effect. This talk will present the latest ATLAS measurements of the integrated and differential cross-sections of the process $pp \rightarrow W^\pm Z$ in the leptonic decay modes with electrons and muons at an energy in the center of mass of 13 TeV. The complete Run 2 data sample is used corresponding to 140 fb^{-1} . The results are compared with SM predictions from state-of-the-art event generators and from fixed-order calculations.

The measurements are interpreted in the context of an effective field theory considering both CP-conserving and CP-violating dimension-6 operators modifying the WZ production. Limits on CP-conserving Wilson coefficients are extracted using the transverse mass of the $W^\pm Z$ system. For CP-violating coefficients a machine learning approach is used to construct an observable with enhanced sensitivity to CP-violation effects.

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