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Measurements of the top quark electro-weak couplings with the ATLAS experiment at the LHC

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The electro-weak interactions of the top quark are tested at the LHC by measurements of electro-weak single top quark production, of associated production processes of top quarks with gauge bosons and of top quark decay. In this contribution, the most recent ATLAS results are discussed, including measurements of the differential cross section for $t\bar{t}Z$ and $t\bar{t}\gamma$ production using the full run 2 data set, new measurements of the single top cross section and polarization, and the recent observation of single top quark production with a neutral gauge boson. These measurements provide the first direct probe of the electro-weak couplings of the top quark and yield a valuable input to determine the parameters of the Standard Model Effective Field Theory.

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