

# Quantifying Charge Flips for Same-Sign WW Production: Insights from the $Z \rightarrow ee$ Channel

Electron charge misidentification constitutes the most significant background in the  $ee$  decay channel and the third-largest background in the all-inclusive dileptonic channel in the ATLAS measurement of electroweak production of same-sign WW boson pairs in proton-proton collisions. Electrons in the  $ee$  channel are produced with well-defined opposite charges, making it an excellent process for studying charge misidentification (e.g., charge flips). By comparing the reconstructed charges of the two electrons with their expected opposite-charge configuration, the rate of charge flips can be quantified and scale factors that compensate for the differences between the data and the simulation can be derived. In my talk, I will discuss the various sources for the electron charge misidentification. Also, I will discuss the criteria for the measurement of charge misidentification for the combinations of identification and isolation criteria followed by the derivation of the rates and scale factors.

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