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Studies on Isolation efficiency scale factors using the Tag and Probe method in the $H \rightarrow ZZ \rightarrow 4l$ channel for the ATLAS detector

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In this study, isolation efficiency variations between data and simulation are corrected so that the Monte Carlo (MC) describes the data as accurately as possible. The corrections applied are translated into scale factors. Differences between the MC simulation and the data arise not only because of poor description of the selection efficiencies in the simulation, but also due to the fact that the small impurities in the samples have very different efficiencies from the bulk. This affects the efficiency extraction from the mixed sample if their contribution in the data is not the same as in the simulation. Results on the scale factors using the Tag and Probe method will be presented. The Tag and Probe method relies on the stringent selection of one of the lepton pairs (named the tag) to ensure they were correctly reconstructed and belong to the Z decay.

Apply to be considered for a student award (Yes / No)?

yes

Level for award (Hons, MSc, PhD, N/A)?

MSc

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