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# ATLAS NOTE

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## Calibration of $b$ -tagging of the LCW+JES jets using di-leptonic top pair events and a combinatorial likelihood approach

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### Abstract

The likelihood based calibration method for the  $b$ -jet identification efficiency has been applied for the *TopoLC* AntiKt4 jet collection. The  $b$ -tagging efficiency is measured in sample of top pair events where both  $W$ s from top quarks decay into lepton and neutrino. Data to Monte Carlo correction factors for the  $b$ -jet efficiency are computed in bins of  $p_T$  of the jet, with combined statistical and systematic uncertainties ranging from  $\approx 2\%$  to  $\approx 9\%$  for the most commonly used 70% efficiency working point. The present results apply to various different working points (60%, 70%, 80% and 85% inclusive efficiencies) of the MV1  $b$ -tagging algorithm. The calibration is also performed on jets tagged by MV1c  $b$ -jet tagging algorithm and results are included in this note. Data is collected by the ATLAS detector at  $\sqrt{s} = 8$  TeV, corresponding to an integrated luminosity of  $\mathcal{L} \approx 20.3 \text{ fb}^{-1}$ .