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Semi-leptonic □□ Calibration for □→□□ tagger

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The identification of massive particles decaying into bottom quark pairs is important for the physics program of the ATLAS experiment at the Large Hadron Collider. A neural network (NN) based double b-tagging algorithm named □→□□ tagger is developed and calibrations of the tagger are performed using proton-proton collision data corresponding to 139/□□ collected at a centre-of-mass energy of √□=13□□□.
The technique of □→□□ mis-tag rate calibration [1] is developed based on semi-leptonic decay □□ events which provide typical non-□□ flavor combination and high statistics. The mis-tag efficiency is measured and the scale factor, which is defined as the ratio of the mis-tag rate measured in the data over the one in simulation, is found to be in a range of 1˜1.1 with uncertainty less than 16%.

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