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Real-Time selection using flavor-tagging algorithms in ATLAS

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The ATLAS experiment developed a two-layered trigger system that allows a selection of events that are thought to be of interest, while achieving a high overall rejection against less interesting processes. In particular, the b-jet triggers can exploit flavor-tagging algorithms in order to identify whether a jet is likely to have been produced by heavy-flavor quarks (b- and c-jets) or by light jets (jets from u-, d-, s- and gluon jets). Physics analyses that include processes with large jet multiplicity and b-quarks in the final state, such as Higgs to bottom pairs measurements and SUSY searches, rely on such a capability. An overview of the b-jet triggers with a description of the application and performance of the Multivariate b-tagging algorithms in Run-2 will be presented. Also, the improvements foreseen for Run-3, which also include the use of the Fast Tracker (FTK) system, will be described.

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