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The response of gap and crack scintillators of the Tile Calorimeter of the ATLAS detector to isolated muons from proton-proton collisions.

The Tile calorimeter of the ATLAS experiment at the Large Hadron Collider is a hadronic sampling calorimeter that is designed for the reconstruction of hadrons, jets, tau-particles and missing transverse energy. In this study, the performance of gap and crack scintillators cells of the Tile calorimeter is studied by their response to muons originating from $W \rightarrow \mu\nu$ events. The response is quantified by measuring the amount of energy deposited per unit length in each cell to evaluate the performance of all the modules of the Tile calorimeter and the time stability of the response over the entire Run 2 data taking period.

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