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b Track Jets Number Identification in Graviton Searching Research with the ATLAS detector, Ghhbb Channel VALENTINA LEE, Cal State Univ- Fresno, NIKOLINA ILLIC, Stanford University, ATLAS TEAM, STANFORD UNIVERSITY TEAM — We will discuss novel techniques to search for Gravitons decaying to $G \to hh \to bb^{-}\tau\tau^{-}$ at the Large Hadron Collider in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. The b track jets (the b jets detected by the ATLAS inner detector) pointing directions gives us a clue about identifying $G \to hh \to bb^{-}\tau\tau^{-}$ signal. The new analysis technique utilizes the number of b track jets which are pointing to the fat jets to classify Gravitons simulations. We demonstrated the number of the b track jets depending on the various Gravitons simulated masses. The simulation results show that Graviton mass 2250 GeV is the critical mass point. Different simulations should be used for Graviton heavier and lighter than 2250 GeV. This approached improved the agreement between data and simulations by an order of magnitude. In addition, different preselections on b jets Pt, phi, R, and BDT score are applied on the simulation to find the better agreement.

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