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Search for Higgsinos in $\sqrt{s} = 13$ TeV pp Collisions with the ATLAS Detector MICHAEL HANK, University of Chicago, ATLAS COLLABORATION — Many supersymmetry models of general gauge mediation or gauge-mediated supersymmetry breaking predict gravitinos as the lightest supersymmetric particle and higgsino-dominated neutralinos as the next-to-lightest supersymmetric particle. This talk presents a search for higgsinos decaying to a Higgs boson and gravitino in the $b\bar{b}$ Higgs boson decay channel in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector. The search uses the full Run 2 dataset of the ATLAS detector with an integrated luminosity of 132.6 fb^{-1} , extending prior ATLAS results with 24.3 fb^{-1} . The search is optimized for higgsinos with mass less than 300 GeV and will be combined with an analysis targeting higgsinos with mass greater than 300 GeV. The backgrounds are dominated by difficult-to-model QCD multijet events and are estimated using a novel data-driven approach utilizing a reweighting boosted decision tree. Analysis optimizations and higher statistics yield significantly improved limits.

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