

Abstract Submitted
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Polarization effects in $Z\gamma$ resonance searches with boosted jets

ABASI BROWN, North Carolina Central University, AYANA ARCE, Duke University — The ATLAS experiment at the Large Hadron Collider is searching for evidence of the production of particles not predicted by the Standard Model of particle physics. If such a particle were to be discovered, collision data would be used to determine its intrinsic properties, such as its rest mass, charge, and spin. This project investigates hypothetical particles produced in proton collisions that decay to a Z boson and a photon, where the Z boson decays to a quark-antiquark pair, using simulated pp collisions at $\sqrt{s} = 13$ TeV. By studying the decay angles of the quarks in the rest frame of the Z bosons, what can we learn about the spin of the parent particle? Would assumptions regarding its spin affect our ability to discover it?

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