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Deriving LHC constraints on the minimal Dirac gaugino model

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Various MSSM scenarios have been well investigated at the LHC, with current bounds having implications on naturalness that suggest the timely consideration of non-minimal scenarios. The purpose of this talk is to present limits on the gluino (fermionic partner of the gluon) and squarks (scalar partners of the quarks) in the minimal Dirac gaugino extension of the MSSM, derived through a recasting of the ATLAS-SUSY-16-07 analysis and presented in arXiv:1812.09293. New states in the extended particle content - the Dirac-adjoint scalars - couple to the Higgs and lead to more varied decay signatures and a more complex electroweakino spectrum than in the MSSM. We look at four representative scenarios of these new couplings, and compare the limits in the gluino vs. squark plane to those obtained in equivalent MSSM scenarios.

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