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NLO corrections to squark-squark production and decay at the LHC

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We present the analysis of the signature $jj+\text{missing-ET}(+X)$ via squark-squark production and direct decay into the lightest neutralino in next-to-leading order QCD within the framework of the minimal supersymmetric Standard Model. We provide a consistent, fully differential calculation of NLO QCD factorizable corrections to the given processes with on-shell squarks. Clustering final states into partonic jets, we investigate the experimental inclusive signature $jj+\text{missing-ET}$ and we choose for illustration several benchmark scenarios. We compare resulting differential distributions with leading-order approximation rescaled by a flat K-factor and examine a possible impact for cut-and-count searches for supersymmetry at the LHC.

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