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Probing Flavor in semileptonic transitions at High-p_T

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The Drell-Yan processes $pp \to \ell\nu$ and $pp \to \ell\ell$ at high transverse momentum can provide important probes of semileptonic transitions that are complementary to low-energy flavor physics observables. We parametrize possible New Physics (NP) contributions to these processes in terms of form-factors, and derive the corresponding bounds by recasting the latest ATLAS and CMS run 2 searches for mono- and di-lepton resonances. Moreover, we study the validity limit of the Standard Model Effective Field Theory (SMEFT) in this regime by comparing the limits obtained for specific tree-level mediators and their EFT equivalent. Both analyses are performed using HighPT, a new Mathematica package for automatic extraction of high-p_T bounds.

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