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How top quark dipole moments affect Higgs decay[1] LANCE LABUN, National Taiwan University, JOHANN RAFELSKI, University of Arizona — The dipole moments of the top quark are sensitive to beyond standard model influences and enter directly in top production in lepton and hadron colliders. We show that the top dipole moments also strongly affect the Higgs-2 photon and Higgs-2 gluon effective couplings: The Higgs-2 photon decay rate can be enhanced by up to a factor 2 at leading order if the top magnetic moment is near zero, and the Higgs-2 gluon decay rate is suppressed by 10% with only a 3% change in the top chromomagnetic moment. In the context of the suggested enhancement of Higgs-2 photon decay at the LHC, these results motivate independent measurement of the top quark dipole moments. We suggest a way to look for Higgs-2 gluon decay as a step toward constraining the top chromomagnetic moment.

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