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The tail of Wh: another way of probing New Physics with dibosons

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The lack of evidence of New Physics coming from direct searches of resonances at the LHC calls for an increase in efforts to devise new observables that can indirectly probe New Physics. If new resonances exist but are out of the reach of the LHC or future colliders, they could manifest themselves through a harder p_T spectra with respect to the SM. In this context, the diboson final state has attracted lots of attention in recent times as a great New Physics probe. In this talk, I will focus on the Wh channel, with the Higgs boson decaying to either b\bar{b} or \gamma\gamma. I will discuss the relevant backgrounds in both cases and, for the hadronic Higgs channel, the details of the jet substructure techniques used to reduce them. Moreover, I will show how taking into account properly detector effects, hadronization and B-hadron decay affects the projected bounds. Finally, I will show preliminary results for the bounds on the SMEFT dimension 6 operator this channel is most sensitive to for the b\bar{b} channel at HL-LHC for the \gamma\gamma channel at FCC.

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