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Off-shell effects in Higgs processes at a linear collider and the LHC

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We discuss the importance of off-shell Higgs contributions for a SM-like Higgs boson at a linear collider and the LHC. Possible constraints on the total Higgs width are investigated, the involved theoretical assumptions are analysed, and it is shown that the interference between signal and background limits the sensitivity for a SM-like width. Off-shell contributions and signal-background interference can potentially enhance the sensitivity to an additional heavier Higgs boson with suppressed couplings to gauge bosons. This issue is investigated in the context of a Two-Higgs-Doublet model.

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