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Interference effects in the MSSM

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The "narrow-width approximation" is a convenient tool for the factorisation of a more complicated process into production and subsequent decay of a particle with a small width compared to its mass.
However, this approximation cannot be applied in the case of sizable interferences between propagator contributions of different particles that are close to their mass shell. This may be relevant in models with an enlarged spectrum containing particles with a mass difference of the order of their decay widths. In order to deal with such a situation, a generalisation of the usual narrow-width approximation is analysed which allows for a consistent treatment of interference effects between such nearly mass-degenerate particles. This can be useful for the application to processes for which the factorisation into different sub-processes will be essential to enable the computation of higher-order contributions.
Phenomenological consequences with interference effects between neutral MSSM Higgs bosons will be discussed for the example process of Higgs boson production and subsequent decay from the decay of a heavy neutralino.

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