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Polarization Test For Higgs Spin and Parity

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A polarization test for the formation of a resonance is developed and applied to determine the spin and the parity of the Higgs particle. The test is based on very general principle and is completely independent of dynamical assumptions. A set of observables are identified that distinguish between $J^P = 0^+, 0^-, 2^+, 2^-$ states. Furthermore, the same set of observables provide useful information on the magnitude of each helicity amplitude contributing to the $gg \rightarrow H \rightarrow \gamma \gamma$ process.

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