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## Reconstruction of the Higgs mass in $H \rightarrow \tau\tau$ Events by Dynamical Likelihood techniques

*Monday 14 October 2013 15:00 (45 minutes)*

An algorithm for reconstruction of the Higgs mass in  $H \rightarrow \tau\tau$  decays is presented. The algorithm computes for each event a likelihood function  $P(M_{\tau\tau})$  which quantifies the level of compatibility of a Higgs mass hypothesis  $M_{\tau\tau}$ , given the measured momenta of visible tau decay products plus missing transverse energy reconstructed in the event. The algorithm is used in the CMS  $H \rightarrow \tau\tau$  analysis. It is found to improve the sensitivity for the Standard Model Higgs boson in this decay channel by about 30%.

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