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Interpretation of the Higgs signal and possible phenomenology of additional Higgs states

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The available information on the properties of the observed Higgs signal is assessed in view of the current experimental accuracy and the employed theoretical assumptions. Possible interpretations of the observed signal in scenarios of physics beyond the Standard Model are discussed in view of their phenomenological implications, and the experimental sensitivity for discriminating between different models is investigated. In extended Higgs sectors it is often possible to interpret the observed signal not only in terms of the lightest but also in terms of the second-lightest state of the Higgs sector. The latter scenarios generically predict a light Higgs boson with heavily suppressed couplings to gauge bosons. The current limits and future prospects for accessing such scenarios will be discussed.

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