

Search for Exotic Scalars at the International Linear Collider

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While the physics program for the future Higgs factory focuses on measurements of the 125 GeV Higgs boson, production of new exotic light scalars is still not excluded by the existing experimental data, provided their coupling to the gauge bosons is sufficiently suppressed. We present prospects for discovering an extra scalar boson produced in association with a Z boson at the ILC running at 250 GeV. Based on a full simulation of the International Large Detector (ILD), decay-mode independent search for the new scalar is presented, exploiting recoil of the scalar against a Z boson decaying into a pair of muons. Also presented are prospects for the light scalar observation in selected decay channels, where higher sensitivity can be reached with use of hadronic Z boson decays.

This work is carried out in the framework of the ILD concept group as a contribution to the focus topic of the ECFA e^+e^- Higgs/EW/Top factory study.

Alternate track

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