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The Potential of the ILC for Discovering New Particles

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Data from the LHC at 7, 8, and 13 TeV, have, so far, yielded no evidence for new particles beyond the Standard Model Higgs boson. However, the complementary nature of physics with e+e- collisions still offers many interesting scenarios in which new particles can be discovered at the ILC. These scenarios take advantage of the capability of e+e- collisions to observe particles with missing energy and small mass differences, to observe mono-photon events with precisely controlled backgrounds, and to observe the full range of exotic decay modes of the Higgs boson. The searches that an e+e- collider makes possible are particularly important for models of dark matter involving a dark sector with particles of 10–100 GeV mass. In this talk, we will review the opportunities that the ILC offers for new particle discovery.

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