

Please consider making this an invited talk. The breadth of the topic warrants broader exposure than a parallel session can offer.

The author would be happy to concede this talk to a different speaker if more appropriate candidates presents themselves.

The primary author has submitted an additional abstract under APR16-2016-000656.

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The Physics Program at the International Linear Collider JAN STRUBE, Pacific Northwest Natl Lab, INTERNATIONAL LINEAR COLLIDER PHYSICS AND DETECTOR STUDY GROUPS TEAM¹ — The precise exploration of all aspects of the Higgs sector is one of the key goals for future colliders at the Energy Frontier. The International Linear Collider (ILC) provides the capability for model-independent measurements of all relevant couplings of the Higgs boson to fermions and gauge bosons, including direct measurements of the Top Yukawa coupling as well as of the Higgs self-coupling. In addition, it has a discovery potential for physics beyond the Standard Model that is complementary to the LHC. This contribution will review the highlights of ILC physics in the context of a 20-year-long program. This program covers different collision energies up to 500 GeV with various beam polarizations, each contributing important aspects to the exploration of this new sector of particle physics. Beyond this initial scope of the ILC, we will also discuss the prospects of a 1 TeV upgrade, which offers complementary capabilities for the measurement of double Higgs production and the Higgs self-coupling and increases the reach of direct and indirect searches.

¹This work is presented on behalf of the groups contributing to ILC physics and detector studies in Asia, Europe and the US.

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