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The International Linear Collider - Physics & Perspectives

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With the discovery of the Higgs boson at LHC, all particles of the Standard Model have been observed experimentally, yet many questions are left unanswered. The discovery has intensified the planning for future high-energy colliders, which aim to probe the Standard Model and the mechanism of electroweak symmetry breaking with higher precision and to extend and complement the search for new particles currently under way at the LHC. The most mature option for such a future facility is the International Linear Collider ILC, an electron-positron collider with a center-of-mass energy of 500 GeV, and the potential for upgrades into the TeV region and/or into a photon collider. The ILC will fully explore the Higgs sector, including model-independent coupling and width measurements, direct measurements of the coupling to the top quark and the Higgs self-coupling, enable precision measurements of top quark properties and couplings as well as other electroweak precision measurements and provide extensive discovery potential for new physics complementary to the capabilities of hadron colliders. We will give an overview over the physics case of the ILC, put in context of the running scenario covering different center-of-mass energies, and discuss the current status and perspectives of this global facility.

Primary author: Dr SIMON, Frank (Max-Planck-Institute for Physics)

Presenter: VAN DER KOLK, Naomi (MPI Muenchen)

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