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The International Linear Collider. A Global Project

A large, world-wide community of physicists is working to realise an exceptional physics program of energy-frontier, electron-positron collisions with the International Linear Collider (ILC). This program will begin with a central focus on high-precision and model-independent measurements of the Higgs boson couplings. This method of searching for new physics beyond the Standard Model is orthogonal to and complements the LHC physics program. The ILC at 250 GeV will also search for direct new physics in exotic Higgs decays and in pair-production of weakly interacting particles. Polarised electron and positron beams add unique opportunities to the physics reach. The ILC can be upgraded to higher energy, enabling precision studies of the top quark and measurement of the top Yukawa coupling and the Higgs self-coupling.

The key accelerator technology, superconducting radio-frequency cavities, has matured. Optimised collider and detector designs, and associated physics analyses, were presented in the ILC Technical Design Report, signed by 2400 scientists.

There is a strong interest in Japan to host this international eort. A detailed review of the many aspects of the project is nearing a conclusion in Japan. Now the Japanese government is preparing for a decision on the next phase of international negotiations, that could lead to a project start within a few years. The potential timeline of the ILC project includes an initial phase of about 4 years to obtain international agreements, complete engineering design and prepare construction, and form the requisite international collaboration, followed by a construction phase of 9 years.

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