Abstract for an Invited Paper for the APR06 Meeting of The American Physical Society

Matter, Energy, Space and Time: The International Linear Collider Physics Prospects and International Aspects ALBRECHT WAGNER, DESY

Over the past century, physicists have sought to explain the character of the matter and energy in our universe, to show how the basic forces of nature and the building blocks of matter come about, and to explore the fabric of space and time. In the past three decades, experiments at laboratories around the world have given us a precise confirmation of the underlying theory called the *standard model*. These particle physics advances have a direct impact for our understanding of the structure of the universe, both at its inception in the Big Bang, and in its evolution to the present and future. The final synthesis is not yet fully clear, but we know with confidence that major discoveries expanding the standard model framework will occur at the next generation of accelerators. The Large Hadron Collider (LHC) being built at CERN will take us into the discovery realm. The proposed International Linear Collider (ILC) will extend the discoveries and provide a wealth of precision measurements that are essential for giving deeper understanding of their meaning, and pointing the way to further evolution of particle physics in the future. A world-wide consensus has formed for a baseline ILC project at energies of 500 GeV and beyond. The choice of the superconducting technology as basis for the ILC has paved the way for a global design effort which has now taken full speed.