Contribution ID: **210** Type: **not specified**

Proton-Driven Plasma Wakefield Acceleration for Future HEP Colliders

We discuss the main elements of a collider facility based on proton-driven plasma wakefield acceleration. We show that very competitive luminosities could be reached for high energy e+e- colliders. A first set of parameters was developed for a Higgs Factory indicating that such a scheme is indeed potentially feasible. There are clearly many challenges to the development of this scheme, including novel RF acceleration modules and strong, high-precision magnets for the proton driver. Challenges in the plasma acceleration stage include the ability to accelerate positrons while maintaining necessary emittance and the energy transfer efficiency from the driver to the witness. Since many exciting applications would become available from our approach, its development should be pursued.

Authors: PUKHOV, Alexander; CALDWELL, Allen (Max-Planck-Institut fur Physik (DE)); WILLEKE, Ferdinand; FARMER, John Patrick (MPP / CERN); LOPES, Nelson (Universidade de Lisboa (PT)); Dr WILSON, Thomas Cunningham (HHU Duesseldorf)