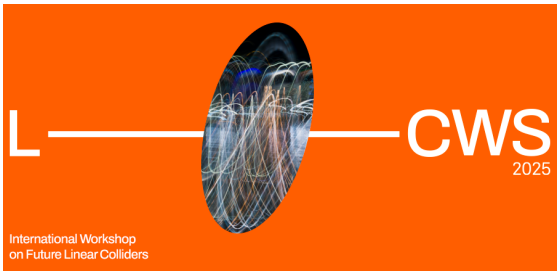

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Towards a Beam Delivery System for the HALHF Project

Thursday 23 October 2025 12:30 (20 minutes)

This work presents a first design study of the Beam Delivery System (BDS) for the Hybrid Asymmetric Linear Higgs Factory (HALHF); a novel electron-positron collider concept based on a combination of RF- and plasma-accelerator technology, targeting precision Higgs physics. Due to the highly asymmetric nature of the electron and positron bunches, HALHF operates with significantly larger electron-beam emittances compared to CLIC and the ILC, posing fundamental challenges for the BDS that are unlike other linear-collider designs. This preliminary study explores an initial BDS layout and final-focus optics adapted to the specific constraints of HALHF. The key parameters being explored are the length of the BDS system, the emittance values at the BDS entry, and the beta functions at the interaction point.

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