First ECFA WORKSHOP.

Contribution ID: 28

Type: Parallel session talk

A Tale of Two Portals: Testing Light, Hidden New Physics at Future e+e- Colliders

Wednesday 5 October 2022 16:40 (15 minutes)

We investigate the prospects for producing new, light, hidden states at a future e^+e^- collider in a Higgsed dark $U(1)_D$ model, (the Double Dark Portal model). The simultaneous presence of both vector and scalar portal couplings immediately modifies the SM $e^+e^- \rightarrow Zh$ process at leading order in each coupling. After accounting for current constraints, we demonstrate that a future Higgs factory will have leading sensitivity to the two portal couplings in production, decay, and radiative return processes. Besides exotic Higgs decays, we highlight the importance of direct dark vector and scalar production tagged from the recoil mass method.

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Session Classification: WG1: joined HTE & SRCH session

Track Classification: WG1-HTE+SRCH - Physics Potential: Higgs, top and EW joint with FIP and direct searches