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Non-decoupling scalars at future colliders

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This work extends the Standard Model with a set of scalar electroweak multiplets that gain the majority of their mass via the Higgs mechanism. These particles are non-decoupling, providing a pattern of deviations to low energy observables that require a HEFT description. Considering their minimal gauge and Higgs couplings, I'll show that almost any additional scalar to the SM with these properties are discoverable at a future lepton collider. Furthermore, these scalars can induce a strongly first order phase transition, generating gravitational-waves detectable by future interferometers such as LISA.

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