## Phenomenology 2018 Symposium



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## Signatures of composite right-handed singlets in gauge-Higgs unification models

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We investigate various scenarios of fermion mass generation in  $SO(5) \times U(1)$  models of gauge-Higgs unification, where the Higgs field is a composite Goldstone boson of a new strong sector. If the top quark is the main driving force of EWSB, the parameters of the  $(t, b)_L$  doublet are strongly constrained by Z pole observables. The hierarchical mass ratio between the top and bottom quark implies that the  $b_R$  must be strongly composite. While a composite  $b_R$  is consistent with current experimental limits, it leads to sizable coupling deviations that can be probed by future accelerators such as ILC. The lepton sector has more freedom in model-building, but the most minimal setup again suggests that right-handed singlets are composite fermions. We consider different quantum number assignments for leptons and study the signatures of the reaction  $e^+e^- \rightarrow l^+l^-$  to distinguish them.

**Summary** 

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