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Radiatively Induced Fermi Scale and Unification

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Summary

We propose a framework, where the hierarchy between the unification and the Fermi scale emerges radiatively. This work tackles the long-standing question about the connection between the low Fermi scale and a more fundamental scale of Nature. As a concrete example, we study a Pati-Salam-type unification of Elementary Goldstone Higgs scenario, where the SM scalar sector is replaced by an SU(4)-symmetric one, and the observed Higgs particle is an elementary pseudo-Goldstone boson. We construct a concrete model where the unification scale is fixed to a phenomenologically viable value, while the Fermi scale is generated radiatively. This scenario provides an interesting link between the unification and Fermi scale physics, and opens up prospects for exploring a wide variety of open problems in particle physics, ranging from neutrinos to cosmic inflation.

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