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# The Supersymmetric Pati–Salam Model Consisting of Only Small Representations: Theory and Phenomenology

*Sunday, 19 April 2026 18:25 (15 minutes)*

In this talk, we will present a supersymmetric Pati-Salam model with only small representations as a potential candidate for physics beyond the Standard Model. The model features a Higgs sector with bifundamental fields $H_R + \bar{H}_R = (4,1,2) + (\bar{4},1,2)$, $H_L + \bar{H}_L = (4,2,1) + (\bar{4},2,1)$ as well as a pair of bi-doublet fields $h_a = (1,2,2)$ where $a = 1,2$, with three families of fermions accommodated in $(4,2,1) + (\bar{4},1,2)$ as usual. The matter spectrum is augmented with three copies of neutral singlets that mix with ordinary neutrinos to realize the seesaw mechanism. The model introduces supersymmetric R-symmetry and a global discrete $\mathbb{Z}_n$ symmetry ($n > 2$) that prevents disastrous superpotential couplings, while its spontaneous breaking implies the existence of domain walls. We will discuss theoretical and phenomenological aspects of this model, including potential UV completion from string theory, its near-conformal RG running of gauge couplings, domain walls, proton decays, inflationary scenario, and gravitational waves as a potential probe of this model.

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