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Extra families seek friendship with heavy Higgs and inert doublet

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We study the possibility of the existence of extra fermion families and an extra Higgs doublet. We find that requiring the extra Higgs doublet to be inert leaves ample space for three extra families and marginally accommodates four, allowing for mirror fermion families and a dark matter candidate at the same time. The emerging scenario is very predictive: it consists of a heavy Standard Model Higgs, with mass above 450 GeV, heavy new quarks between 340 and 400 GeV, light extra neutral leptons, and an inert scalar with a mass below MZ.

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