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Supersymmetric SO(10) GUTs with sliding scales

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We construct supersymmetric $SO(10)$ models with different intermediate scales, consistent with gauge coupling unification. We found the complete list of sets of fields that can be added in each regime that allows to preserve unification and a "sliding scale mechanism". Using mSugra boundary conditions we calculate some particular combinations of soft SUSY breaking terms, called "invariants", that depend on the squark, slepton and gaugino mass spectra. We classify these invariants into a small number of sets, and show that their measurements contain indirect information about the class of models and the scale of beyond-MSSM physics. Talk based on the paper Hep-ph/1301.6085

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