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A unique Z_4R symmetry for the MSSM

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In this talk, anomaly free Abelian discrete symmetries of the MSSM are considered that forbid the μ-term at perturbative order. Allowing for anomaly cancellation via the Green-Schwarz mechanism discrete R-symmetries are identified as the only possibility and it is proven that there is a unique Z_4R symmetry that commutes with SO(10). Furthermore, it is argued that non-perturbative effects will generate a μ-term of electroweak order thus solving the μ-problem. The non-perturbative effects break the Z_4R symmetry leaving an exact Z_2 matter parity. As a result dimension four baryon- and lepton-number violating operators are absent while, at the non-perturbative level, dimension five baryon- and lepton-number violating operators get induced but are highly suppressed so that the nucleon decay rate is well within present bounds.

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