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From the MSSM to the SMEFT with MATCHETE

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We present the complete one-loop matching of the Minimal Supersymmetric Standard Model (MSSM) onto the Standard Model Effective Field Theory (SMEFT), considering the most general case for the MSSM with conserved R-parity, which has 124 free parameters. The matching is performed with the MATCHETE package, integrating out all superpartners at once with non-degenerate masses. We validate against existing results in the literature and present a minimal phenomenological example. Our results include all correlations among the different SMEFT Wilson coefficients that are governed by supersymmetry and thus provide a basis for future systematic and global studies of the MSSM parameter space employing EFT methods.

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Classification de Session: Methods and Tools

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