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 <h2>From the Planck Scale to the Electroweak Scale</h2>

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Regularization without a renormalization scale

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I will describe a version of the dimensional regularization of a classically scale invariant theory, motivated by the requirement to preserve scale invariance at the level of loop corrections. The theory is embedded in a nonrenormalizable Lagrangian, where both the dimensionful regulator \mu and suppression scale of higherdimensional interactions are interpreted as a vev of a new dynamical scalar field that mixes with the Higgs. The method is applied to an SM-like theory, where the electroweak symmetry and the scale symmetry are broken spontaneously together. The shape of the scalar effective potential and interpretation of the high energy Higgs vacuum are modified. Based on: arXiv:1608.05336, arXiv:1612.09120.

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