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Functional renormalisation of UV-safe gauge theories coupled to matter

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Certain types of large- N gauge theories coupled to matter offer interacting UV fixed points that are under strict perturbative control, beyond the paradigm of asymptotic freedom. In this work, we derive and investigate functional RG equations for the quantum effective potential of the theory to leading order in a derivative expansion. We thereby find the RG flows, fixed points, and scaling dimensions of infinitely many canonically irrelevant interaction monomials to leading order in the small Veneziano parameter. We also find that results can be resummed into closed expressions. Implications for vacuum stability and the size of the conformal window, links with RG studies in the $\overline{\text{MS}}$ scheme, and extensions towards larger Veneziano parameters are indicated.

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