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# Renormalization Flow of Nonlinear Electrodynamics

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We study the renormalization flow of generic actions that depend on the invariants of the field strength tensor of an abelian gauge field. While the Maxwell action defines a Gaussian fixed point, we search for further non-Gaussian fixed points or rather fixed functions, i.e., globally existing Lagrangians of the invariants. For the construction of a globally existing fixed function, we pay attention to the use of proper initial conditions. Our results provide evidence for the existence of a continuum of non-Gaussian fixed points parametrized by a small positive anomalous dimension below a critical value. For the strong-field limit of the 1PI QED effective action, where the anomalous dimension is determined by electronic fluctuations, our result suggests the existence of a singularity free strong-field limit, circumventing the standard conclusions connected to the perturbative Landau pole.

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