Flows and regulators in Abelian gauge theories with multicomponent scalar fields

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Abstract

I present recent results on the importance of averaging schemes in Abelian gauge theories with scalar fields. I show how sensitive the beta-functions of charge and self-couplings are with respect to the regulator. In the model where the scalar sector shows O(N) symmetry, the superconducting fixed point is recovered analytically (at N=1). Possibility of new fixed points for more complicated symmetries will also be discussed.

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