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The Wilson flow in scalar field theory

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A nonperturbative renormalization prescription for the energy-momentum tensor, based on space-time symmetries along the Wilson flow, has been proposed recently in the context of four-dimensional gauge theories. We extend this construction to the case of a scalar field theory, and investigate its numerical feasibility by studying Ward identities in 3-dimensional phi^4 theory.

In this talk, we introduce the Wilson flow for the scalar theory, discuss its renormalization properties, and present some preliminary results about the determination of the renormalization constants for the energy-momentum tensor.

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