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Renormalisation of the scalar energy-momentum tensor with the Wilson flow

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The Wilson flow is a promising tool to study strongly coupled theories. Its remarkable renormalisation properties allow for a meaningful formulation of the energy-momentum tensor on the lattice. The non-perturbative computation of the latter can in turn be used to study the scaling behaviour of quantum field theories. We extent recent studies on the renormalisation of the energy-momentum tensor in 4-dimensional gauge theory to the case of a 3-dimensional scalar theory to investigate its intrinsic structure and numerical feasibility on a more basic level. In this talk, we introduce the Wilson flow for scalar theory, discuss Ward identities, and present our results for the renormalisation constants of the scalar energy-momentum tensor.

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