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## Fixed Point Structure of Gradient Flow Exact Renormalization Group for Scalar Field Theories

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Gradient Flow Exact Renormalization Group (GFERG) is a framework to define the Wilson action via a gradient flow equation proposed by Ref.[1]. Because it preserves gauge symmetries obviously, it is a promising approach to study non-perturbative aspects of gauge theories or quantum gravity. On the other hand, some scalar models (such as the  $CP^{N-1}$  model or the  $O(N)$  non-linear sigma model) share similar properties with these theories and have been investigated as their toy models. In this talk, we study the fixed point structure of the GFERG equation associated with a general gradient flow equation for scalar field theories. We show that the fixed point structure is the same as that of the conventional Wilson-Polchinski (WP) equation in general. Furthermore, we discuss that the GFERG equation has a similar RG flow structure around a fixed point to the WP equation. We illustrate these results with the  $O(N)$  non-linear sigma model in 4-epsilon dimensions and the Wilson-Fisher fixed point. This talk is based on Ref. [2]. [1] H. Sonoda and H. Suzuki, PTEP2021 No.2, (2021) 023B05 [arXiv:2012.03568 [hep-th]] [2] Y.Abe, Y.Hamada and J.Haruna, [arXiv:2201.04111 [hep-th]]

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