

Gradient flow, the renormalization group beta function and further applications

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The renormalization group (RG) β function describes the running of the renormalized coupling and connects the ultraviolet and infrared regimes of quantum field theories. Using different gradient flow schemes, we define renormalized couplings and determine the RG β function using a more traditional step-scaling method as well as the concept of the continuous β function which showcases a direct relation between gradient flow and RG flow.

We present results for $SU(3)$ gauge systems with different number of flavors in the fundamental representation and discuss advantageous of the continuous β function. In addition we point our future applications.

Recording and publishing

yes

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