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Machine learning a fixed-point action for the $O(3)$ non-linear sigma-model in $d=2$

Wednesday 3 December 2025 11:40 (40 minutes)

In this talk, I present our results for the machine learning of a renormalization-group improved action for the $O(3)$ non-linear sigma-model in $d=2$. After introducing the theoretical setup, I will discuss the convolutional neural networks used in this study. Using these networks, we trained a neural network to parameterize a fixed-point action, a classically perfect action. Its properties are tested and it is compared to previously found parametrizations. Finally, I will conclude with an outlook on the conceptual steps needed for constructing a quantum perfect action for this theory.

Special requests

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