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Exact instantons and their interactions in Hubbard model

Tuesday, 8 September 2020 17:20 (25 minutes)

We report results from an extensive study of the Lefschetz thimbles decomposition for the Hubbard model on the hexagonal and square lattices. This study, which employs continuous auxiliary fields and the gradient flow with exact evaluation of fermionic determinant, allowed us to construct the complete Lefschetz thimbles decomposition of the model. We found all important saddle points of the action and classified them through the notion of multi-instanton field configurations. A rigorous definition of the interaction of these instantons is proposed, through the careful numerical study of the behaviour of degenerate saddle points. We show how the Lefschetz thimbles decomposition changes across the phase transition. Finally, we construct the multi-instanton partition function and show how it can describe some important physical features of the model.

Is this abstract from experiment?

No

Internet talk

Yes

Name of experiment and experimental site

N/A

Is the speaker for that presentation defined?

Yes

Details

Dr Maksim Ulybyshev,
University of Würzburg, Germany,
https://www.physik.uni-wuerzburg.de/tp1/home/

Primary authors: Dr ULYBYSHEV, Maksim (University of Würzburg); ZAFEIROPOULOS, Savvas; WINTEROWD, Christopher

Presenter: Dr ULYBYSHEV, Maksim (University of Würzburg)

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