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## Decimation map in 2D for accelerating HMC

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To conquer topological freezing in gauge systems, we develop a variant of trivializing map proposed in Luecher 2019. We in particular consider the 2D  $U(1)$  pure gauge model, which is the simplest gauge system with topology. The trivialization is divided into several stages, each of which corresponds to integrating local degrees of freedom, the decimation, which can be seen as coarse-graining. The simulation using the map has a gain in autocorrelation in wall clock time compared to conventional HMC which likely survives even in the continuum limit.

### Topical area

Algorithms and Artificial Intelligence

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