



Contribution ID: 69    Type: 5th week (Formal developments and other frontiers in lattice QCD)

## Fermion determinants on a quantum computer

*Friday, November 15, 2024 10:00 AM (1 hour)*

I discuss a quantum algorithm to compute the logarithm of the determinant of the staggered fermion matrix, assuming access to a classical lattice gauge field configuration. The algorithm uses the quantum eigenvalue transform, and quantum mean estimation, giving a query complexity that scales like  $O(V \log(V))$  in the matrix dimension  $V$ .

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**Session Classification:** Seminar (5th week)