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Grassmann tensor-network approach for two-dimensional QCD in the strong-coupling expansion

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For non-zero chemical potential, the sign problem prohibits the simulation of lattice QCD using traditional Monte-Carlo methods. I will present a tensor-network approach based on singular value decomposition to compute the partition function and thermodynamic observables of two-dimensional lattice QCD in the strong-coupling expansion for general orders of the coupling parameter β. Additionally, I will show results for the particle density and chiral condensate up to O(β^3).

Author: SAMBERGER, Thomas (Universität Regensburg)

Co-authors: BLOCH, Jacques (University of Regensburg); Dr LOHMAYER, Robert (Universität Regensburg)

Presenter: SAMBERGER, Thomas (Universität Regensburg)

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