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Quark Mass Dependence of the QCD Critical End Point in the Strong Coupling Limit

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Strong coupling lattice QCD in the dual representation allows to study the full μ - T phase diagram, due to the mildness of the sign problem. This has been done in the chiral limit. Here we extend the phase diagram to finite quark masses. We present our results on the quark mass dependence of the QCD critical end point obtained by Monte Carlo via the worm algorithm. We compare our simulations which are performed on $4^3 \times 4$, $6^3 \times 4$, $8^3 \times 4$, $12^3 \times 4$, $16^3 \times 4$ lattices with mean field results.

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