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The phase diagram of QCD from lattice simulations

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The phase diagram of QCD is one of the most interesting problems in modern physics which so far has not been sufficiently investigated from first principle calculations at $\mu/T > 1$, mainly due to the sign problem of lattice QCD.

One of the most promising methods to tackle the sign problem in lattice simulations is the complex Langevin method,

which recently has been successfully applied to QCD in many interesting parameter regions.

Here we give preliminary results of simulations with moderately heavy Wilson fermions in different regions of the phase diagram with rather large μ/T .

The long term prospect is mapping out the phase diagram and also go to lower masses.

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