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Chiral and deconfinement crossovers at finite quark spin density from lattice QCD

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We study the effect of finite spin quark density on the chiral and deconfinement thermal crossovers using numerical simulations of lattice QCD with two dynamical light quarks. The finite spin density is introduced by the quark spin potential in the canonical formulation of the spin operator. We show that both chiral and deconfinement temperatures are decreasing functions of the spin potential. We determine the parabolic curvatures of crossover temperatures in a limit of physical quark masses.

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