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Analytic continuation of finite density QCD with heavy quarks in the strong coupling region

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Finite density and temperature QCD with heavy quarks is studied in the complex chemical potential ($\Upsilon\mu$) plane by use of a mean field method and Monte Carlo simulations, where the former applies to the strong coupling region. We calculate the effective potential as a function of Polyakov line, and study thermodynamic singularities and their associated Stokes lines in the complex $\Upsilon\mu$ plane. We also perform an explicit analytic continuation of the first order transition and crossover lines appearing on the real $\Upsilon\mu$ axis in the strong coupling region.

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