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## QCD equation of state in the presence of magnetic fields at low density

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Peripheral heavy-ion collisions are expected to exhibit magnetic fields with magnitudes comparable to the QCD scale, as well as non-zero baryon densities. Whereas lattice QCD at finite magnetic field can be simulated directly with standard algorithms, an implementation of real chemical potentials is hindered by the infamous sign problem. Aiming to shed light on the QCD transition and on the EoS in that regime, we carry out lattice QCD simulations with 2+1+1 staggered quarks with physical masses at finite magnetic field, and imaginary chemical potential to circumvent the sign problem. We present the leading coefficient of Taylor expansion calculated at non-zero magnetic field and discuss the impact of the field on the strangeness neutrality condition.

### Topical area

QCD at Non-zero Density

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