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## ”QCD equation of state at finite density and finite magnetic field”

*Tuesday, 29 September 2015 16:30 (2 hours)*

The Polyakov linear-sigma model (PLSM) and Hadron Resonance Gas (HRG) model are considered to study the hadronic and partonic equation(s) of state for the case of nonzero external magnetic fields. Thermodynamic quantities including the pressure, interaction rate, entropy density, magnetization and the speed of sound are presented as function of the temperature and the magnetic field and compared with recent lattice QCD calculations. Positive magnetization indicates paramagnetic properties. Direct and inverse catalysis depends on increasing and decreasing critical temperature with the magnetic field. Confronting PLSM and HRG to lattice QCD gives an indirect estimation for the effective degrees of freedom, coupling, etc.

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