



Contribution ID: 264

Type: Oral Presentation

Equation of state and the Casimir effect in non-Abelian gauge theory on the lattice

Wednesday, 5 July 2023 14:00 (20 minutes)

We present a study of the equation of state in finite-temperature non-Abelian gauge theory for isotropic and anisotropic lattices, where the temperature T is varied by changing the temporal lattice size N_t at fixed lattice scale a . We compute the trace anomaly and the corresponding pressure/energy density and show the lattice spacing, as well as the volume dependence, with the corresponding jackknife statistical error analysis. We also present results of the Casimir potential and the Casimir mass in $SU(2)$ at zero-temperature in $(2+1)$ spacetime dimensions, studied through the introduction of two parallel chromoelectric wires separated by a distance R on the lattice plaquettes. We show that the attractive Casimir interaction varies exponentially with the distance between the wires and is damped at large separation between the wires.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

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Session Classification: Theoretical and Computational Physics

Track Classification: Track G - Theoretical and Computational Physics