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Thermodynamics for SU(2) pure gauge theory using gradient flow

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We present lattice calculations of the equation of state of pure SU(2) gauge theory by using the gradient flow. The scale-setting of lattice parameter has been carried, and we propose a reference scale t0 satisfying t2E=0.1 for SU(2) gauge theory. This reference value is fixed by a natural scaling-down of the t0 scale for the SU(3) based on perturbative analysis. We also show the thermodynamic quantities as a function of T/Tc, which are derived by the energy-momentum tensor using the small flow-time expansion.

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