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A novel computation of the thermodynamics of SU(3) Yang-Mills theory

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We present an accurate computation of the Equation of State of SU(3) Yang-Mills theory using shifted boundary conditions in the temporal direction. In this framework, the entropy density $s(T)$ can be obtained in a simple way from the v.e.v. of the space-time components T_{0k} of the energy-momentum tensor. Furthermore, contrary to the standard approach, the Equation of State $s(T)/T^3$ can be measured in an independent way at any value of the temperature. The extrapolation to the continuum limit shows almost no dependence on the lattice artifacts.

Primary author: Prof. GIUSTI, Leonardo (University of Milano Bicocca)

Co-author: Dr PEPE, Michele (INFN)

Presenter: Prof. GIUSTI, Leonardo (University of Milano Bicocca)

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