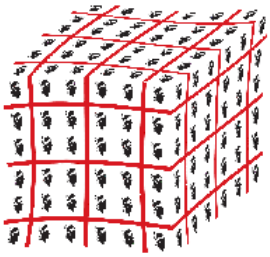

Contribution ID: **226** Type: **not specified**

Quantum entanglement in SU(3) lattice Yang-Mills theory at zero and finite temperatures

Friday, 18 June 2010 15:50 (20 minutes)

Entanglement entropy measures how the spatial subregion in a total system is entangled quantum mechanically with its complement. Entanglement entropy provides with an insight into phase structures of quantum systems and attracted much interest recently. In particular, it has been argued within the models of AdS/QCD correspondence that the entanglement entropy could exhibit a non-analytic behavior with respect to the size l of the subregion.

We measured the entanglement entropy in SU(3) pure Yang-Mills theory (approximating it by the so called $\alpha = 2$ entropy). Within the statistical errors the numerical data does not show a non-analytic behavior at zero temperature and is well fitted with the power law $1/l^3$. We also show that the entanglement entropy receives a thermal contribution at finite temperature comparable with the thermal entropy, as is expected on general grounds.

Please, insert your presentation type (talk, poster)

talk

Primary author: NAKAGAWA, Yoshiyuki Nakagawa (Niigata University)

Co-authors: Prof. NAKAMURA, Atsushi (RIISE, Hiroshima University); Mr MOTOKI, Shinji (Graduate School of Bio-Sphere Science, Hiroshima University); Prof. ZAKHAROV, Valentine (Max Planck Institute of Physics)

Presenter: NAKAGAWA, Yoshiyuki Nakagawa (Niigata University)

Session Classification: Parallel 57: Vacuum structure and confinement

Track Classification: Vacuum structure and confinement