

**Color confinement in lattice Landau gauge
with unquenched Wilson and KS fermions**

Presenter: Hideo Nakajima

Hideo Nakajima and Sadataka Furui

Abstract: Color confinement scenarios in Landau gauge of Kugo-Ojima and of Zwanziger are closely related. In the course of quenched simulations with various lattice sizes up to 56^4 , it was found that Kugo-Ojima parameter c gradually increased but saturated at about 0.8 in contrast to the theoretically expected value 1[1,2]. We measured Kugo-Ojima parameters and checked validity of Zwanziger's horizon condition in Landau gauge using unquenched lattice configurations of JLQCD, CP-PACS, Columbia University and MILC collaborations[1]. Due to the asymmetry of lattice, there exists direction dependence of Kugo-Ojima parameter, but one can conclude that the average value is consistent with 1, and Zwanziger's horizon condition holds. Comments on the Gribov noise is also given[2,3].

References

- [1] S. Furui and H. Nakajima, hep-lat/0503029 and references therein
- [2] H.Nakajima and S. Furui, Nucl. Phys. B141 (Proc. Suppl.) 34
- [3] H.Nakajima and S. Furui, Nucl. Phys. B129 (Proc. Suppl.) 730