

# — 第 862 回九大原子核セミナー —

講師：幸山 浩章氏 (中央研究院)

演題：The Nambu Jona-Lasinio model with density  
dependent UA(1) anomaly

日時：9月15日(火) 16時30分～

† 今回は通常と曜日が異なりますのでご注意ください。

場所：理学部 物理大学院講義室 (理学部 2号館 2階 2263室)

## 概要

Whether the phase transition from hadron to color superconducting state is of the first order is an interesting question. To study this, we use the Nambu Jona-Lasinio model which is low energy effective theory of quantum chromodynamics (QCD). In this work, we consider the density dependent UA(1) anomaly and study the critical surface in the quark mass and chemical potential space. We have found that the surface shrinks when a quark chemical potential increases, which is the opposite result from the study by using usual NJL model. The difference comes from the density dependence of the UA(1) anomaly and our result is consistent to the recent lattice QCD study. Our result suggests the restoration of the UA(1) anomaly at high density, which seems to be physically reasonable because a color superconductivity state may dominate at intermediate baryon density where the UA(1) anomaly should be negligible.

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