



Contribution ID: 579

Type: **Poster**

Modifications of heavy-light mesons in inhomogeneous chiral condensation phases

Tuesday 29 September 2015 16:30 (2 hours)

In this talk, we propose that heavy-light mesons can be good probes to investigate the nuclear matter. It is said that inhomogeneous chiral condensation phases in which neutral pion condense can exist in high density and low temperature region near the chiral restoration point. Then, we put heavy-light mesons into such phases and investigate what happens. At first, we put heavy-light mesons on some inhomogeneous phases and see the modification of their masses. In this case, heavy-light mesons carrying different spin and iso-spin mix each other. And this causes the mass splitting of heavy-light mesons, e.g., $D(0^-)$ and $D^*(1^-)$ degenerated in the vacuum. Furthermore, these splitting patterns reflect what kind of inhomogeneous phase occurs. Next, we show the dispersion relations for heavy-light mesons in the Chiral Density Wave (CDW) phase. The CDW is one of the inhomogeneous phases where scalar mode and neutral pseudo-scalar mode can condense. In this phase, potentials for heavy-light mesons are periodic, so that we have to employ the Bloch's theorem to get the dispersion relations. Thereby, dispersion relations drastically change, i.e., the existence of the Brillouin zones and the emergence of collective modes. These modifications are signal of the existence of the inhomogeneous phases.

On behalf of collaboration:

NONE

Primary author: Mr SUENAGA, Daiki (Nagoya University)

Co-author: Prof. HARADA, Masayasu (Nagoya University)

Presenter: Mr SUENAGA, Daiki (Nagoya University)

Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness