Sound velocity peak driven by chiral partners in dense two-color QCD

Thursday, October 10, 2024 11:50 AM (20 minutes)

Recently the lattice simulation in two-color QCD at finite density clarified that the squared sound velocity cs2 exceeds the conformal limit 1/3 . We know that at mu -> infinity the conformal limit is realized, thus, a peak structure was numerically observed. Theoretically, on the other hand, the ChPT is known to predict a monotonic increment of cs2 to yield cs2 -> 1 at sufficiently dense regime, and fails in deriving the peak. In this talk, I will show that, based on our linear sigma model in dense two-color QCD, chiral-partner contributions from sigma meson can successfully lead to the peak structure.

Presenter: SUENAGA, Daiki (KMI, Nagoya University)