Abstract Submitted
for the HAW14 Meeting of
The American Physical Society

Chiral Spirals from Discontinuous Chiral Symmetry[1] TORU KOJO, University of Illinois, Urbana-Champaign — Recently phases of the inhomongeneous chiral condensates (IChC) attract renewed attentions in quark matter context. A number of theoretical studies have suggested that in some domain of moderate quark density the IChC phases are energetically more favored than the normal, chiral symmetric phase. In particular, the NJL-type model studies indicate that the phase of IChCs may mask the usual 1st order chiral phase transition line and its critical end point, and might change the conventional wisdom. In this talk, I will discuss characteristic features of the IChC phases and their potential impacts on the compact star physics. In particular, some of the IChC phases open gaps near the quark Fermi surface, suppressing back-reaction from the quark to gluon sectors. This mechanism delays the chiral restoration in the strange quark sector, forbids the emergence of the large bag constant, and as a consequence, makes the quark matter EOS very stiff.

[1]NSF Grants PHY09-69790, PHY13-05891

Toru Kojo
University of Illinois, Urbana-Champaign

Date submitted: 27 Jun 2014 Electronic form version 1.4