Contribution ID: **10** Type: **Contributed**

Chiral soliton lattice in magnetic fields and rotation

Wednesday, March 21, 2018 12:10 PM (25 minutes)

The Chiral Soliton Lattice (CSL) is a state with a periodic array of topological solitons that spontaneously breaks parity and translational symmetries. Such a state is known to appear in chiral magnets. In this talk, we show that CSL appears as a ground state of QCD at nonzero chemical potential in a strong magnetic field or under rapid rotation. We also show that the effective theory for electromagnetic fields in the CSL is given by the axion electrodynamics and that one of the helicity states of photons has the nonrelativistic gapless dispersion relation. A possible realization of the CSL in noncentral heavy ion collisions will be discussed.

Primary author: Prof. YAMAMOTO, Naoki (Keio University)

Co-authors: Mr NISHIMURA, Kentaro (Keio University); BRAUNER, Tomas (University of Stavanger); Prof. HUANG, Xu-Guang (Fudan University)

Presenter: Prof. YAMAMOTO, Naoki (Keio University)