凝縮系物理学ゼミナール

Condensed Matter Seminar

Location: Room 413, School of Science Bldg. 5 (理学 5 号館 413 号室)

Date: 13:30-15:00, Wednesday, 28 March 2012

Nonrelativistic effective Lagrangian and number of Nambu-Goldstone bosons

Speaker: Mr. Haruki Watanabe （渡辺 悠樹 氏）

(University of California, Berkeley)

Abstract:

After the Goldstone theorem was established in 1960s, spontaneous symmetry breaking and the associated Nambu-Goldstone bosons has been widely explored. Although the physics of Nambu-Goldstone bosons is well-established in Lorentz invariant systems, surprisingly enough, the corresponding understanding in non-relativistic systems has still been an open question. Using the nonrelativistic effective Lagrangian formalism, I will prove a formula which predicts the number of NG bosons for a given symmetry breaking pattern and "charge densities" of the ground state in a very general setup. I will also explain the importance of the global structure of the coset space G/H.

Reference:

H. Watanabe and H. Murayama, arXiv:1203.0609