755th ASRC Seminar

Date：令和元年5月16日(木)

13：30～

Location：研究1棟　第5会議室

Speaker：永長直人 氏

(理化学研究所創発物性科学研究センター・
東京大学大学院工学系研究科)

Title：Chirality in quantum dynamics

Abstract:

When the system lacks both parity and mirror symmetries, it is called "chiral" and can be classified into right-handed and left-handed. Chirality is one of the most fundamental issue in many branches of sciences. In biology, the chirality of DNA is the same for all the living creatures on earth. In chemistry, to synthesize the molecules of one chirality selectively is an important issue. In physics, the parity violation is a striking feature of weak interaction.

In this talk, I will focus on the chirality appearing in quantum dynamics, and discuss that the most fundamental principles in physics manifest themselves in the nonreciprocal responses of chiral systems, i.e., the symmetries, dissipation, quantum-classical crossover/transition, quantal Berry phase and topology, and many-body correlation effects. The concrete examples to discuss include magnetochiral anisotropy of semiconductors, Weyl semimetals, and superconductors, nonlinear spin current generation in Rashba-Dresselhaus systems, and shift currents under photo-excitations.

＜Contact＞
宇都野　穣　　(81-6901)
Advanced Science Research Center