



复旦大学物理系 物质科学报告

Time: 2:00pm, Tuesday, 2018.10.30

Location: Physics Building(Jiangwan), Room C108

Role of phonons in magnetism

Naoto Nagaosa^{1,2}

¹RIKEN Center for Emergent Matter Science (CEMS)

²Department of Applied Physics, University of Tokyo

The electron-phonon interaction in solids is considered to be mainly related to the charge degrees of freedom. However, spin-phonon interaction is also relevant to variety of phenomena in magnets. Especially, the modulation of spin-orbit interaction by phonons recently turns to be strong both experimentally and theoretically. In this talk, I will discuss the interplay between magnetism and phonon in several situations of interests including the phonon-Hall effect and orbital magnetism [1], nonreciprocal spin-phonon propagation [2], ultrasonic attenuation in magnetic monopole system [3], spin-phonon hybrid mode due to dipolar interaction [4], and enhanced spin-phonon interaction in chiral magnets [5].

References

- [1] T. Saito et al., unpublished.
- [2] T. Nomura et al., unpublished.
- [3] N. Kanazawa et al., Nature Communications 7, Article number: 11622 (2016).
- [4] R. Takahashi and N. Nagaosa, Phys. Rev. Lett. 117, 217205 (2016).
- [5] T. Koretsune, N.Nagaosa, R. Arita, Scientific Reports 5, Article number: 13302 (2015)



Professor Nagaosa is the Deputy Director of RIKEN Center for Emergent Matter Science and Professor in Department of Applied Physics in the University of Tokyo. He got his PhD from University of Tokyo in 1986. He was a Research Associate in the University of Tokyo from 1983 to 1989, and a faculty member since 1989. His awards include the 1995 Yukawa Prize, the 1995 Japan IBM Prize, the 1998 Superconductivity Science and Technology Award, the 2003 Nissan Science Prize, the 2005 Nishina Memorial Prize, the 2012 Benjamin Lee Professorship, the 2013 Beller Lectureship, the 2014 MEXT Prize, the 2018 Purple Ribbon Prize and the 2017 Fujihara Prize. He has been one of the Highly Cited Researchers by Thomson Reuters since 2014.

