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Topological Materials Science Seminar (32)

Symmetry enforced semimetals and symmetry enriched topologically ordered state in nonsymmorphic crystals

Dr. Sungbin Lee

Department of Physics, KAIST, Republic of Korea

Place: Room 273, Department of Applied Physics, Graduate School of Engineering, Building No.3, Nagoya University

Date: February 16 (Thurs), 2017

Time: 10:30-12:00

Abstract:

Among 230 space groups, there are 157 nonsymmorphic space group having glide reflection or screw rotation symmetries. We discuss their unique distinction compared to other symmorphic groups. Based on the extended "Hastings-Oshikawa-Lieb-Schutz-Mattis" theorem, we argue that topologically trivial insulators are forbidden at certain integer fillings of particles and study their exotic low energy properties. In addition, we discuss how such nonsymmorphic symmetries lead to symmetry enforced semimetals and study their interesting phase transitions.