



Contribution ID: 176

Type: **Talk**

【109】 Magnetic response and topology of a staggered-Rashba superconductor

Tuesday, August 31, 2021 3:30 PM (15 minutes)

In a superconductor with inversion, spin-singlet and spin-triplet order parameters are distinct by symmetry and can be distinguished experimentally through their magnetic response. In non-centrosymmetric systems, however, the two order parameters mix and the magnetic response is inconclusive. In our work, we examine the situation, where inversion is broken locally in a sublattice, but retained globally. In particular, we investigate a system consisting of layers with alternating Rashba spin-orbit coupling in the z direction. In this case, the system shows signs of non-centrosymmetry even in the three-dimensional limit. This opens a design path to new superconducting order parameters which are robust against magnetism.

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Session Classification: Condensed Matter Physics

Track Classification: Condensed Matter Physics (KOND)