Contribution ID: **561** Type: **Invited Oral**

M2Or3K-02: [Invited] Berry Phase Enforced Spinor Pairing

Tuesday 11 July 2023 16:45 (30 minutes)

We propose Berry phase enforced spinor superconducting orders arising from pairing topological Fermi surfaces with their Chern numbers differing by an odd integer. This exotic pairing structure can exhibit a single pairing gap node on a Fermi surface and is described by monopole harmonics with half-integer charge and fractionalized half-integer partial-wave symmetry. We investigate topologically protected surface states in the simplest example of spinor pairing with pair monopole charge -1/2 when spineless fermions in a topological trivial Fermi surface pair with spin-1/2 electrons in a helical Fermi surface with Chern number -1 under hard-core interaction between them. We find exotic surface states protected by the topological spinor superconducting order.

Author: Prof. LI, Yi (Johns Hopkins University)

Co-author: Mr FRAZIER, Grayson (Johns Hopkins University)

Presenter: Prof. LI, Yi (Johns Hopkins University)

Session Classification: M2Or3K: Special Session: Topological Materials for Electronics VI