Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

**First-order chiral to non-chiral transition in the angular dependence of the upper critical induction of the Scharnberg-Klemm $p$-wave pair state** RICHARD KLEMM, Univ of Central Florida, JINGCHUAN ZHANG, Univ of Science and Technology Beijing, CHRISTOPHER LORSCHER, Univ of Central Florida, QIANG GU, Univ of Science and Technology Beijing — We calculate the temperature $T$ and angular $(\theta, \phi)$ dependence of the upper critical induction $B_{c2}(\theta, \phi, T)$ for parallel-spin superconductors with an axially symmetric $p$-wave pairing interaction pinned to the lattice and a dominant ellipsoidal Fermi surface (FS). When both parallel-spin states are allowed, the chiral Scharnberg-Klemm state $B_{c2}(\theta, \phi, T)$ exceeds that of the chiral Anderson-Brinkman-Morel state for all FS anisotropies, and exhibits a kink at $\theta = \theta^*(T, \phi)$, indicative of a first-order transition from its chiral, nodal-direction behavior to its non-chiral, antinodal-direction behavior. Potential applicability to $Sr_2RuO_4$, UCoGe, and topological superconductors is discussed.

Richard Klemm
Univ of Central Florida

Date submitted: 14 Nov 2013 Electronic form version 1.4