Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

**Topologically stable gapless phases in nonsymmorphic superconductors** SHINGO KOBAYASHI, MASATOSHI SATO, Department of Applied Physics, Nagoya University — Nontrivial node structures are a salient feature in the unconventional superconductors (SCs), providing valuable clues to an understanding of the symmetry of Cooper pairs. In the presence of spin-orbital coupling, the node structures are determined by the group theory [1] where the symmetry operation in a crystal lattice is followed by spin. Such a node is stabilized by crystal symmetry. Especially, as the counterexample of the Blount's theorem, Micklitz and Norman indicated that there exists a stable line node in nonsymmorphic SCs with odd parity [2] In our previous study [3], we found that the topological classification not only includes the Blount's theorem but also updates the instability of line node via the bulk-boundary correspondence. In this talk, taking into account the nonperiodic boundary condition on a tight-binding Hamiltonian, we extend the topological node stability to nonsymmorphic SCs and show that the stable line node suggested by Micklitz and Norman is also the topological object. [1] M. Sigrist and K. Ueda, Rev. Mod. Phys. **63**, 239 (1991). [2] M. R. Norman, Phys. Rev. B **32**, 15093 (1995); T. Micklitz and M. R. Norman, *ibid.* **80**, 100506(R) (2009). [3] SK, K. Shiozaki, Y. Tanaka, and M. Sato, Phys. Rev. B, **90**, 024516 (2014).

Shingo Kobayashi
Department of Applied Physics, Nagoya University

Date submitted: 12 Nov 2014 Electronic form version 1.4