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**Majorana fermions in spin-singlet nodal superconductors with coexisting non-collinear magnetic order** ZIQIANG WANG, Boston College, YUAN-MING LU, University of California, Berkeley — Realizations of Majorana fermions in solid state materials have attracted great interests recently in connection to topological order and quantum information processing. We propose a novel way to create Majorana fermions in superconductors. We show that an incipient non-collinear magnetic order turns a spin-singlet superconductor with nodes into a topological superconductor with a stable Majorana bound state (MBS) in the vortex core or on the edge. Moreover the topologically-stable point defect of non-collinear magnetic order also hosts a zero-energy MBS. We argue that such an exotic non-Abelian phase can be realized in extended $t$-$J$ models on the triangular and square lattices. Our proposal suggests a new avenue for the search of Majorana fermions in correlated electron materials where nodal superconductivity and magnetism are two common caricatures.

Yuan-Ming Lu
University of California, Berkeley

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