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Topological Nonsymmorphic Crystalline Superconductors QINGZE WANG, CHAO-XING LIU, The Pennsylvania State University — Topological superconductors possess a nodeless superconducting gap in the bulk and gapless zero energy modes, known as "Majorana zero modes", at the boundary of a finite system. In this work, we introduce a new class of topological superconductors, which are protected by nonsymmorphic crystalline symmetry and thus dubbed "topological nonsymmorphic crystalline superconductors". We construct an explicit Bogoliubov-de Gennes type of model for this superconducting phase in the D class and show how Majorana zero modes in this model are protected by glide symmetry. Furthermore, we generalize the classification of topological nonsymmorphic crystalline superconductors to the classes with time reversal symmetry, including the DIII and BDI classes, in two dimensions. Our theory provides a guidance to search for new topological superconducting materials with nonsymmorphic crystal structures.

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