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Symmetry Protected Majorana fermions in topological superconductors MASATOSHI SATO, Department of Applied Physics, Nagoya University — Recently, there are considerable interests in Majorana fermions in topological superconductors. It has been found that promising schemes to realize Majorana fermions is to break some of symmetries of the system. Indeed, by inducing the spin-orbit interaction and the Zeeman coupling which break inversion and time-reversal symmetries, conventional s-wave superconductors may support Majorana fermions on the boundaries. Moreover, by breaking the spin-rotation symmetry, spin-triplet superconductors may support Majorana fermions. Therefore, one might expect that symmetry is an obstruction to detect Majroana fermions. In this talk, however, we will show that this is not always the case. We show that symmetry may protect Majorana fermions in topological superconductors. As an example, we will show that Majorana Ising charater , which gives a detectable signal of Majorana fermion , is stabilized by symmetry of the system. We will also discuss some other roles of symmetry for Majorana fermions in topological crystalline superconductors.

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