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Topological Cooper-Pairing Based on Spin-Orbit Interactions

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Abstract:

The high interest, which topological superconductors are presently attracting, is to a large extent related to a possible generation of Majorana fermions. They are considered to be a basic ingredient of new forms of computing. Here we want to concentrate on Cooper pairing in the presence of strong Rashba type spin-orbit interactions and consider the conditions for topological superfluidity[1-4]. Ultracold atoms in optical lattice might perhaps offer a way to realize them.

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(3) Cao Ye et al; Phys. Rev. Lett. **113**, 115302 (2014)
(4) Fang Qin et al.; arXiv: 1504.05047 (2015)