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Theoretical study on the Nb-doped topological insulator Bi2Se3 KONG XIANG-RU, LIU XIONG-JUN, Peking University, CONDENSED MAT-TER PHYSICS TEAM — Recently, Nb-doped  $Bi_2Se_3$  (Nb<sub>0.25</sub> $Bi_2Se_3$ ) was reported to be type-II superconductor with gapless edge states being preserved. Interestingly, a macroscopic magnetic ordering also appears below the superconducting critical temperature. Coexistence of a magnetism and superconductivity in a topological insulator may lead to topological superconductor which could realize Majorana fermions in condensed matter physics. Here, we propose to study the underlying mechanism of the emergent magnetism, and find the possibilities to realize topological superconductors.

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