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Topological Superfluid in P-band Optical Lattice¹ YA-JIE WU, JING HE, CHUN-LI ZANG, SU-PENG KOU, Department of physics, Beijing Normal University, CONDENSED MATTER PHYSICS GROUP TEAM — By studying p-band fermionic system with nearest neighbor attractive interaction we find translation symmetry protected Z_2 topological superfluid (TSF) that is characterized by a special fermion parity pattern at high symmetry points in momentum space $k = (0, 0), (0, \pi), (\pi, 0), (\pi, \pi)$. Such Z_2 TSF supports the robust Majorana edge modes and a new type of low energy excitation - (supersymmetric) Z_2 link-excitation.

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