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Unconventional superconductivity in honeycomb lattice YANG QI, Tsinghua University, KAI SUN, University of Maryland, ZHENGCHENG GU, Kavli Institute for Theoretical Physics, LIANG FU, Harvard University — Motivated by results of DMRG and tensor network simulations on doped t - J model on honeycomb lattice, we study superconductivity of singlet and triplet pairing in this model. We show that a coexistence of singlet and triplet pairing superconductivity is induced by antiferromagnetic order near half-filling. The superconducting state we obtain is a topological superconductor.

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