

Abstract Submitted  
for the DAMOP10 Meeting of  
The American Physical Society

**Mixed triplet and singlet pairing in multicomponent fermion systems with dipolar interactions** CONGJUN WU, JORGE HIRSCH, Department of Physics, University of California, San Diego, CA 92093 — The symmetry properties of the Cooper pairing problem for multi-component ultra-cold dipolar molecular systems are investigated. The dipolar anisotropy provides a natural and robust mechanism for both triplet and singlet Cooper pairing to first order in the interaction strength. With a purely dipolar interaction, the triplet  $p_z$ -like polar pairing is the most dominant. A short-range attractive interaction can enhance the singlet pairing to be nearly degenerate with the triplet pairing. We point out that these two pairing channels can mix by developing a relative phase of  $\pm\frac{\pi}{2}$ , thus spontaneously breaking time-reversal symmetry. We also suggest the possibility of such mixing of triplet and singlet pairing in other systems.

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Date submitted: 21 Jan 2010

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