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Population of closed-channel molecules in trapped Fermi gases with broad Feshbach resonances[1] QIJIN CHEN, K. LEVIN, University of Chicago — We compute the fraction of closed-channel molecules in trapped atomic Fermi gases, over the entire range of accessible fields and temperatures. We use a two-channel model of BCS–Bose-Einstein condensation (BEC) crossover theory at general temperature T, and show that this fraction provides a measure of the T dependent pairing gap. Our calculations, containing no free parameters, are in good quantitative agreement with recent low T measurements in ^{6}Li. We present readily testable predictions for the dependencies of the closed-channel fraction on temperature and Fermi momentum.
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