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Dissociation of Cooper pairs in the BCS Limit using an Oscillating Magnetic Field¹ ABHISHEK MOHAPATRA, D.HUDSON SMITH, ERIC BRAATEN, The Ohio State University — In a gas of ultra cold fermionic atoms with two spin states, the effective interactions between the atoms can be controlled by using a Feshbach resonance to control the scattering length. In the BCS limit, the effective interaction between the atoms is weakly attractive and supports the formation of Cooper pairs. An oscillating magnetic field with frequency near the gap energy can dissociate Cooper pairs into pairs of atoms. We calculate the transition rate for the dissociation process using a recently developed formalism that takes into account many-body effects through a transition matrix element of the contact operator.

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