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Molecular Production at a wide Feshbach resonance in Fermi-gas of cooled atoms DEQIANG SUN, ARTEM ABANOV, VALERY POKROVSKY, Texas A&M University, POKROVSKY COLLABORATION — The problem of molecular production from degenerate gas of fermions at a wide Feshbach resonance, in a single-mode approximation, is reduced to the linear Landau-Zener problem for operators. The strong interaction leads to significant renormalization of the gap between adiabatic levels. In contrast to static problem the close vicinity of exact resonance does not play substantial role. Two main physical results of our theory is the high sensitivity of molecular production to the initial value of magnetic field and generation of a large BCS condensate distributed over a broad range of momenta in inverse process of the molecule dissociation.

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