

Abstract Submitted
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Molecular production at a broad Feshbach resonance in Fermi-gas of cooled atoms DEQIANG SUN, ARTEM ABANOV, VALERY POKROVSKY, Texas A&M University — The problem of molecular production from a degenerate gas of fermions at a broad 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 the static problem, the close vicinity of the exact resonance does not play a substantial role. The two our main physical results are: i) The molecular production is sensitive to the initial magnetic field. ii) In the inverse process of molecule dissociation a large BCS condensate distributed over a broad range of momenta is generated.

Deqiang Sun
Texas A&M University

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