

Abstract Submitted  
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**Impact of three-body collisions on molecules in ultracold Bose-Fermi mixtures** JOSE D'INCAO, Physics Department, Kansas State University, BRETT ESRY, Physics Department, Kansas State University — We have investigated ultracold three-body collisions in quantum degenerate Bose-Fermi gas mixtures. In this regime, the three-body collision rates can be deduced analytically to determine their energy and scattering length dependence. For large and positive values of the scattering length, we demonstrate that relaxation of weakly bound boson-fermion molecules is strongly suppressed when colliding with an identical fermionic atom. This suppression depends strongly on the mass ratio of the bosons and fermions. On the other hand, relaxation induced by collisions with the bosonic atoms is not suppressed. The main behavior of the total rate will thus be dictated by the relative densities of the two atomic species. (Supported by the National Science Foundation.)

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