

Abstract Submitted
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Scattering length scaling laws for ultracold three-body collisions

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We have developed a simple and unifying physical picture with which all relevant ultracold three-body collision rates, for short range interatomic interactions, can be derived and understood. The energy and scattering length dependence of the three-body collision rates can be determined from a simple WKB approximation to the tunneling probability through the potential barrier in the initial collision channel. For a given system, the scattering length scaling depends on the number of resonant s-wave interactions as well as on the mass ratio of the particles. Our results are expected to be valid in the threshold regime, i.e., when the collision energy is the smallest energy in the system. (Supported by the National Science Foundation)

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