

Abstract Submitted  
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**Threshold laws for N-body recombination**<sup>1</sup> NIRAV MEHTA, Grinnell College, SETH RITTENHOUSE, JILA/University of Colorado - Boulder, JOSE D'INCAO, JAVIER VON STECHER, CHRIS GREENE, JILA/University of Colorado — We present a formula for the cross section and event rate constant describing recombination of N particles in terms of general S-matrix elements. Our result immediately yields the generalized Wigner threshold scaling (with respect to energy and scattering length) for the recombination of N bosons. Specifically we find that the four-boson recombination rate approaches a constant at the collision threshold energy, and hence four-body recombination can potentially be competitive with three-body recombination in contributing to atomic losses. Further, we explore the resonant modification of recombination by the presence of universal four-boson states near threshold.

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