

**Abstract:**

Formulas for the cross section and event rate constant describing recombination of  $N$  particles are derived in terms of general  $S$ -matrix elements. Our result immediately yields the generalized Wigner threshold scaling for the recombination of  $N$  bosons. A semianalytical formula encapsulates the overall scaling with energy and scattering length, as well as resonant modifications by the presence of  $N$ -body states near the threshold collision energy in the entrance channel. We then apply our model to the case of four-boson recombination into an Efimov trimer and a free atom.