

Abstract Submitted  
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**Universal Relation for the Inelastic Two-Atom Loss Rate** ERIC BRAATEN, Ohio State University, HANS-WERNER HAMMER, University of Bonn — For a strongly-interacting system consisting of particles that interact through a large scattering length, there are universal relations that express many of its central properties in terms of the contact, which measures the number of pairs with small separations. We use the operator product expansion of quantum field theory to derive the universal relation for the inelastic 2-body loss rate, which is proportional to the contact. We verify the universal relation explicitly by direct calculations in the low-density limit as a function of temperature. This universal relation can be tested experimentally using ultracold quantum gases of atoms in hyperfine states that have an inelastic spin-relaxation channel.

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