

Abstract Submitted
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Universal Relations for the Strongly-interacting Fermi Gas¹ ERIC BRAATEN, LUCAS PLATTER, Ohio State University — A set of universal relations between various properties of any few-body or many-body system consisting of fermions with two spin states and a large but finite scattering length have been derived by Shina Tan. They involve an extensive quantity called the contact that measures the density of pairs of fermions with different spins and very small separations. We present simple derivations of these universal relations using quantum field theory methods, namely renormalization and the operator product expansion. We identify the contact density as the expectation value of a local operator that annihilates and creates a pair at a point.

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