

Abstract Submitted
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Universal Relations for Identical Bosons from 3-Body Physics¹

DAEKYOUNG KANG, The Ohio State University, LUCAS PLATTER, Chalmers University of Technology, ERIC BRAATEN, The Ohio State University — Systems consisting of identical bosons with a large scattering length satisfy universal relations determined by 2-body physics that are similar to those for fermions with two spin states. They require the momentum distribution to have a large-momentum $1/k^4$ tail and the radio-frequency transition rate to have a high-frequency $1/\omega^{3/2}$ tail, both of which are proportional to the 2-body contact. Identical bosons also satisfy additional universal relations that are determined by 3-body physics and involve the 3-body contact, which measures the probability of 3 particles being very close together. The coefficients of the 3-body contact in the $1/k^5$ tail of the momentum distribution and in the $1/\omega^2$ tail of the radio-frequency transition rate are log-periodic functions of k and ω that depend on the Efimov parameter.

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