Dissipative Effects on Quantum Sticking\textsuperscript{1} YANTING ZHANG, DENNIS CLOUGHERTY, University of Vermont — Using variational mean-field theory, many-body dissipative effects on the threshold law for quantum sticking and reflection of neutral particles are examined. For the case of an ohmic bosonic bath, we study the effects of the infrared divergence on the probability of sticking and obtain an analytic expression for the rate of sticking as an asymptotic expansion in the incident energy $E$. The low-energy threshold law for quantum sticking is found to be robust with respect to many-body effects and remains a universal scaling law to leading order in $E$. Non-universal many-body effects alter the coefficient of the rate law and the exponent of a subdominant term.

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