

Abstract Submitted
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Atom-diatom reaction dynamics
at cold and ultracold temperatures¹ PHILIPPE F. WECK, NADUVALATH
BALAKRISHNAN, University of Nevada Las Vegas — Quantum-mechanical scattering calculations are reported for the $O(^3P) + H_2$ collision at cold and ultracold temperatures. We investigate the sensitivity of the reaction dynamics to long-range forces by using different analytic representations of the lowest $H_2O(^3A'')$ electronic state which vary essentially by their descriptions of the van der Waals region. We also discuss how zero-energy resonances and Feshbach resonances, arising from the decay of quasibound states associated with the formation of van der Waals complexes in the entrance channel, affect the reactivity at low temperatures.

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