Energy levels and mid-infrared spectrum of Rydberg states of triatomic hydrogen\(^1\) JIA WANG, JILA and Department of Physics, University of Colorado, Boulder, VIATCHESLAV KOKOOULINE, Department of Physics, University of Central Florida, CHRIS GREENE, JILA and Department of Physics, University of Colorado, Boulder — In previous studies[1] of the dissociative recombination of \(\text{H}_3^+\), the rigid rotator approximation, and in some cases the adiabatic hyperspherical approximation as well, were adopted by calculations of the rovibrational states of \(\text{H}_3^+\). In this work, the Coriolis interaction is considered, and accurate rovibrational energy levels of \(\text{H}_3^+\) are calculated, with the aim of eventually improving the approximations presently used in recombination theory. We also use these accurate rovibrational states of \(\text{H}_3^+\) to study the energy levels and mid-infrared spectrum of nonpenetrating \(\text{H}_3\) Rydberg states. [1] V. Kokoouline and C. H. Greene, Phys. Rev. A 68, 012703 (2003).

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