

Abstract Submitted
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Three-body recombination in $\text{He} + \text{H} + \text{H}^1$ NICOLAIS L. GUEVARA, Department of Physics, Kansas State University, W. BLAKE LAING, Department of Physics & Astronomy, Rowan University, BRETT D. ESRY, Department of Physics, Kansas State University — Considerable progress has been made recently in the calculation of three-body recombination rates. Most of this effort, however, has focused on ultracold collisions, although a recent calculation has obtained a recombination rate at temperatures as high as 0.5 K [1]. We present our progress on a new method to calculate the three-body recombination rate to much higher energies using realistic potentials. This method diabaticizes the adiabatic hyperspherical representation using physical arguments. We will illustrate the method for the astrophysically-relevant reaction $\text{He} + \text{H} + \text{H} \rightarrow \text{H}_2 + \text{He}$. We hope this method enables tractable calculations at astrophysically-relevant temperatures as well.

[1] Y. Wang, J.P. D’Incao, B.D. Esry, arXiv:1012.0680 (2010)

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