

Abstract Submitted  
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**Jahn-Teller Effect in Three-Body Recombination of Hydrogen Atoms**<sup>1</sup> CHI HONG YUEN, VIATCHESLAV KOKOOLINE, Univ of Central Florida — The three-body recombination rate coefficients of the  $\text{H}+\text{H}+\text{H}\rightarrow\text{H}_2+\text{H}$  process for different final rovibrational levels of  $\text{H}_2$  are determined using a fully-quantum mechanical approach at zero total angular momentum. The Jahn-Teller coupling between the lowest electronic states of the  $\text{H}_3$  system is accounted for. It is found that the Jahn-Teller effect substantially enhances the recombination rates for deeply bound dimers at room temperature, but only leads to a 12% increase of the total three-body recombination rate. It is also found that the nascent population of the  $\text{H}_2$  molecules, formed in the recombination process, is dominated by highly excited rovibrational levels, which should have a substantial impact on astrophysical models of environments where atomic hydrogen is present.

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Chi Hong Yuen  
Univ of Central Florida

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