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Erratum: Otho-Para H 2 Conversion by Proton Exchange at Low Temperature: An Accurate Quantum Mechanical Study [Phys. Rev. Lett. 107 , 023201 (2011)]

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Erratum: Otho-Para H_2 Conversion by Proton Exchange at Low Temperature: An Accurate Quantum Mechanical Study [Phys. Rev. Lett. 107, 023201 (2011)]

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In the Letter [1], the rate coefficients in Fig. 2 were miscalculated. The corrected result is shown in the bottom figure. Actually, we used the cross sections shown in Fig. 1 [1] but we considered them in $Å^2$ and not in a_0^2. This caused an artificial increase of rate coefficients. In the correct calculations of rate coefficients, we used the cross sections in a_0^2. In connection with this revision, in the abstract the value of 4.15×10^{-10} $cm^3 \cdot molecule^{-1}$ must be replaced by the value of 1.16×10^{-10} $cm^3 \cdot molecule^{-1}$. At the 7th line from the top in the right column on page 3, the sentence is revised as "It slightly depends on temperature and keeps an almost constant value around 1.5×10^{-10} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$, which is about 1/17 of the (temperature independent) Langevin rate value (2.5×10^{-9} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$)." At the 5th line from the top in the left column on the last page, the sentence is revised as "For example, at 10 K, the TIQM rate coefficient is 1.16×10^{-10} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$ while the SM value is 2.97×10^{-10} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$, yielding a decrease of 60%. Similarly, at 100 K, we have respectively 1.55×10^{-10} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$ and 2.10×10^{-10} $cm^3 \cdot molecule^{-1} \cdot s^{-1}$. The new rate is thus 1.35 times smaller at that temperature."

The main conclusions of the Letter [1] are unchanged. The corrected rate coefficients are still very different from the previous published rate coefficients.

We wish to thank Ronald McCarroll for having spotted the error.

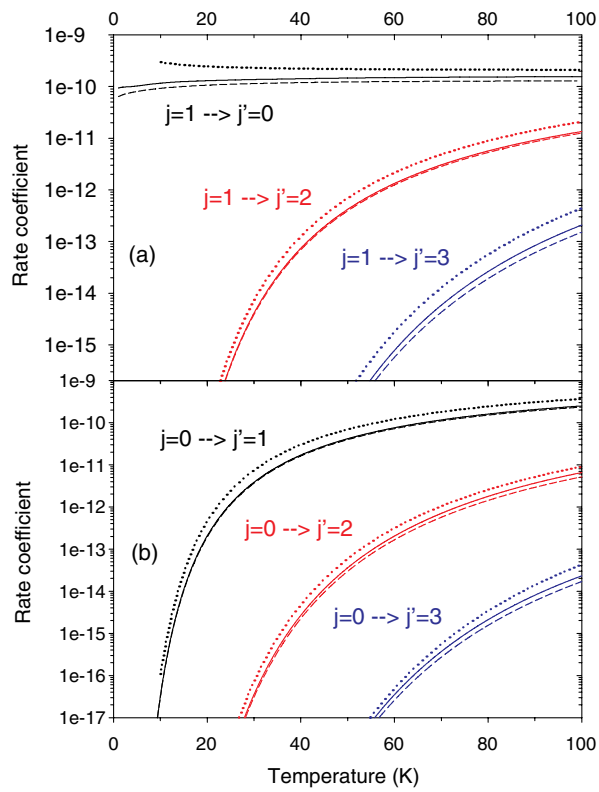

FIG. 2 (color online). TIQM (solid line), SQM (dashed line), and SM (dotted line) rate coefficients (in $cm^3 \cdot molecule^{-1} \cdot s^{-1}$) as a function of the temperature for $H^+ + H_2(v=0, j=1) \rightarrow H^+ + H_2(v=0, j')$ (a) and $H^+ + H_2(v=0, j=0) \rightarrow H^+ + H_2(v=0, j')$ (b).

[1] P. Honvault, M. Jorfi, T. Gonzalez-Lezana, A. Faure, L. Pagani, Phys. Rev. Lett. 107, 023201 (2011).

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