

Erratum: fine and hyperfine excitation of C_2H by collisions with He at low temperature

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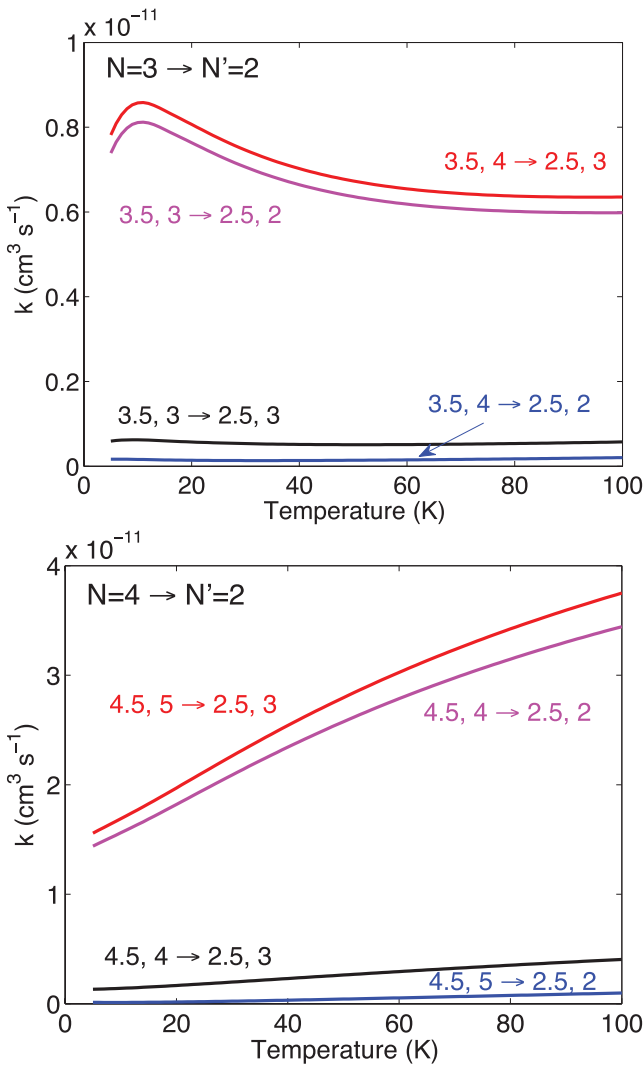


Figure 1. Temperature variation of hyperfine resolved C_2H -He rate coefficients for $N = 3, J, F \rightarrow N' = 2, j', F'$ (upper panel), $N = 4, J, F \rightarrow N' = 2, j', F'$ (lower panel) and $\Delta j = \Delta N$ transitions.

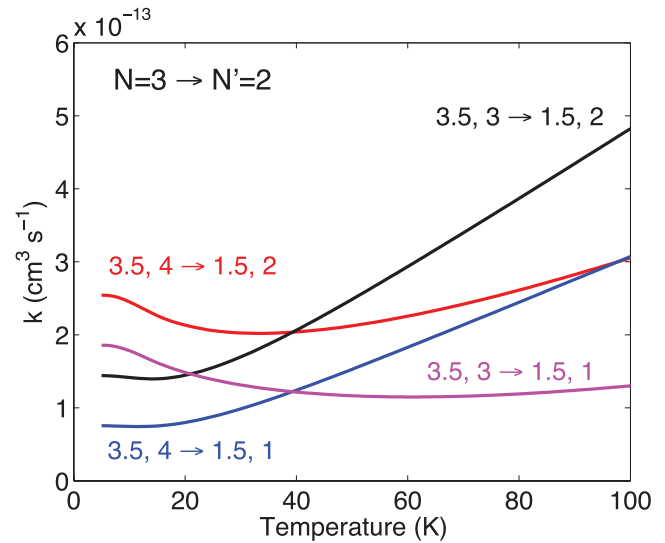


Figure 2. Temperature variation of hyperfine resolved C_2H -He rate coefficients for $N = 3, J, F \rightarrow N' = 2, j', F'$ and $\Delta j = \Delta N + 1$ transitions.

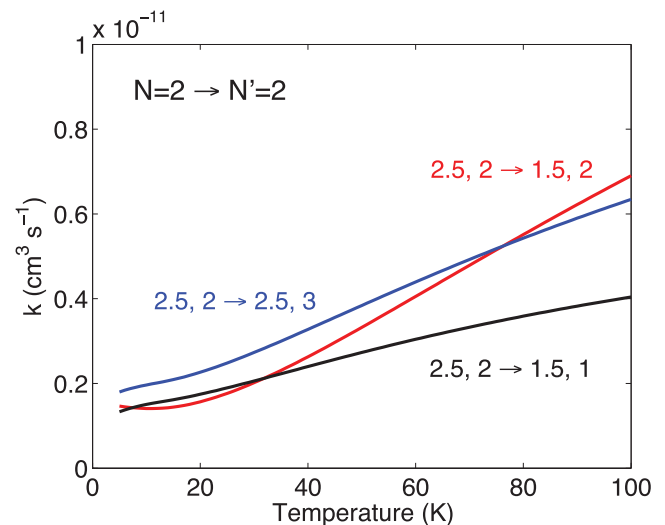


Figure 3. Temperature variation of rate coefficients for $N = 2, J = 2.5, F = 2 \rightarrow N = 2, j', F'$ transitions.

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Table 1. Hyperfine resolved C₂H-He de-excitation rate coefficients ($\times 10^{-12}$ cm³ s⁻¹) for $N = 4, j, F \rightarrow N' = 2, 3, j', F'$ transitions at 50 K.

		$N' = 3$	$N' = 3$	$N' = 3$	$N' = 3$	$N' = 2$	$N' = 2$	$N' = 2$	$N' = 2$
		$j' = 2.5$	$j' = 2.5$	$j' = 3.5$	$j' = 3.5$	$j' = 1.5$	$j' = 1.5$	$j' = 2.5$	$j' = 2.5$
		$F' = 2$	$F' = 3$	$F' = 3$	$F' = 4$	$F' = 1$	$F' = 2$	$F' = 2$	$F' = 3$
$j = 3.5$	$F = 3$	5.07	0.45	0.33	0.22	20.97	4.19	2.80	1.46
	$F = 4$	0.14	5.38	0.17	0.38	0.47	24.71	0.98	3.28
$j = 4.5$	$F = 4$	0.11	0.15	5.49	0.31	0.37	0.68	25.76	2.63
	$F = 5$	0.11	0.16	0.12	5.68	0.41	0.64	0.43	27.96

The paper was published in MNRAS, 421, 1891 (2012). An error in the hyperfine energy levels which affected the results reported in Table 1 and Figs 4–6 was discovered. Wrong hyperfine energy levels of the C₂H molecule were used in the calculations of the hyperfine-resolved rate coefficients, resulting in an underestimation of those rate coefficients, especially at low temperature.

However, the comments (Section 4.2) and the conclusion (Section 5) do not change. The error is corrected here: Table 1 replaces the previous one and Figs 1, 2 and 3 replace previous Figs 4, 5 and 6, respectively. The complete set of corrected (de-)excitation

rates coefficients will be made available online in the LAMDA¹ and BASECOL² websites.

¹ <http://www.strw.leidenuniv.nl/~moldata/>

² <http://basecol.obspm.fr/>

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