

Erratum: Spectroscopy and Ground-State Transfer of Ultracold Bosonic $^{39}\text{K}^{133}\text{Cs}$ Molecules [Phys. Rev. Lett. **135**, 203401 (2025)]

Krzysztof P. ZamarSKI[✉], Charly Beulenkamp[✉], Yi Zeng[✉], Manuele Landini[✉], and Hanns-Christoph Nägerl[✉]



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In our recent Letter, we reported the strengths of several optical transitions in the $^{39}\text{K}^{133}\text{Cs}$ molecule. Some of these transitions were addressed with a laser beam polarized linearly in the direction perpendicular to the quantization axis, which reduces the effective amplitude by a factor of $\sqrt{2}$ (such a beam can be decomposed into two components with opposite circular polarizations, each with $1/\sqrt{2}$ of the total amplitude, and only one of these components couples to any given transition). In the published version of the Letter, we have mistakenly used a factor of 2 instead.

After correcting this mistake, Table I and its caption should read (all changes are marked in bold) as shown.

Analogously, the first full sentence on page 4 should read:

The fit yields a normalized Rabi frequency of $\Omega_0/2\pi = \mathbf{0.37(3)} \text{ kHz} \times \sqrt{I/\text{mW cm}^{-2}}$ (assuming the optimal, circular polarization), which gives a transition dipole moment of $\mathbf{3.3(3)} \times 10^{-4} e a_0$ (the predicted value is $4.75 \times 10^{-4} e a_0$ [62]).

None of these corrections modify the main conclusions of the Letter, which are related primarily to the efficiency of transfer to the ground state of $^{39}\text{K}^{133}\text{Cs}$. A rigorous comparison of the intensity-normalized transition strengths with theory would require the inclusion of Hönl-London factors, not all of which are known in our case.

TABLE I. Properties of the observed hyperfine levels of the $A^1\Sigma_0 - b^3\Pi_\Omega$, $v' = 75$ state. Here, p is the pump laser polarization with respect to the quantization axis, $M_{J'}$ is the projection of the angular momentum J' , TDM_{th} and TDM_{exp} are the predicted and measured transition dipole moments, respectively, in units of $10^{-4} e a_0$, $\Omega_0/2\pi$ is the measured intensity-normalized Rabi frequency in units of $\text{kHz} \times \sqrt{I/\text{mW cm}^{-2}}$, and $\Gamma/2\pi$ is the measured natural linewidth in units of kilohertz. The values of $\Omega_0/2\pi$ measured for polarization perpendicular to $\vec{B}$ have been multiplied by $\sqrt{2}$ to obtain the value expected for the optimal (circular) polarization.

p	$M_{J'}$	TDM_{th}	TDM_{exp}	$\Omega_0/2\pi$	$\Gamma/2\pi$
$\parallel$	1	4.92	2.8(2)	0.31(2)	65(6)
$\perp$	1	4.92	3.0(3)	0.34(3)	65(8)
$\perp$	0	4.92	2.2(2)	0.24(2)	96(9)
$\perp$	-1	4.92	4.1(3)	0.46(3)	80(6)