

Erratum: Enhancement of Rydberg Blockade via Microwave Dressing **[Phys. Rev. Lett. 134, 123404 (2025)]**

Deniz Kurdak¹, Patrick R. Banner, Yaxin Li, Sean R. Muleady,
 Alexey V. Gorshkov, S. L. Rolston, and J. V. Porto

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The calculation of the dipole-dipole matrix elements of the Floquet Hamiltonians used in the original manuscript lacked a factor of $(-1)^q$, where q is the polarization of the transition of interest. To leading order, the correction merely flips the sign of the dressed-state interaction-induced energy shifts at long range for the σ_- polarized microwaves used in this work, so there are only slight changes ($\lesssim 15\%$) in previously computed blockade radii. Here, we revise several figures in the main text and Supplemental Material. The error does not affect any of the reported experimental values or the discussions or conclusions of the original manuscript.

Revisions to the main text—Figure 1 shows the correction of Fig. 3 of the original text. As expected, when the microwaves are σ_- polarized, the dipole-dipole interactions for the atomic orientation in our experiment result in a repulsive potential in the corrected calculations. Figure 2 shows the corrected version of Fig. 2 of the original text, indicating that the

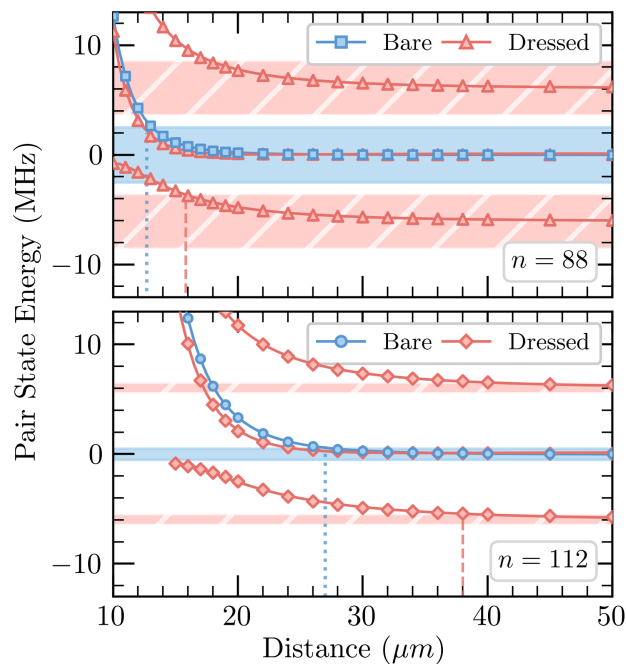


FIG. 1. (Revised Fig. 3 of the main text.) Calculated interaction potentials for bare (blue) and dressed (red) two-atom states oriented at 0° with respect to the quantization axis. The lines through the points are fits to $C_6/r^6 + C_3/r^3$. The bands around the large- r energies of the $|ss\rangle$ and $|--\rangle$ states correspond to $\pm\Omega_{Ry}$. The blue dotted (red dashed) vertical lines indicate the blockade radii for the bare (dressed) states.

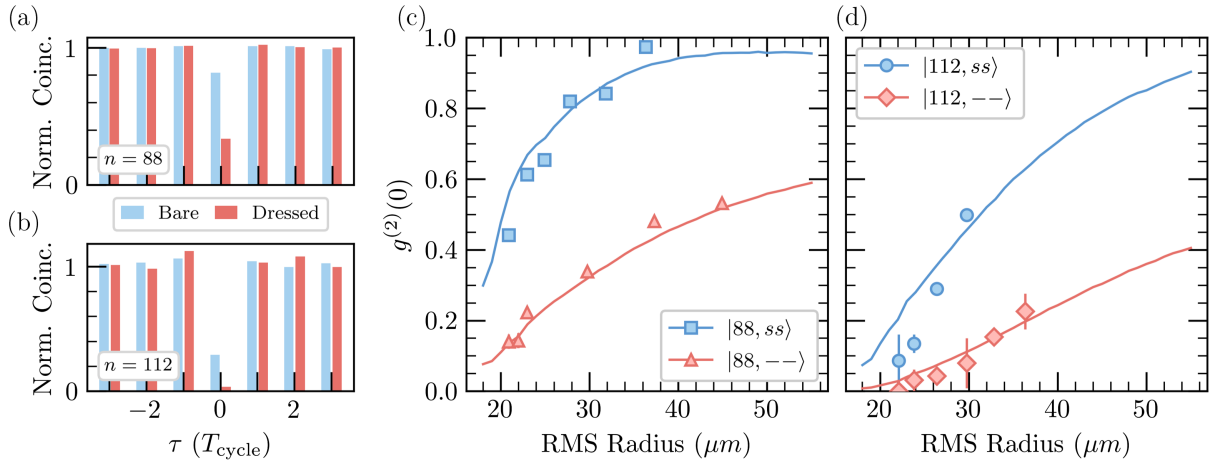


FIG. 2. (Revised Fig. 2 of the main text.) (a),(b) Suppression of $g^{(2)}(0)$ at $n = 88$ and $n = 112$. The bars indicate the normalized pulse-integrated coincidences between the two SPADs as a function of click separation τ , in units of the cycle time, T_{cycle} . The coincidences have been gated and background subtracted [21]. The blue and red bars, horizontally offset for visual clarity, show the statistics of light generated using bare and dressed eigenstates, respectively. (c),(d) The variation of $g^{(2)}(0)$ as a function of RMS cloud radius. The data points correspond to the results gathered at $n = 88$ and $n = 112$, respectively. The error bars indicate the $\pm 1\sigma$ statistical uncertainties. The solid lines are numerical results of simulations.

agreement between theoretical and observed $g^{(2)}(0)$ improves when using the corrected Floquet potentials. The revision affects the theoretical predictions [solid lines of panels (c) and (d)], improving the agreement with observations.