

## Erratum: Diabatic-ramping spectroscopy of many-body excited states [Phys. Rev. A **90**, 062334 (2014)]

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We discovered an error in the units of time in the paper. The time units need to be multiplied by  $N$ , the number of ions in the crystal. Since all results in the paper are for  $N = 400$ , all time values must be multiplied by 400. The easiest fix for this, is to change the time-axis labels in all relevant figures (listed below) to  $tJ_0/400$ . These corrections affect the following figures: (i) Fig. 4 (the horizontal axis becomes  $tJ_0/400$ , the red curve is for  $\tau = 4000/J_0$ , and the green curve for  $\tau = 10,000/J_0$ ); (ii) Fig. 6 ( $\tau_d J_0 = 4000$  in the label); (iii) Fig. 7 [the horizontal axis of Figs. 7(b) and 7(c) and the labels become  $\tau_d J_0 = 4000$ ]; (iv) Fig. 9 (labels  $\tau_{\text{ramp}} J_0$  are equal to 400 for black, 800 for red, and 1600 for green, and also in the caption); and (v) Figs. 10, 11, and 13 (the horizontal axis becomes  $t_{\text{meas}} J_0/400$ ). In addition, the following changes need to be made in the text: Five lines below Eq. (14), the sentences should read, “We used decoherence times of  $\tau_d J_0 = 10\,000$  and  $4000$  in Fig. 4(a). The total time during our simulations is approximately 32 ms, this is with  $J_0 = 2\pi \times 1.6$  kHz.” In Sec. III, the first paragraph discusses  $\tau_{\text{ramp}} J_0$  values, which need to be multiplied by 400 to be 1600 and 800. Also, the second sentence of the first paragraph should read, “We used  $J_0 = 2\pi \times 1.6$  kHz.” On page 10, the first paragraph of simulated data discusses  $\tau_d J_0$  values, which must be multiplied by 400 to become 10 000 and 400. On page 11,  $\tau_d J_0 = 10\,000$ . These corrections do not change any of our conclusions, but they do make some of the run times a bit long for current state-of-the-art experiments if  $J_0$  is on the order of  $2\pi \times 1.6$  kHz. For larger  $J_0$ , this issue becomes less important.