Erratum: Fractionalized Prethermalization in a Driven Quantum Spin Liquid [Phys. Rev. Lett. 130, 226701 (2023)]

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In the published Letter, there were errors in (i) Fig. 3(a) in the main text, (ii) Fig. S1 in Supplemental Material (SM), and (iii) Eq. (S14) in SM. The numerical results and codes were correct, see Ref. [76] of the main text. A revised version of the manuscript has been uploaded at [1].

To illustrate the correct Fig. 3(a) and Fig. S1, we define

$$U_a = \begin{pmatrix} (1+i)/2 & & & (1+i)/2 \\ & 1 & & \\ & & 1 & \\ (-1+i)/2 & & & (1-i)/2 \end{pmatrix}, \qquad U_b = \begin{pmatrix} e^{-i\pi/4} & & & 0 \\ & 1 & & \\ & & 1 & \\ 0 & & & e^{+i\pi/4} \end{pmatrix}. \tag{1}$$

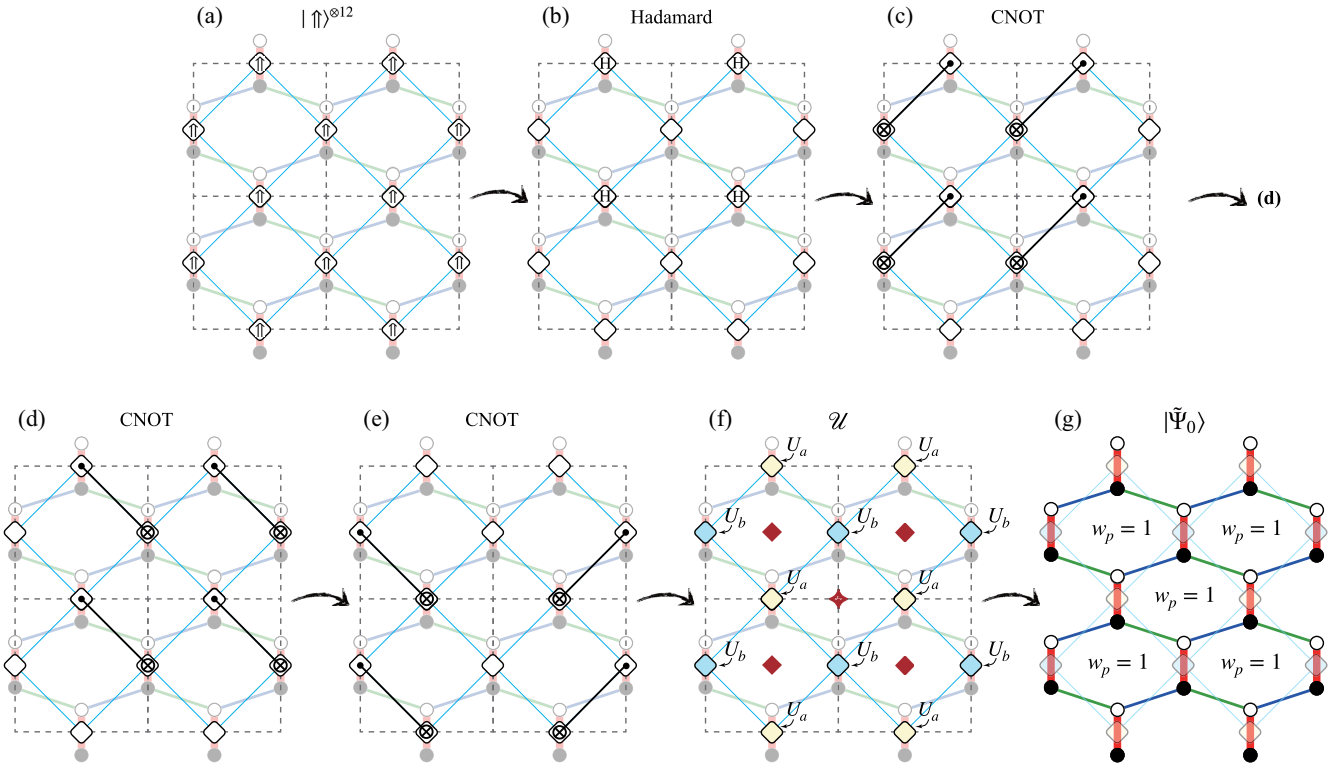

FIG. S1. Preparation of a zero-flux state. (a) Initialize the system with a product state $|\uparrow\rangle^{\otimes 24} = |\Uparrow\rangle^{\otimes 12}$. (b) Apply Hadamard gates H on all representative effective spins. (c)–(e) Apply CNOT gates to obtain a toric code state in terms of effective spins. (f) Apply a unitary transformation $\mathcal{U}$. The unitaries U_a and U_b in Eq. (1) are applied on the yellow and blue sites, respectively. (g) This algorithm realizes a zero-flux state for the Kitaev honeycomb model on a surface.

The correct unitary gate sequence, which brings a toric code state on the 24-qubit cluster to a zero-flux state with all plaquette fluxes $w_p = 1$, is illustrated in Fig. S1(f). Figure S1(e) has been updated accordingly, with the left-side CNOT gate now pointing to the right, and the right-side CNOT gate pointing to the left. Note that the correct Fig. 3(a) is just the same as Fig. S1(f).

[1] H.-K. Jin, J. Knolle, and M. Knap, arXiv:2211.10453v4.