List of errors

(Dated: February 2017)

I. SSH

1.1. The SSH Hamiltonian

Page 2, Caption of Fig. 1.1.:
v (thin lines) $\rightarrow$ v (thick lines)
w (thick lines) $\rightarrow$ w (thin lines)

Page 2
FROM:
redefinition of the basis states: $|m, A\rangle \rightarrow e^{-i(m-1)(\phi_v+\phi_w)}$, and $|m, B\rangle \rightarrow e^{-i\phi_v} e^{-i(m-1)(\phi_v+\phi_w)}$.
TO:
redefinition of the basis states: $|m, A\rangle \rightarrow e^{-i(m-1)(\phi_v+\phi_w)}|m, A\rangle$, and $|m, B\rangle \rightarrow e^{-i\phi_v} e^{-i(m-1)(\phi_v+\phi_w)}|m, B\rangle$.

1.4.Chiral symmetry

Page 11:
FROM:
would represent a unitary symmetry, since

$$\hat{\Gamma}\hat{\Gamma}\hat{H}\hat{\Gamma}\hat{\Gamma} = -\hat{\Gamma}\hat{H}\hat{\Gamma} = \hat{H}. \tag{1.25}$$

TO:
would represent a unitary symmetry, since

$$\hat{\Gamma}\hat{\Gamma}\hat{H}\hat{\Gamma}^\dagger\hat{\Gamma}^\dagger = -\hat{\Gamma}\hat{H}\hat{\Gamma}^\dagger = \hat{H}. \tag{1.25}$$

FROM:
redefinition of the chiral symmetry, $\Gamma \rightarrow e^{-i\phi/2}\Gamma$.
TO:
redefinition of the chiral symmetry, $\hat{\Gamma} \rightarrow e^{-i\phi/2}\hat{\Gamma}$.

Page 12
FROM:
equal support on both sublattices,

$$\text{If } E_n \neq 0: \quad 0 = \langle\psi_n|\hat{\Gamma}|\psi_n\rangle = \langle\psi_n|P_A|\psi_n\rangle - \langle\psi_n|P_B|\psi_n\rangle. \tag{1.31}$$

TO:
equal support on both sublattices,

$$\text{If } E_n \neq 0: \quad 0 = \langle\psi_n|\hat{\Gamma}|\psi_n\rangle = \langle\psi_n|\hat{P}_A|\psi_n\rangle - \langle\psi_n|\hat{P}_B|\psi_n\rangle. \tag{1.31}$$

Page 13
FROM:
The projectors to the sublattices read

$$\hat{P}_A = \sum_{m=1}^{N} |m, A\rangle\langle n, A|; \qquad \hat{P}_B = \sum_{m=1}^{N} |m, B\rangle\langle n, B|. \tag{1.33}$$

TO:
The projectors to the sublattices read

$$\hat{P}_A = \sum_{m=1}^{N} |m, A\rangle \langle m, A| ; \qquad \hat{P}_B = \sum_{m=1}^{N} |m, B\rangle \langle m, B| . \tag{1.33}$$

FROM:
the Hamiltonian is bipartite,

$$\hat{P}_A \hat{H} \hat{P}_A = \hat{P}_B \hat{H} \hat{P}_B = 0; \qquad \Longrightarrow \qquad \hat{\Sigma}_z \hat{H} \hat{\Sigma}_z = -\hat{H}. \tag{1.35}$$

TO:
the Hamiltonian is bipartite,

$$\hat{P}_A \hat{H} \hat{P}_A = \hat{P}_B \hat{H} \hat{P}_B = 0; \qquad \Longleftrightarrow \qquad \hat{\Sigma}_z \hat{H} \hat{\Sigma}_z = -\hat{H}. \tag{1.35}$$

FROM:
on the $d_x d_y$ plane,

$$sigma_z \hat{H}(k) sigma_z = 0 \qquad \Longrightarrow \qquad d_z = 0. \tag{1.36}$$

TO:
on the $d_x d_y$ plane,

$$\hat{\sigma}_z \hat{H}(k) \hat{\sigma}_z = 0 \qquad \Longrightarrow \qquad d_z = 0. \tag{1.36}$$

Page 14:
FROM:
Fig. 1.5, no arrows on the colored curves
TO:
Fig. 1.5, with arrows on the colored curves

Page 15:
FROM:
integral is always real,
TO:
integral is always imaginary, and thus, ν is always real,

1.5

Page 20:
FROM:
This gives us $2N$ equations for the amplitudes a_m and b_m, which read

$$m = 1, \ldots, N-1 : \qquad v_m a_m + w_m a_{m+1} = 0; \qquad w_m b_m + v_{m+1} b_{m+1} = 0; \tag{1.44a}$$

$$\text{boundaries} : \qquad v_N a_N = 0; \qquad v_1 b_1 = 0. \tag{1.44b}$$

TO:
This gives us $2N$ equations for the amplitudes a_m and b_m, which read

$$m = 1, \ldots, N-1 : \qquad v_m a_m + w_m^* a_{m+1} = 0; \qquad w_m b_m + v_{m+1}^* b_{m+1} = 0; \tag{1.44a}$$

$$\text{boundaries} : \qquad v_N a_N = 0; \qquad v_1^* b_1 = 0. \tag{1.44b}$$

FROM:
The first set of equations is solved by

$$m = 2, \ldots, N: \qquad a_m = \prod_{j=1}^{m-1} \frac{-v_j}{w_j}\, a_1; \tag{1.45}$$

$$m = 1, \ldots, N-1: \qquad b_m = \frac{-v_N}{w_m} \prod_{j=m+1}^{N-1} \frac{-v_j}{w_j}\, b_N. \tag{1.46}$$

TO:
The first set of equations is solved by

$$m = 2, \ldots, N: \qquad a_m = \prod_{j=1}^{m-1} \frac{-v_j}{w_j^*}\, a_1; \tag{1.45}$$

$$m = 1, \ldots, N-1: \qquad b_m = \frac{-v_N}{w_m} \prod_{j=m+1}^{N-1} \frac{-v_j^*}{w_j}\, b_N. \tag{1.46}$$

Page 21:
FROM:

$$\overline{\log|v|} = \frac{1}{N-1} \sum_{m=1}^{N-1} \log|v_m|; \qquad \overline{\log|w|} = \frac{1}{N-1} \sum_{m=1}^{N-1} \log|w_m|. \tag{1.48}$$

TO:

$$\overline{\log|v|} = \frac{1}{N-1} \sum_{m=1}^{N-1} \log|v_m|; \qquad \overline{\log|w|} = \frac{1}{N-2} \sum_{m=2}^{N-1} \log|w_m|. \tag{1.48}$$

FROM:

$$|a_N| = |a_1|\, e^{-(N-1)/\xi}; \qquad |b_1| = |b_N|\, e^{-(N-1)/\xi} \frac{|v_N|}{|v_1|}, \tag{1.49}$$

TO:

$$|a_N| = |a_1|\, e^{-(N-1)/\xi}; \qquad |b_1| = |b_N|\, e^{-(N-2)/\xi} \frac{|v_N|}{|w_1|}, \tag{1.49}$$

II. QI-WU-ZHANG

Page 88:
invevitably $\rightarrow$ inevitably