

$$\tilde{H} \begin{pmatrix} \psi \\ \psi^\dagger \end{pmatrix} = \begin{pmatrix} H\psi \\ H\psi^\dagger \end{pmatrix} = \begin{pmatrix} E\psi \\ E\psi^\dagger \end{pmatrix} = E \begin{pmatrix} \psi \\ \psi^\dagger \end{pmatrix} = E \tilde{\psi}$$

$$\begin{array}{c}
\begin{array}{c} \text{M} \qquad \qquad \qquad \Psi \qquad \qquad \qquad \sqrt{} \qquad \qquad \qquad \mathbb{F} \qquad \Psi \qquad \sim \qquad \qquad \qquad \dot{\imath} \ \dot{\imath} \qquad \qquad \eta \ \mathbb{F} \\ \Psi \qquad \qquad \qquad \mathbb{F} \qquad \sim \qquad \Psi \qquad \qquad \qquad \Psi \qquad \qquad \qquad \mathbb{F} \qquad \Psi \end{array} \\
\begin{array}{c} \dot{\imath} \qquad \qquad \qquad \Psi \qquad \sim \qquad \gamma \qquad \qquad \qquad \mathbb{H}\Psi \qquad \gamma \end{array} \\
\begin{array}{c} \text{M} \qquad \Psi \qquad \qquad \text{K} \qquad \qquad \qquad \mathfrak{g} \qquad \qquad \qquad \text{K} \end{array} \\
\begin{array}{c} \dot{\imath} \qquad \qquad \qquad \dot{\imath} \ \dot{\imath} \qquad \qquad \qquad \mathbb{H} \ \eta \ \dot{\imath} \qquad \qquad \qquad \text{K} \end{array} \\
\begin{array}{c} \dot{\imath} \ \dot{\imath} \qquad \eta \ \dot{\imath} \qquad \qquad \qquad \text{K} \ \vee \qquad \qquad \qquad \sim \qquad \qquad \tau \qquad \qquad \qquad \mathbb{E}^{\sim} \qquad \mathbb{H}\Psi \end{array} \\
\begin{array}{c} \mathbb{E}^{\sim} \qquad \mathbb{H}\Psi \qquad \qquad \qquad \text{K} \end{array} \\
\begin{array}{c} \text{M} \ \mathbb{J} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad \mathbb{N}\mathfrak{o} \ \mathbb{H} \ \gamma \qquad \qquad \qquad \mathbb{F} \qquad \sim \end{array} \\
\begin{array}{c} \qquad \qquad \qquad = \qquad \Psi \ \mathbb{A} \ \mathbb{F} \qquad \qquad \qquad = \qquad \qquad \qquad \mathfrak{I} \ \mathfrak{r} \qquad \qquad \qquad \mathbb{V} \end{array} \\
\begin{array}{c} \text{M} \ \mathbb{E} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad = \qquad \qquad \qquad = \qquad \qquad \qquad = \qquad \Psi \qquad \sim \end{array} \\
\begin{array}{c} \Psi \qquad \qquad \qquad \sim \qquad \qquad \qquad = \qquad \qquad \qquad \mathfrak{g} \end{array} \\
\begin{array}{c} \text{M} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad \sim \qquad \qquad \qquad \mathbb{E}^{\sim} \ \dot{\imath} \ \dot{\imath} \ \mathbb{H} \qquad \mathbb{H} \ \mathfrak{I} \end{array} \\
\downarrow \begin{array}{c} \Psi \end{array} \\
\begin{array}{c} \text{M} \ \mathfrak{H} \qquad \qquad \qquad \Psi^{\sim} \ \gamma \qquad \qquad \qquad : \qquad \qquad \qquad \dot{\imath} = \qquad \qquad \qquad \mathbb{L} \end{array} \\
\begin{array}{c} \mathbb{E}^{\sim} \qquad \mathfrak{U} \end{array} \\
\begin{array}{c} \text{M} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad \mathfrak{g} \qquad \qquad \qquad = \qquad \qquad \qquad \Psi \end{array} \\
\begin{array}{c} \tau \qquad \qquad \qquad \mathbb{E}^{\sim} \qquad \qquad \qquad \mathfrak{I} \qquad \mathfrak{b} \ \updownarrow \end{array} \\
\begin{array}{c} \mathbb{H} \ \text{M} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad \mathbb{F} \ \Psi \qquad \qquad \qquad \Psi \end{array} \\
\begin{array}{c} \Psi \qquad \qquad \qquad \mathbb{E}^{\sim} \ \mathbb{H}\Psi \qquad \qquad \qquad \bar{\text{G}} \end{array} \\
\begin{array}{c} \mathbb{H} \ \text{M} \qquad \qquad \qquad \Psi \ \Psi \qquad \qquad \qquad \mathfrak{I} \qquad \qquad \qquad = \qquad \qquad \qquad \gamma \qquad \qquad \qquad \mathbb{E}^{\sim} \end{array} \\
\mathbb{H}\Psi \\
\begin{array}{c} \mathbb{H} \ \text{M} \ \mathbb{H} \qquad \mathbb{F} \ \Psi \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \Psi \qquad \qquad \qquad \mathbb{H} \qquad \qquad \qquad \bar{\text{G}} \qquad \qquad \qquad \mathfrak{I} \end{array} \\
\begin{array}{c} \tau \ \mathbb{H} \end{array} \\
\begin{array}{c} \mathbb{E} \qquad \qquad \qquad \updownarrow \end{array} \\
\begin{array}{c} \mathbb{H} \ \text{M} \qquad \qquad \qquad \mathfrak{b} \ \updownarrow \ \mathbb{E}^{\sim} \ \mathbb{H}\Psi \qquad \qquad \qquad \mathfrak{k} \qquad \sim \end{array}
\end{array}$$

	$\mathcal{H} \mathcal{M}$	$\mathfrak{b} \quad \updownarrow$	$\mathcal{H}$	γ	$\mathfrak{D}$
$\tilde{E}$		$\mathfrak{b} \quad \updownarrow$			$\mathfrak{D}$
$\mathfrak{v}_E$	$\acute{k}$	$\tilde{E}$		γ	$\mathfrak{D}$
$\tilde{E}$					
	$\mathcal{H} \mathcal{M} \mathcal{J}$	$\mathfrak{b} \quad \updownarrow$	$\tilde{E}$	$\mathcal{H} \psi$	
	$\mathcal{H} \mathcal{M} \mathcal{E}$	$\mathfrak{b} \quad \updownarrow$	$\mathcal{H} \psi =$		

$\mathcal{M}$ $\tilde{E}$
 2023 3