

$$\Omega_L = \left( \begin{array}{cc} \psi_{O_L}^\dagger \phi_{O_L} & \psi_{O_L}^\dagger \phi_{E_L} \\ \psi_{E_L}^\dagger \phi_{O_L} & \psi_{E_L}^\dagger \phi_{E_L} \end{array} \right) \longrightarrow \left( \begin{array}{cc} \overbrace{\hspace{1.5cm}}^k & \\ \underbrace{\hspace{1.5cm}}_k \left( \begin{array}{cc} A & B \\ C & D \end{array} \right) \end{array} \right)$$