

$$\begin{array}{c} \hat{\rho}_A \\ \hat{\rho}_B \end{array} \begin{array}{c} \text{---} \\ \text{---} \end{array} \left[\begin{array}{c} \hat{U} \end{array} \right] \left. \begin{array}{c} \text{---} \\ \text{---} \end{array} \right\} \hat{\rho}' \iff \hat{\rho}' = \hat{U} (\hat{\rho}_A \otimes \hat{\rho}_B) \hat{U}^\dagger$$