

$\tilde{A} \sim \hat{A} \pm \tilde{A}^{\dagger} \hat{A} \mid \tilde{A} \rangle \hat{A} \otimes \tilde{A}^{\dagger} \hat{A}^3 \tilde{A} \sim \hat{A} - \tilde{A}^{\dagger} \hat{A} \otimes \tilde{A}^{\dagger} \hat{A}^T \hat{A} + \tilde{A}^{\dagger} \hat{A} \mid \tilde{A} \rangle \tilde{A}^{\dagger} \hat{A} \otimes \tilde{A}^{\dagger} \hat{A}^T \hat{A} \mp \tilde{A}^{\dagger} \hat{A} \otimes \tilde{A}^{\dagger} \hat{A}^2 \tilde{A} \sim \hat{A} \otimes \tilde{A}^{\dagger} \hat{A}$

