

$$\begin{aligned} \left| \sigma_{\text{CKKW}}(t_{\text{f}}) \right) &= U(t_{\text{f}}, t_{\text{ini}}) N(t_{\text{ini}}, t_2) \left| \sigma_2 \right) \\ &+ \sum_{m=3}^{n-1} \int_{t_2}^{t_{\text{ini}}} dt_m U(t_{\text{f}}, t_{\text{ini}}) N(t_{\text{ini}}, t_m) W_{\text{CKKW}}(t_{\text{ini}}, t_m, t_2) \left| \sigma_m \right) \\ &+ \int_{t_2}^{t_{\text{ini}}} dt_n U(t_{\text{f}}, t_n) W_{\text{CKKW}}(t_{\text{ini}}, t_n, t_2) \left| \sigma_n \right) \end{aligned}$$