

$$\begin{aligned} \mathbb{C}_{\text{QU},k_}[\mathbb{R}_{i_},j_] &:= \mathbb{C}_{\text{QU}} \left[\{y_i, a_i, x_i\}_i, \{y_j, a_j, x_j\}_j, \right. \\ &\quad \left. -\hbar \gamma^{-1} t_i a_j + \hbar y_i x_j, \right. \\ &\quad \left. \text{Series} \left[e^{\hbar \gamma^{-1} t_i a_j - \hbar y_i x_j} \right. \right. \\ &\quad \left. \left. \left(e^{\hbar b_i a_j} e_{q_{\hbar},k}[\hbar y_i x_j] / . b_i \rightarrow \gamma^{-1} (\epsilon a_i - t_i) \right), \{\epsilon, \theta, k\} \right] \right]; \end{aligned}$$

$$\mathbb{R}[\text{QU}, kk_] := \mathbb{R}[\text{QU}, kk] = \text{Module} \left[\{\text{OE}\}, \right.$$

$$\text{OE} = \text{Simplify} /@ \mathbb{C}_{\text{QU},kk} @ \mathbb{R}_{1,2};$$

$$\mathbb{E} \left[-\frac{\hbar a_2 t_1}{\gamma}, \hbar x_2 y_1, \text{Last} @ \text{OE} \right];$$

$$t\mathbb{R}_{i_},j_ :=$$

$$\mathbb{R}[\$U, \$k] / . \{ (v : t | T | y | a | x)_1 \rightarrow v_i,$$

$$(v : t | T | y | a | x)_2 \rightarrow v_j \};$$

$$\overline{t\mathbb{R}}_{i_},j_ := \overline{t\mathbb{R}}_{i,j} = t\mathbb{R}_{i,j} \sim B_j \sim t\mathbb{S}_j;$$