

$$E_{\{i\} \rightarrow \{i, j\}} \left[ -\hbar a_j t_i, -\frac{\hbar x_j y_i}{T_i}, 1 + \left( -\hbar a_i a_j - \frac{\hbar^2 a_i x_j y_i}{T_i} - \frac{\hbar^2 a_j x_j y_i}{T_i} - \frac{3 \hbar^3 x_j^2 y_i^2}{4 T_i^2} \right) \epsilon + O[\epsilon]^2 \right]$$