

Initial state
of WIMP plus
nucleus

Final state
of WIMP plus
nucleus

⋮

⋮

[Action
of the
potential
V(x)]

$$\phi_i(\vec{x})e^{\frac{iE_it}{\hbar}}$$

$$\left. \begin{array}{l} \phi_{i+12} \\ \phi_{i+11} \\ \phi_{i+10} \\ \phi_{i+9} \\ \phi_{i+8} \\ \phi_{i+7} \\ \phi_{i+6} \\ \phi_{i+5} \\ \phi_{i+4} \\ \phi_{i+3} \\ \phi_{i+2} \\ \phi_{i+1} \\ \phi_i \\ \phi_{i-1} \\ \phi_{i-2} \\ \phi_{i-3} \\ \phi_{i-4} \\ \phi_{i-5} \\ \phi_{i-6} \\ \phi_{i-7} \\ \phi_{i-8} \\ \phi_{i-9} \\ \phi_{i-10} \\ \phi_{i-11} \\ \phi_{i-12} \end{array} \right\}$$

$$\psi(\vec{x},t) = \sum_n a_n(t)\phi_n(\vec{x})e^{\frac{-iE_nt}{\hbar}}$$