

$$h_{el} | \mathbf{R} \phi_{\alpha}(\mathbf{R}) \rangle = E_{\alpha}(\mathbf{R}) | \mathbf{R} \phi_{\alpha}(\mathbf{R}) \rangle \rightarrow |\Psi \rangle = \sum_{\alpha} \int d\mathbf{R} c_{\alpha}(\mathbf{R}, t) | \mathbf{R} \phi_{\alpha}(\mathbf{r}) \rangle$$