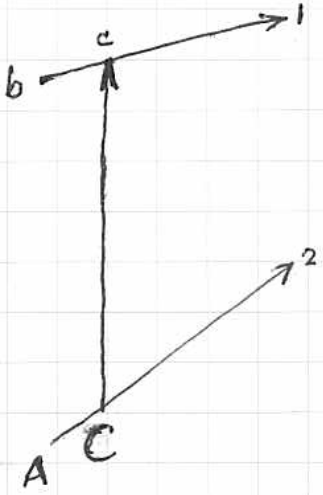
$$A + a \longrightarrow C + c \longrightarrow b + B$$

$(b+n_1+n_2)$ $\quad (A+n_2)\ (b+n_1)$ $\quad (A+n_1+n_2)$

We need $\quad 2\sum_{\sigma_1\sigma_2}\int d^3r_{Cc}\, d^3r_{b1}\, d^3r_{A2}\left[\psi^{j_{f1}}(\vec{r}_{A1},\sigma_1)\,\psi^{j_{f2}}(\vec{r}_{A2},\sigma_2)\right]^{*\Lambda}_{\mu}\chi^{(-)*}_{f}(\vec{r}_{Bb})\,U(r_{b1})\,\Psi^{(+)}$

χ_i



$$H = H_C + H_c - \frac{\hbar^2}{2\mu_{Cc}}\nabla^2_{\vec{r}_{Cc}} + U(r_{Cc}) + V(r_{c2}), \qquad (E-H)\Psi^{(+)} = 0 = [E-H$$

$$\text{Let } f_{KM}(\vec{r}_{Cc}) = \left\langle \left[\psi^{j_{f2}}(\vec{r}_{A2},\sigma_2)\,\psi^{j_i}(\vec{r}_{b1},\sigma_1)\right]^{K}_{M} \middle| \Psi^{(+)}(\vec{r}_{A2},\sigma_2,\vec{r}_{b1},\sigma_1;\vec{r}_{Cc}) \right\rangle_{\text{fixed}}$$

$$f_{KM}(\vec{r}_{Cc}) = \frac{2\mu_{Cc}}{\hbar^2}\int d^3\vec{r}_{Cc}'\, G(\vec{r}_{Cc},\vec{r}_{Cc}')\left\langle \left[\psi^{j_{f2}}(\vec{r}_{A2}',\sigma_2')\,\psi^{j_i}(\vec{r}_{b1}',\sigma_1')\right]^{K}_{M} \middle| V(r_{c2}') \middle| \Psi \right\rangle_{fix}$$

$$\approx \frac{2\mu_{Cc}}{\hbar^2}\sum_{\sigma_1'\sigma_2'}\int d^3r_{Cc}'\, d^3r_{A2}'\, d^3r_{b1}'\, G(\vec{r}_{Cc},\vec{r}_{Cc}')\left[\psi^{j_{f2}}(\vec{r}_{A2}',\sigma_2')\,\psi^{j_i}(\vec{r}_{b1}',\sigma_1')\right]^{*K}_{M} V(r_{c2}')\,\chi^{(+)}_{i}(\vec{r}_{Aa}')$$
$$\times\left[\psi^{j_i}(\vec{r}_{b1}',\sigma_1')\,\psi^{j_i}(\vec{r}_{b2}'$$

$$= \Big\langle \left[\psi^{j_{f2}}(\vec{r}_{A2}',\sigma_2')\,\psi^{j_i}(\vec{r}_{b1}',\sigma_1)\right]^{K}_{M} \Big| \chi^{(+)}_{c}(\vec{r}_{Aa}')\left[\psi^{j_i}(\vec{r}_{b1}',\sigma_1')\,\psi^{j_i}(\vec{r}_{b2}'\sigma_2')\right]^{0}_{0} \Big\rangle_{\vec{r}_{Cc}\text{ fixed}} + U_{K,}$$

Thus $\quad U_{K,M}(\vec{r}_{Cc}) = \frac{2\mu_{Cc}}{\hbar^2}\sum_{\sigma_1'\sigma_2'}{}'\int d^3\vec{r}_{Cc'}\, d^3r_{A2}'\, d^3r_{b1}'\, G(\vec{r}_{Cc},\vec{r}_{Cc}')\left[\psi^{j_{f2}}(\vec{r}_{A2}',\sigma_2')\,\psi^{j_i}(\vec{r}_{b1}',\sigma_1')\right]^{K*}_{M} V($