

$$\begin{aligned}\rho(\{p, f\}_m) &= |\mathcal{M}(\{p, f\}_m)\rangle \frac{f_{a/A}(\eta_{\text{a}}, \mu_F^2) f_{b/B}(\eta_{\text{b}}, \mu_F^2)}{2\eta_{\text{a}}\eta_{\text{b}}p_A \cdot p_B} \langle \mathcal{M}(\{p, f\}_m)| \\ &= \sum_{s, c, s', c'} |\{s', c'\}_m\rangle \left(\{p, f, s', c', s, c\}_m | \rho\right) \langle \{s, c\}_m | \end{aligned}$$