

$$|p\rangle\rangle = \int_{\Sigma} \frac{d^d \Sigma^\mu}{(2\pi)^d} \frac{d^d P}{2E_P} |X, P\rangle\rangle \left(2i \frac{\partial}{\partial X_\mu} \right) \langle\langle X, P | p \rangle\rangle$$