

$$\phi \underset{\mu}{\times} \psi = \underbrace{\Lambda \phi}_{\nu} \underset{\nu}{\times} \underbrace{\Lambda \psi}$$

$$\phi_m \underset{\mu}{\times} \psi_m = \Lambda_m^2 \overbrace{\phi_m \underset{\nu}{\times} \psi_m} = \frac{\Lambda_m^2}{(\nu)_m} \phi_m \underset{Z}{\times} \psi_m$$

$$\phi_m \underset{\mu}{\times} \psi_m = \int_{du}^{S_\ell} \int_{d_u^0(x)}^{\Omega_u} {}^x \mathcal{L}_u \bar{\phi}_m^x \psi_m$$

$$\ell = 1: \quad \Lambda_m^2 = \frac{(a/2)_m^2}{(d/r)_m (ra/2)_m} \int_{dt}^{0|\infty} t^{2m-1} \mathcal{L}$$

$$\begin{aligned} \frac{\Lambda_m^2}{(a/2)_m} \phi_m \underset{Z}{\times} \psi_m &= \phi_m \underset{\mu}{\times} \psi_m = \int_{du}^{S_1} \int_{d_u^0(x)}^{\Omega_u} {}^x \mathcal{L}_u \bar{\phi}_m^x \psi_m = \int_{dt/t}^{0|\infty} t \mathcal{L} \int_{du}^{S_1} {}^{tu} \bar{\phi}_m^{tu} \psi_m \\ &= \int_{dt}^{0|\infty} t^{2m-1} \mathcal{L} \int_{du}^{S_1} {}^u \bar{\phi}_m^u \psi_m = \phi_m \underset{S_1}{\times} \psi_m \int_{dt}^{0|\infty} t^{2m-1} \mathcal{L} = \frac{(a/2)_m}{(d/r)_m (ra/2)_m} \phi_m \underset{Z}{\times} \psi_m \int_{dt}^{0|\infty} t^{2m-1} \mathcal{L} \end{aligned}$$