

$$\mathcal{L}_{VNN}(x) = -\frac{g_V}{2} \bar{\psi}(x) \left[ \gamma_\mu \left\{ \rho^\mu(x) \cdot \boldsymbol{\tau} \right\} - \frac{\kappa_V}{2m_N} \sigma_{\mu\nu} \left( \partial^\nu \left\{ \rho^\mu(x) \cdot \boldsymbol{\tau} \right\} \right) \right] \psi(x),$$