$$\langle f|\hat{H}_{eff}|i\rangle = \frac{G_F}{\sqrt{2}} \int d^3\mathbf{x} \, \langle \ell_f|\hat{j}_{\mu}^{lept}|\ell_i\rangle \langle J_f|\hat{\mathcal{J}}^{\mu}(\mathbf{x})|J_i\rangle \,,$$