

Homework Set #5.

Due Date - Oral Presentation: Wednesday November 4, 2015

Due Date - Written Solutions: Wednesday November 11, 2015

1. Practice with Feynman diagrams

Use the Lagrangian

$$\mathcal{L} = -\frac{1}{2}\phi_1\Box\phi_1 - \frac{1}{2}\phi_2\Box\phi_2 + \frac{\lambda}{2}\phi_1(\partial_\mu\phi_2)(\partial_\mu\phi_2) + \frac{g}{2}\phi_1^2\phi_2$$

to calculate the differential cross section

$$\frac{d\sigma}{d\Omega}(\phi_1\phi_2 \rightarrow \phi_1\phi_2)$$

at tree level.