PHY 5669 : Quantum Field Theory B, Spring 2019

February 22th, 2019
Assignment # 2
(due Thursday March 7th, 2019)

1. Consider the case of scalar QED, with Lagrangian:

$$\mathcal{L} = -\frac{1}{4}F^{\mu\nu}F_{\mu\nu} + (D_\mu\phi)^*(D^\mu\phi) - m^2\phi^*\phi\,,$$

where $D_\mu = \partial_\mu + ieA_\mu$. Use the functional method to derive the Feynman rules of the theory (you can avoid deriving the photon propagator since it has been done in class).

2. Problem 14.1 od Schwartz's book.

3. Problem 14.2 od Schwartz's book.