

September 11, 2014

Cornell University, Department of Physics

PHYS 7646, Elementary particle II, HW # 2, due: 9/25/14

Question 1: EWP in the SM

Using the assumptions we made in class, and following section 21.3 in Peskin and Schroeder, derive the 2nd equation in (21.157), that is show that

$$\sin^2 \theta_* - \sin^2 \theta_W = \frac{3\alpha}{16\pi \sin^2 \theta} \frac{m_t^2}{m_W^2}. \quad (1)$$

Question 2: Higgs sensitivity of EWP (bonus)

Question 21.4 in Peskin and Schroeder.