

Homework 5

Most of the homework is about repeating in scalar QED and in Yang-Mills theory coupled to scalars what we have done for spinors. Chapters 61, 65, 66, 67 contain relevant material.

1. Srednicki problem 65.2. (Gauge invariance and Z factors in scalar QED).
2. Srednicki problem 68.3. (Ward identity in scalar QED).
3. Srednicki problem 72.1. (Feynman rules for vertices in YM theory with scalars).
4. Srednicki problem 73.1. (Beta function in YM theory with scalars).
5. Srednicki problem 78.2 (One-loop corrections as functional determinants. Prerequisite: chapter 53).