

## QFT I exercises - sheet 8

### Dim reg for the electron vertex

- a Derive the equivalent of equation 6.47 in Peskin and Schroeder from the regularised version of equation 6.38 within dimensional regularisation . Hints:
  - first prove the formulas in equation 7.89 and use them.
  - prepare for a lengthy computation
  - as a cross-check, whenever you take the dimensions back to four, you should obtain the Peskin and Schroeder results
- b Write the result in terms proportional to  $l^2$ , to  $\Delta$  and to  $q^2$
- c Perform the loop integrals.

### 6.1 and 6.3

Do Peskin and Schroeder's 6.1 and 6.3. In the last exercise, plug in the current value of the Higgs boson mass.

### Christmas

Have a merry christmas. Hint: stay in strictly four dimensions