

## Physics 445: Problem Set 4

Carlos Wagner, Spring 2011

Due Tuesday, May 31, 1:30 p.m.

1. Consider the supersymmetric extension of the Standard Model. Ignore the superpartners of the gauge bosons, which are in the adjoint representation of the group and do not induce anomalies, and show that the addition of the fermion superpartners of the Higgs boson would induce anomalies in the gauge currents. Show also that these anomalies would cancel if you introduce a second Higgs boson doublet and its fermion superpartner, with the same hypercharge, but opposite in sign, to the standard Higgs boson one.

2. Peskin and Schroeder, problem 19.2