8.811 Particle Physics
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Fall, 2004
Final term paper: E-mail me the topic of your research paper with a short outline. Explain how you plan to improve this "new important piece of physics" by at least a factor of ten over existing experiments.
Reading: Q&L Chap 13 and 14

Assignment 5

Due Nov. 30, 2004

1. Compute the ratios of the decay widths of

   a) $\phi \rightarrow K^+ K^-$ to $\phi \rightarrow K_S^0 K_L^0$ (ignore the phase space factor),
   b) $K_s^0 \rightarrow \pi^+ \pi^-$ to $K_s^0 \rightarrow \pi^0 \pi^0$ (use $\Delta I = \frac{1}{2}$ rule), and
   c) Higgs $\rightarrow W^+ W^-$ to Higgs $\rightarrow Z^0 Z^0$

   (Explain why, besides the mass factor, the couplings of Higgs to $W^+ W^-$ is a factor of sqrt (2) larger than that of Higgs to $Z^0 Z^0$).

2. Q&L 13.4

3. Q&L 13.6

4. Q&L 14.1

5. Q&L 14.2

6. Q&L 14.13