

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Department of Physics

Physics 8.811

Fall Term 2003

PROBLEM SET 3

Due: October 16, 2003.

Problem 1

Show that the GIM mechanism works to suppress $K^0 \rightarrow \mu^+ \mu^-$ for three quark generations, assuming that the mixing matrix U is unitary.

Problem 2

Read Halzen and Martin 12.13-12.14; do exercise 12.24.

Problem 3

Using the relations in Halzen and Martin 13.2, and comparing to the $Z^0 \rightarrow ff$ vertex equation 13.41, work out the entries in the Table 13.2 for c_A^f and c_V^f .

Problem 4

Halzen and Martin exercise 2.8.

Problem 5

Halzen and Martin exercise 14.13.