Elementary Particles II   Problem Set #5   due 26/12/02

CP Violation

1. Prove eq. (3.47).

2. Given the transformation properties of fermion fields ψ under C and P transformation, prove eq. (4.1)

3. Estimate the contributions from $|\bar{A}/A| \neq 1$ and from $\mathrm{Im}\lambda \neq 0$ to the following decays, and assess their usefulness for measuring CKM parameters and for probing new physics:
a. $B_s \to \psi\phi$ b. $B_s \to \rho K_S$