

Questions

1. What are the quantum numbers of states that can be formed in e^+e^- annihilation via a virtual photon?
2. Why is the ω resonance narrower than the ρ ?
3. Why is the ϕ resonance narrower than the ω ?
4. Why is the J/ψ so massive?
5. Why is the J/ψ so *very* narrow?
6. If the $c\bar{c}$ interpretation of the ψ 's is correct, then what other states should exist?
7. What shape of potential gives a satisfactory account of the heavy quarkonia spectra?
8. How can a potential model work at all?
 - a) Why does massive quarks mean nonrelativistic?
 - b) Why does massive quarks mean perturbative?
9. Why won't the picture be repeated again for top-antitop?
10. For a D^+ meson, what is the
 - a) quark content?
 - b) J^P ?
 - c) mass?
 - d) lifetime?
11. How about for a D^{*+} ?
12. What are the preferred decay modes for the c, b, and t quarks?