

221A HW #1, due Sep 1 (Fri), 4pm

1. Quantum Mechanics in College. Answer the following questions.

- (a) What were the subjects in quantum mechanics that left you uneasy or confused?
- (b) Did you study Dirac's bra/ket formulation?

2. Classical Mechanics in College. Have you studied the following subjects in classical mechanics? (yes/no)

- (a) Action principle and Euler–Lagrange equation.
- (b) Hamiltonian and Hamilton equations.
- (c) Hamilton–Jacobi equation.
- (d) Canonical or contact transformations.
- (e) Noether's theorem.
- (f) Poisson brackets.
- (g) Liouville's theorem.
- (h) Adiabatic invariants.
- (i) Basic electromagnetism.
- (j) Maxwell's equations.
- (k) Vector potential.
- (l) Lagrangian Field theory.
- (m) Special Relativity.

3. Mathematical Methods in College. Have you studied the following subjects in mathematical methods? (yes/no except for the last one)

- (a) Steepest descent method.

(b) Differential forms.

(c) What kind of mathematics that appeared in quantum mechanics did you find unfamiliar?

4. Sign-up Send an email to Hitoshi Murayama so that your email address will be added to the class mailing list.