8. From the simple picture that Bose-Einstein condensation (BEC) occurs when the characteristic distance between atoms becomes comparable to their DeBroglie wavelengths, estimate the condensation temperature (in K) for a gas of sodium atoms at a density 10^9 atoms/cm^3.

9. Estimate and compare characteristic values of forces (rates of change of atomic momenta) acting on atoms in a) laser cooling experiments (e.g. in a Zeeman slower) and b) in a Light-Induced Drift experiment. Assume nearly optimal experimental conditions in both cases.

10. It is generally believed that photons obey Bose-Einstein statistics. What experimental evidence can you adduce to support this proposition? Do you see room for a possible small violation of the statistics? (Of course, this is one of these open-ended questions, where the answer can be anything from a single sentence to a Ph.D. dissertation).

11. The power spectrum of an exponentially decaying harmonically oscillating field is Lorentzian (for example, this is the case for spontaneous emission when we prepare an atom in an excited state at t=0). What will the spectrum be if we add a "mirror image," to the time evolution, i.e. add exponential growth for t<0 with the same characteristic rate γ as the decay?