Top 10 Things You Should Know about the Chemical Potential

10. It expresses how eager a system is for particles
9. In equilibrium it is equal in two systems placed in diffusive contact
8. Particles move from a region of high chemical potential to a region of low chemical potential
7. It can be found by differentiating thermodynamic potentials with respect to N
6. It has an internal part and an external part; the external part is just a normal per-particle potential energy, such as mgh
5. It is the Gibbs free energy per particle, G/N
4. It is used to describe chemical equilibria
3. For a monatomic ideal gas, it is $kT \ln (v_Q/v)$
2. It is enormously useful in describing the physics of semiconductors
1. *It is the fudge factor you use to get the particle number right!*