Homework # 2 due Thursday 2/5

1- 2.2 Determine the Coulomb barrier for the nuclear reactions d-t, d-h, and p-^{11}B.

2- 2.4 For Maxwellian distributed tritons at 9 keV, calculate
(a) the average kinetic energy,
(b) the average speed, and
(c) the kinetic energy derived from the average speed of (b). Compare the energies of (a) and (c), and explain any difference.

3- 2.5 Transform M(v), Eq.(2.14), into M(E), Eq.(2.15), with the aid of the appropriate Jacobian.

-4- 2.6 Find M(E) from M(**v**) for the case of isotropy using spherical co-ordinates.

5. Derive an expression for sigma-v for a beam with a beam of uniform density n_1 /cc having energies spread uniformly between E_1 and E_2 injected into a "target" Maxwellian plasma at temperature kT and density n_2/cc. Make a hand drawn estimate plot showing how this case would fall on fig 2.6 if the beam average energy = E_d of that case while the target plasma is the same. Explain your drawing and discuss selection of an "optimum" kT for the target plasma (note = indicate how you define "optimum").

Assignment – read Chapter 3.