March 14th, 2012

Assignment # 10

(Due Wednesday March 21st, 2012)

Problem 1

Consider an ideal Fermi gas of particles of mass M in **two spatial dimension**. The system contains N particles in an area A with particle density $n = N/A$.

1.a) Compute the Fermi degeneracy temperature T_F.

1.b) Compute a closed-form expression for the chemical potential.

1.c) Compute the heat capacity at constant area in the low- and high-temperature limits.