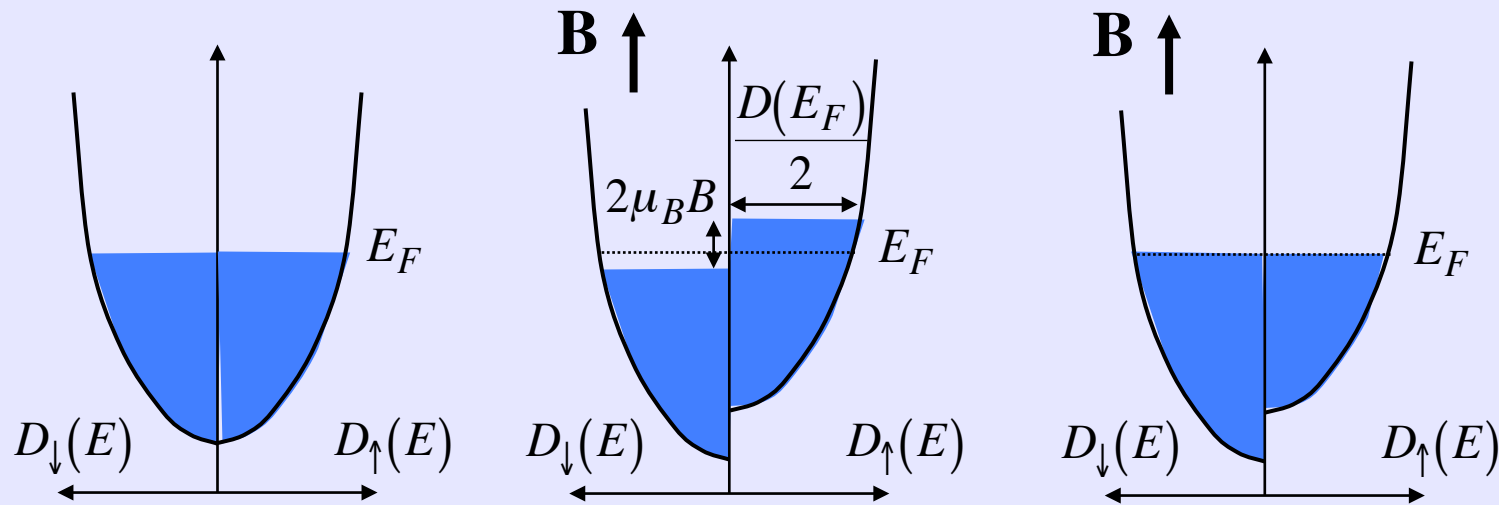


Pauli Paramagnetism

Consider the effect of applying a magnetic field B to the electron gas. The electron has magnetic moment $\pm\mu_B$ and so the electrons gain additional energy $\pm\mu_B B$ depending upon whether their spin lies parallel or anti-parallel to B .



The induced magnetic moment is $m = 2 \times \mu_B \times (\mu_B B) \frac{D(E_F)}{2}$

$\chi = m/B = \mu_B^2 D(E_F)$ - approximately correct for alkali metals!