
Example 1.5 Calculate the energy relative to the Fermi energy for which the Fermi function equals 5%. Write the answer in units of kT .

Solution The problem states that:

$$f(E) = \frac{1}{1 + \exp\left(\frac{E - E_F}{kT}\right)} = 0.05$$

which can be solved yielding:

$$E - E_F = \ln(19)kT = 3kT$$
