

D. Problems.

1. A hypothetical atom has energy levels at 0 (the ground state), 1.6 eV, 2.9 eV, 4.1 eV and others. Draw a sketch of the energy level diagram for the atom. What energy photons would you expect to find in the emission spectrum of a gas containing these atoms?

2. The solar blackbody spectrum corresponds to a temperature of 5800 K and peaks at a wavelength of 500 nm. Use Wien's law to find the temperature of a red star whose blackbody spectrum peaks at a wavelength of 680 nm.