

34.2: Introduction

As electrons jump from one energy state to another within an atom, the atom absorbs and emits a quantum of energy specific to the jump. The quantum of energy is called a photon. Since light exhibits both particle and wave properties at the same time, each photon is associated with a particular wavelength and energy.

Table 34.2.1

Energy per Photon	h	c
$E = \frac{hc}{\lambda}$	$6.626 \times 10^{-34} \text{ J s}$	$3 \times 10^8 \text{ m/s}$

Every atom in the periodic table has unique energy levels, and thus, emits a unique pattern of photons. The pattern of emission lines produced by photons when a gas is excited, is called an atomic spectrum.

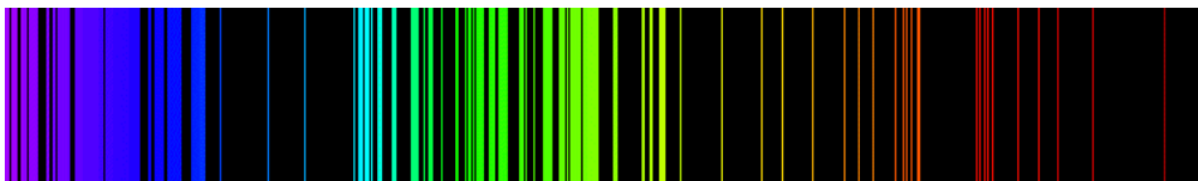


Figure 34.2.1: Example Atomic Spectrum. Emission Spectrum is under public domain

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