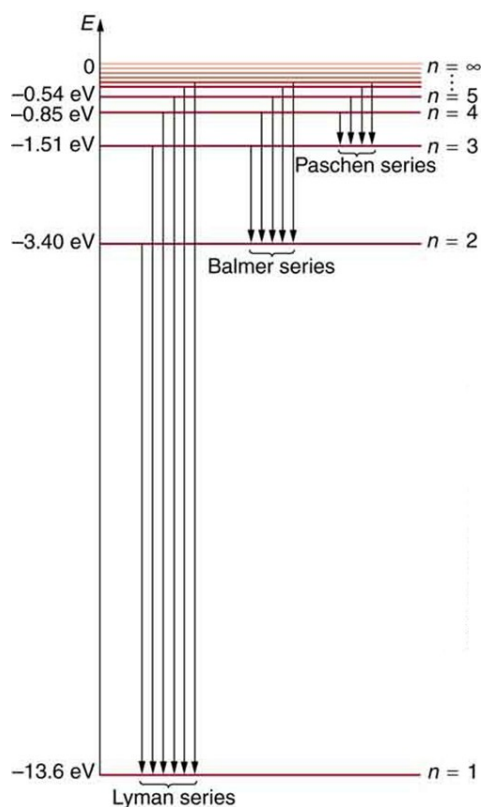


1. Calculate the energy in joules per photon of the following:
 - a. Red light with a wavelength of 665.7nm
 - b. Ultraviolet light with a frequency of 4.5528×10^{15} Hz
2. What is the energy associated with a transition of an electron in a hydrogen atom moving from an energy level of $n=4$ to $n=2$?
3. During a transition of energy states in a hydrogen atom, a line of wavelength $\lambda = 1.28\mu\text{m}$ is observed. What energy level transition is occurring? Consult the diagram below.



4. In the lecture slides, the calculation for the radius of the first Bohr orbit of hydrogen is shown. Calculate the radii of the second and third Bohr orbits, along with the speed of an electron in these orbits.