

Introduction for Module 11 – Light and the Bohr Model

Textbook: [Open Stax Chemistry 2e](#)

Suggested Reading: Chapter [6.1-6.2](#)

Learning Objectives:

- **Use appropriate equations to calculate related light-wave properties such as frequency, wavelength, and energy**
- **Describe the particle nature of light**
- **Distinguish between line and continuous emission spectra**
- **Describe the Bohr model of the hydrogen atom**

Captions and Attributions:

- 1) The photoelectric effect demonstrated the particle-like nature of light. [Figure 6.11 Photons with low frequencies do not have enough energy](#) by [Open Stax](#) is licensed under [CC BY 4.0](#).
- 2) The principle quantum number increases as we "go out" from the nucleus. While these are not the only energy levels, it is an important step in realizing that energy levels are quantized within the atom and can only have specific predetermined values. [Figure 6.19, Different shells are numbered by principal quantum numbers by Open Stax](#) is licensed under [CC BY 4.0](#).
- 3) Emission Spectrum for Hydrogen shows the energies between electron orbitals, and is always the same for Hydrogen. [Figure 6.13, Compare the two types of emission spectra](#) by [Open Stax](#) is licensed under [CC BY 4.0](#).
- 4) The electromagnetic spectrum goes well beyond visible light and is directly related to energy. [Figure 6.3, Portions of the electromagnetic spectrum](#) by [Open Stax](#) is licensed under [CC BY 4.0](#).



Open Chemistry Online: Module 11 by Alex Saltzman is licensed under a [Creative Commons Attribution 4.0 International License](#).

The creation of this work, "Open Chemistry Online: Module 11" was supported by Open CU Boulder 2023-2024, a grant funded by the Colorado Department of Higher Education with additional support from the CU Office of the President, CU Office of Academic Affairs, CU Boulder Office of the Provost, and CU Boulder University Libraries.