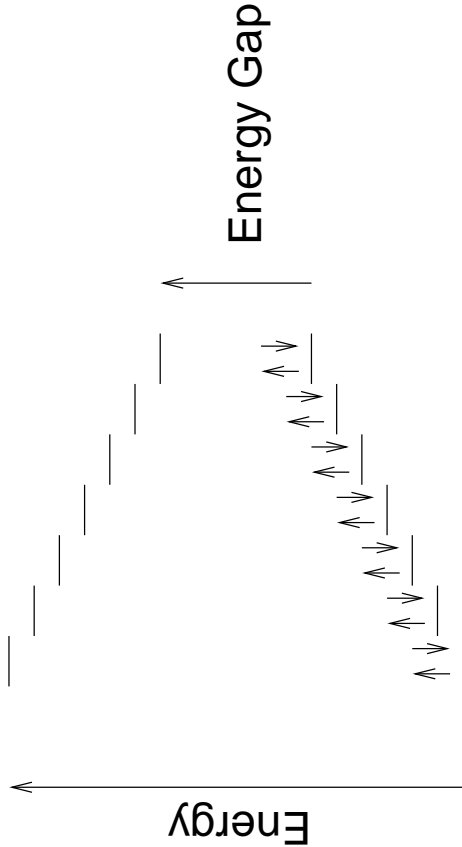


Concept 1 (Optical properties of insulators)



Recall the optical properties of atoms. The sharp lines of the spectrometer occurred because the atom could only absorb very specific energies, promoting electrons to higher energy levels, which then fall back down to the lower levels emitting photons with specific energies, giving the colored lines.

Now suppose light is shone on an insulator as shown above.

- What is the minimum energy that can be absorbed by the insulator?
- Illustrate what the different energies that can be absorbed by the insulator are.