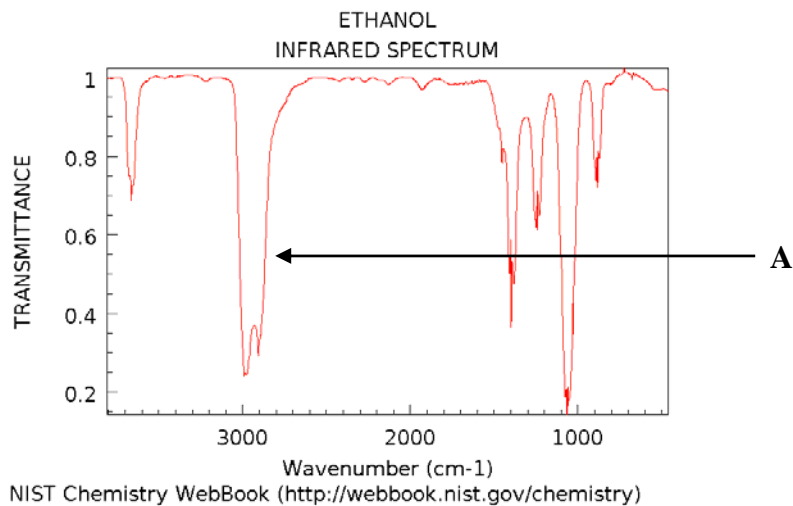


4. Light and Matter Interactions

Resonance is the matching of two different frequencies and results in an interaction – either absorption or emission of light. A spectral graph showing transmittance and wavenumbers can help us determine the resonances between a given type of light and matter. The diagram below shows an IR absorption spectrum of ethanol.



1) Based on what you know about absorption spectra, what is happening to the IR light at point A?

2) Based on the relationship between energy and frequency, describe what is physically happening to the energy of the IR light in the diagram above at point A.

3) If the graph above shows the absorption of light by ethanol, what would a graph of the emission of light by ethanol look like? Sketch this graph below including the resonant wavenumbers for ethanol.