Lecture 01-17

Any Questions from the last class?

Light Matter interactions

- Transmission
- Absorption
- Reflection

BUT WAIT THERE'S MORE

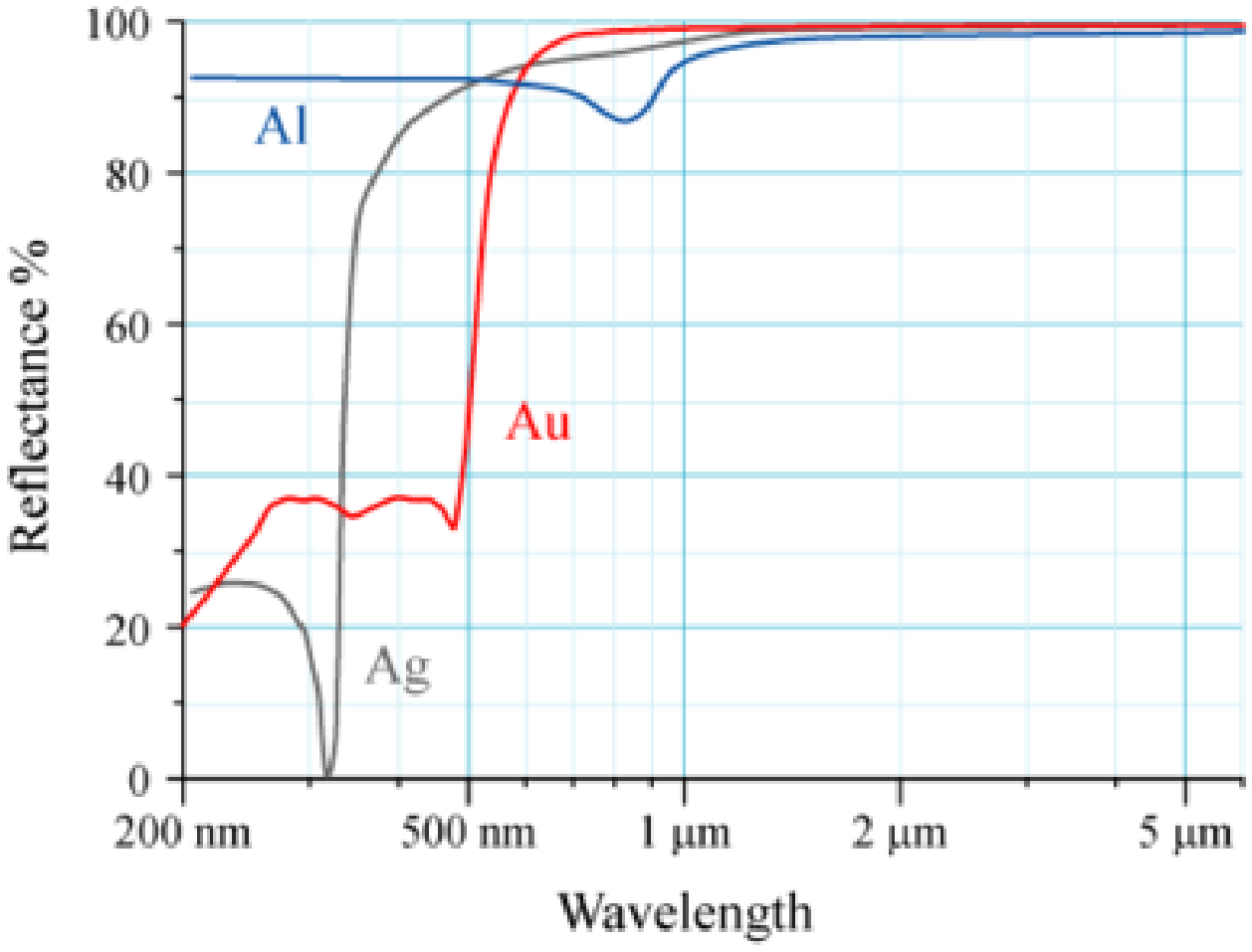
- Fluorescence
- Raman Scattering
- Nonlinear interactions!

Absorbtion and transmission

- Imparting energy into the sample that we are looking at using EM Waves
  - For simplicity we'll assume that the sample doesn’t change temperature
- Some energy couples into the vibrational and rotational modes (absorbed)
- Energy that is not coupled into it is transmitted through it

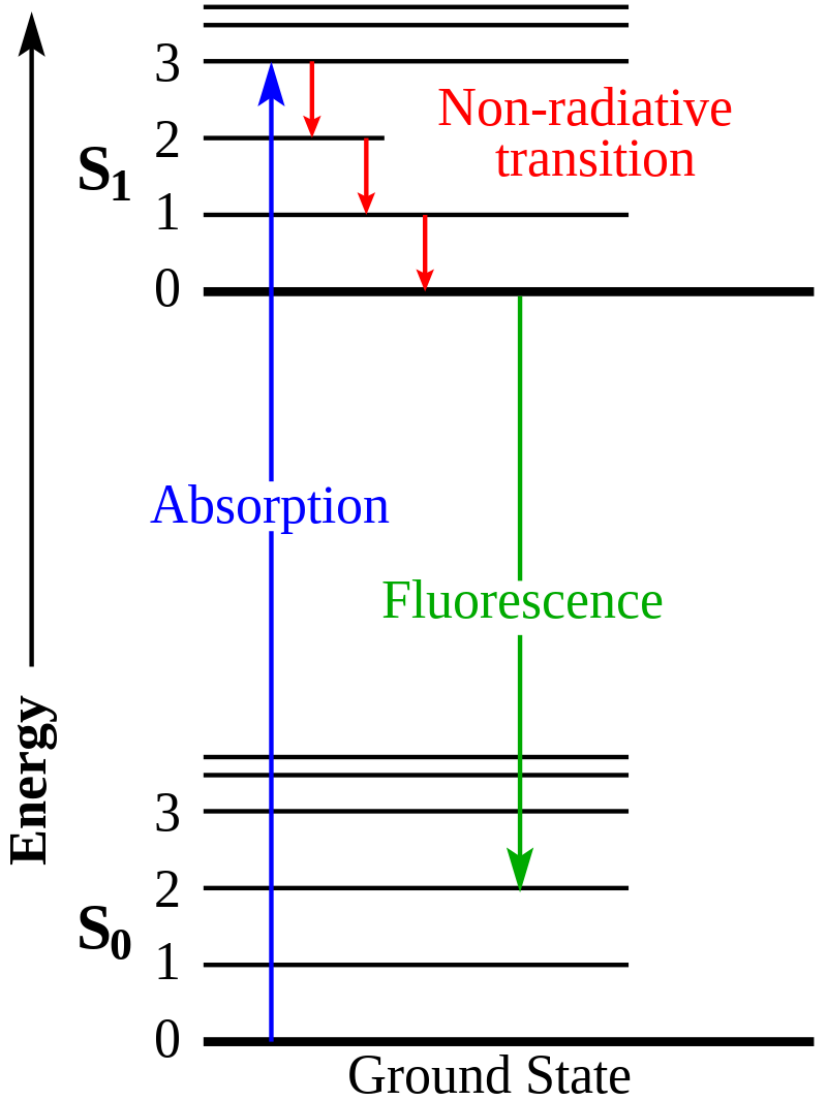
Reflection

- Light is not transmitted through the sample or analyte
- Some percentage can still be absorbed though
- We often think of it when looking at reflective or lustrous materials



Fluorescence

- Photons strike a material and some amount of energy is absorbed
- Photons are then emitted at a range of wavelengths at a lower energy than the incident photon



Raman Scattering

- Inelastic scattering
- Energy from incident photons couples into rotational and vibrational modes
- Light is then emitted at discrete frequencies based on the motions that are excited