



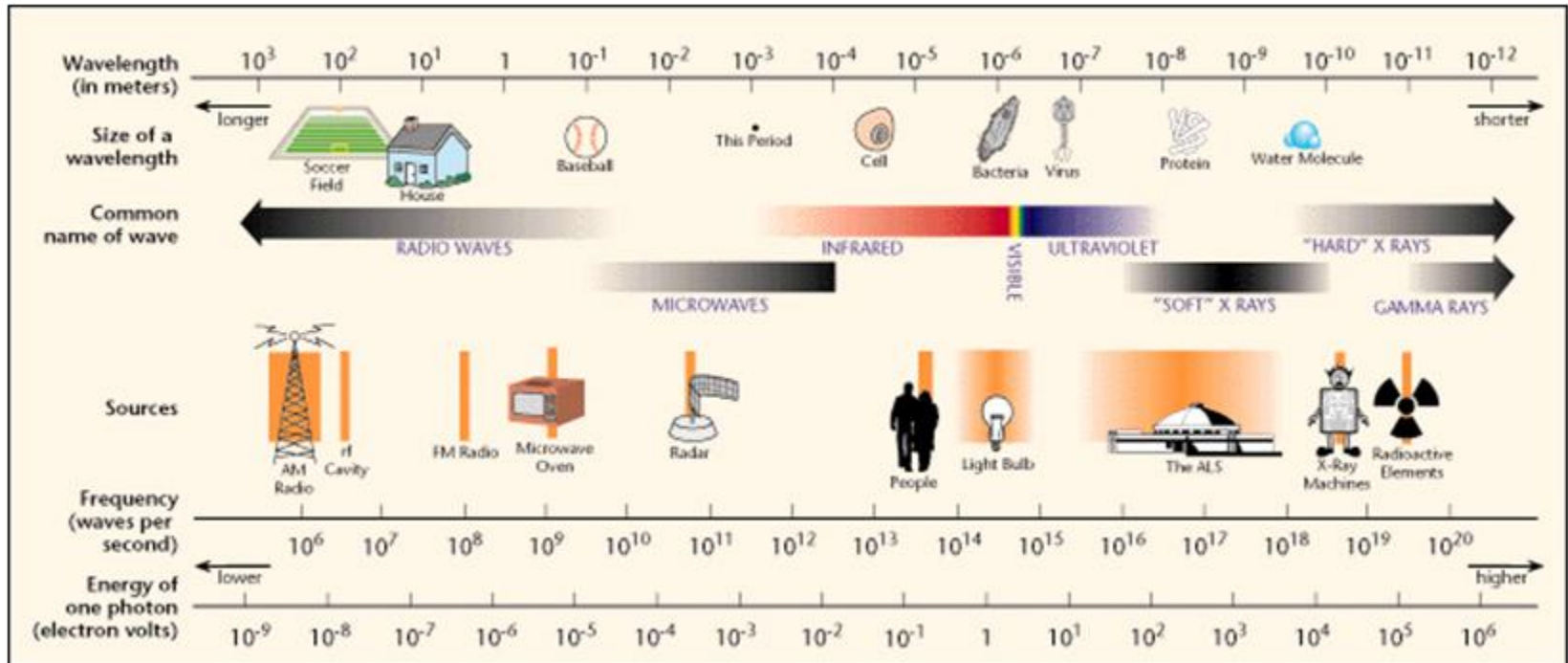
GAA Advanced Gravure Class

October 29, 2009

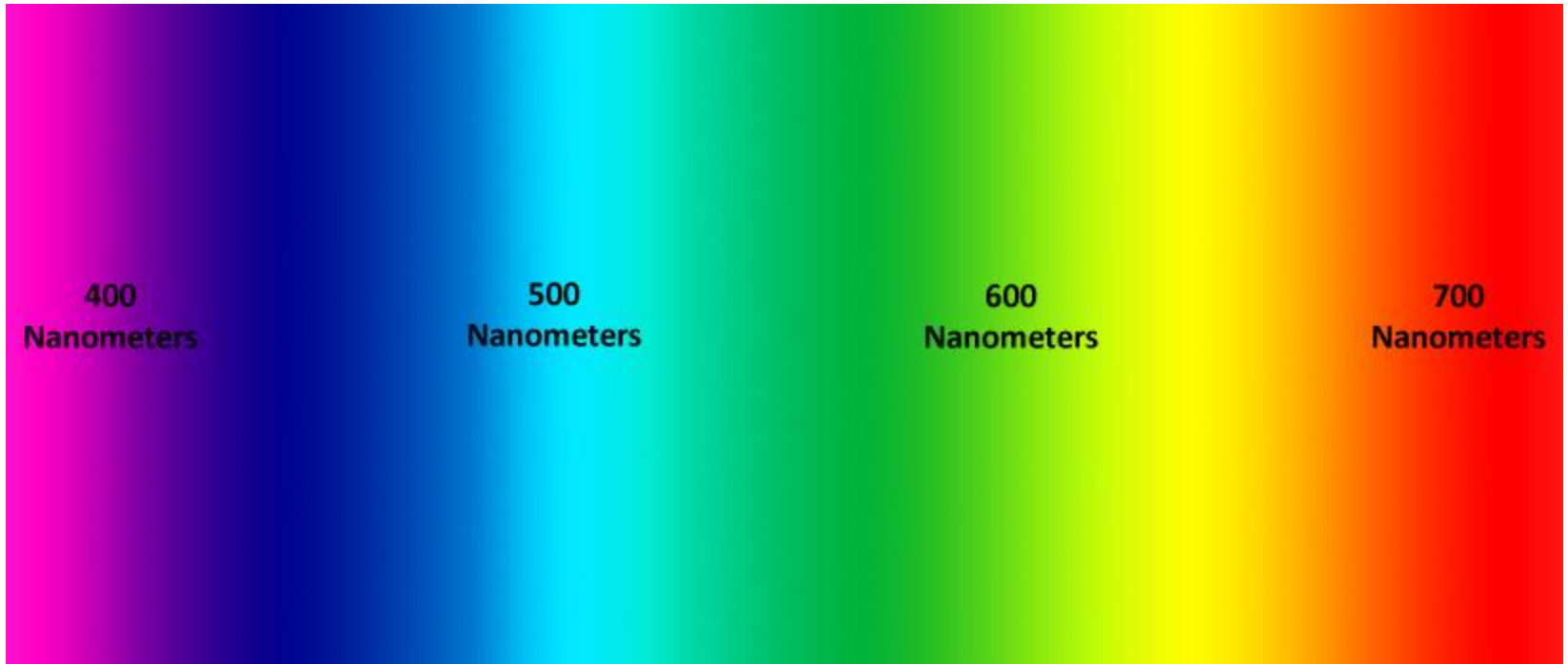
Agenda

- ▶ Metamerism
 - Fluorescent colors
 - Measuring metalized inks & transparent inks on foil
 - Color tolerancing

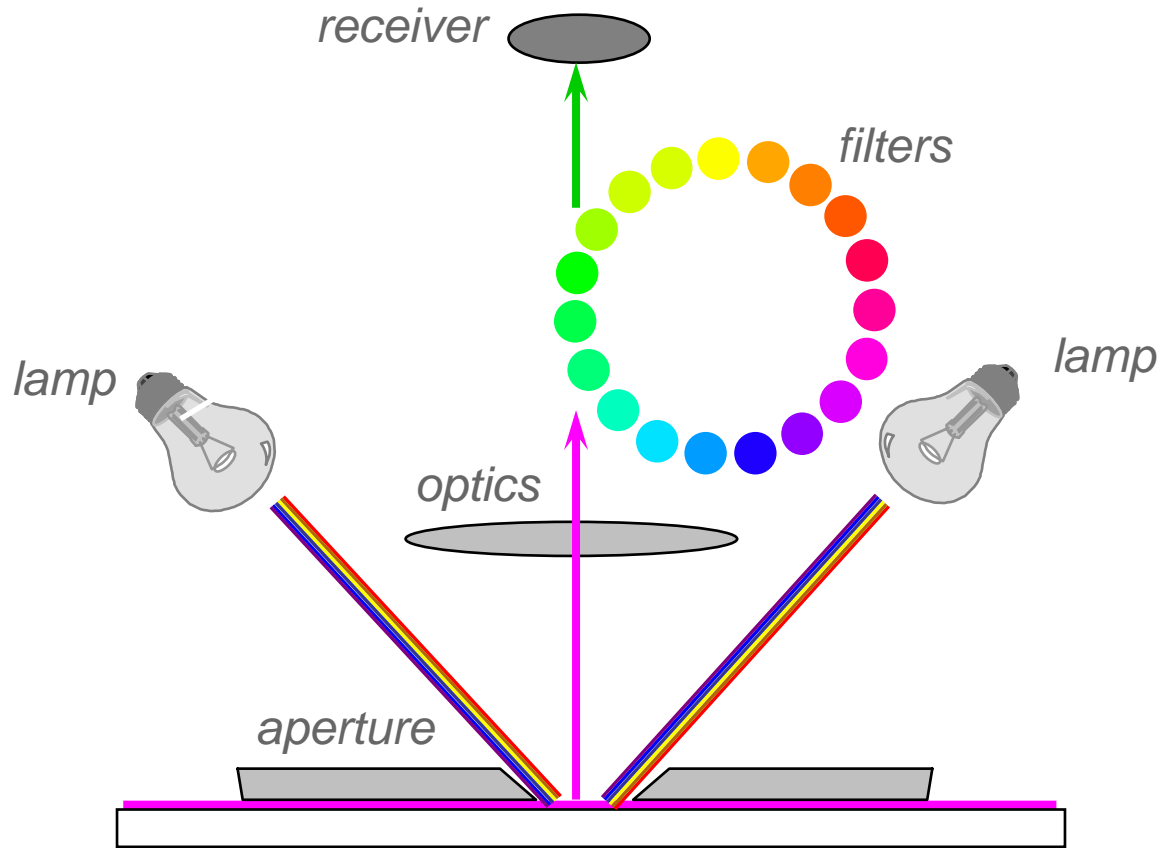
The Electromagnetic Spectrum



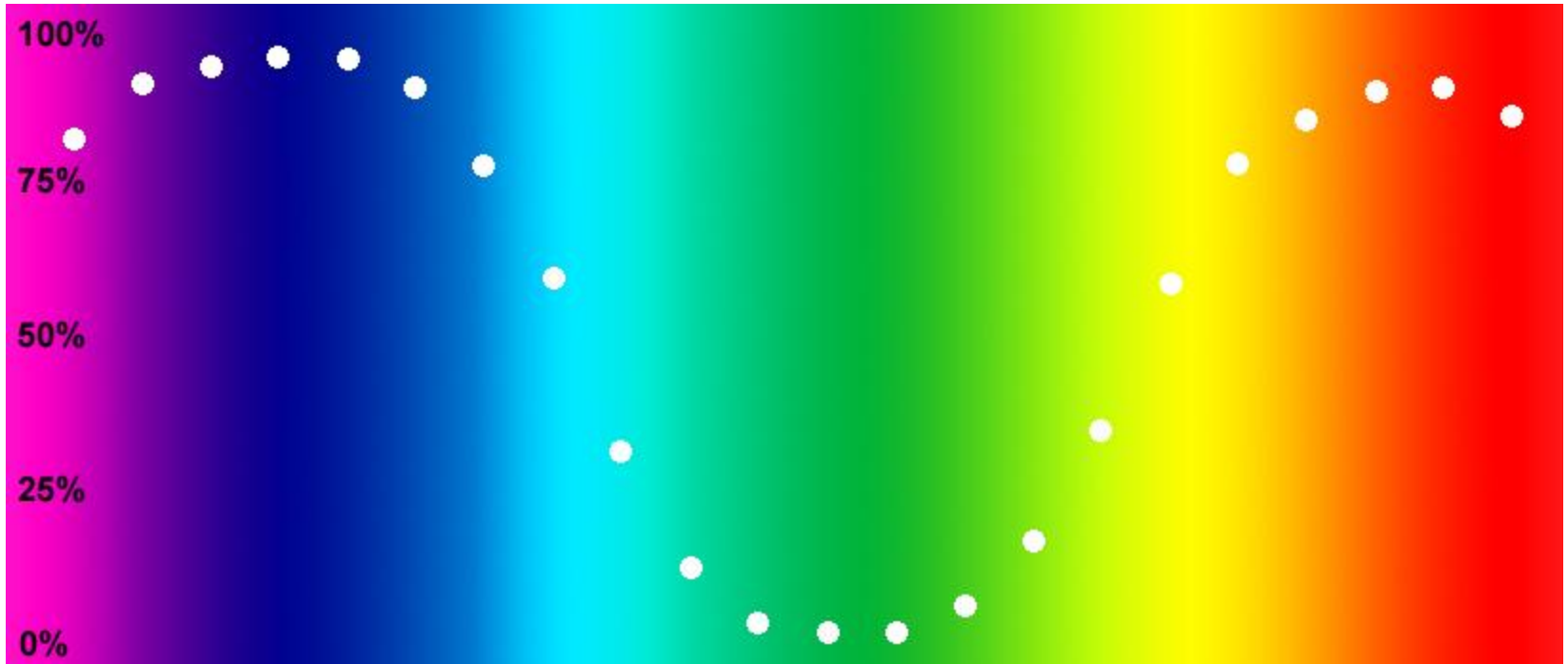
The Visible Spectrum



Spectrophotometer Design

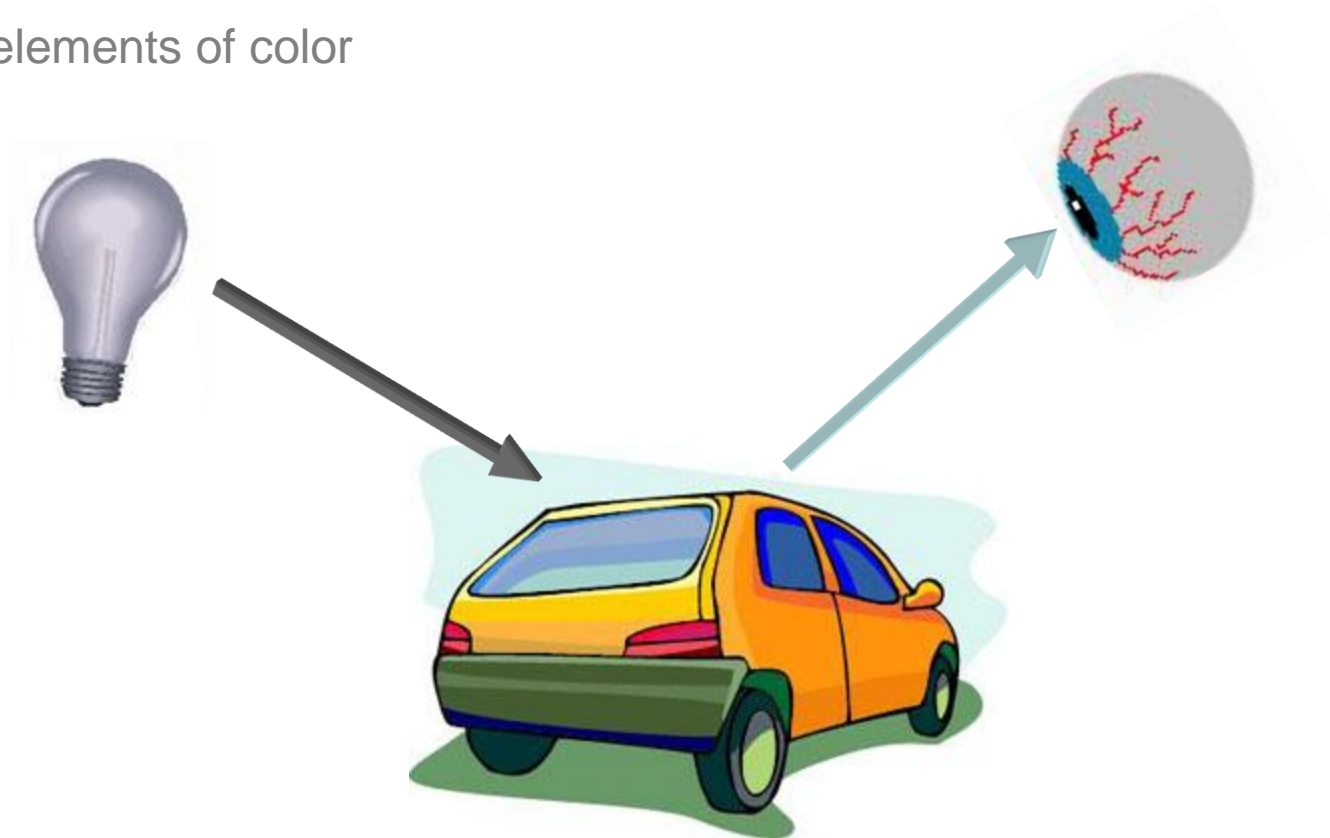


Spectral Curve

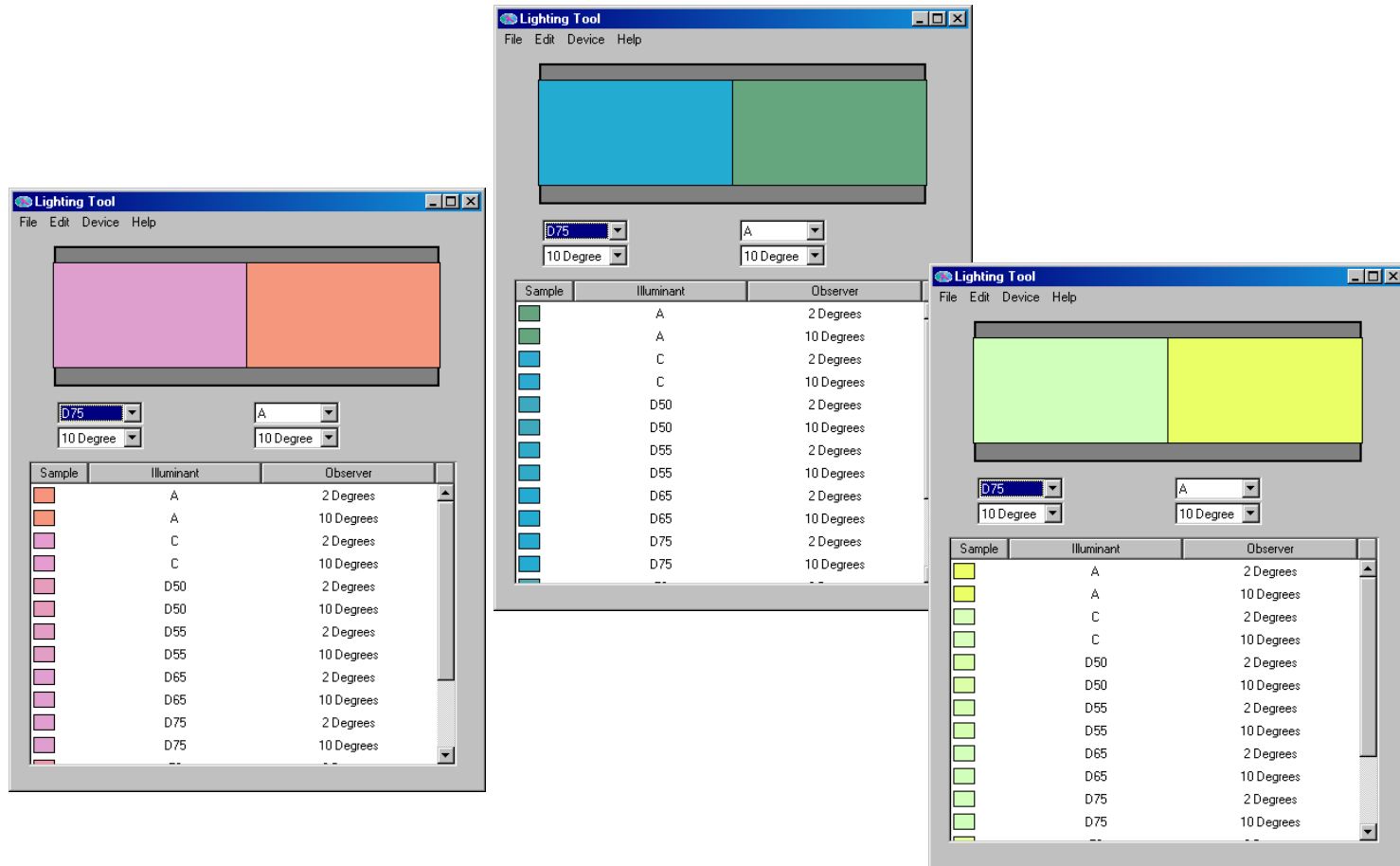


Metamerism

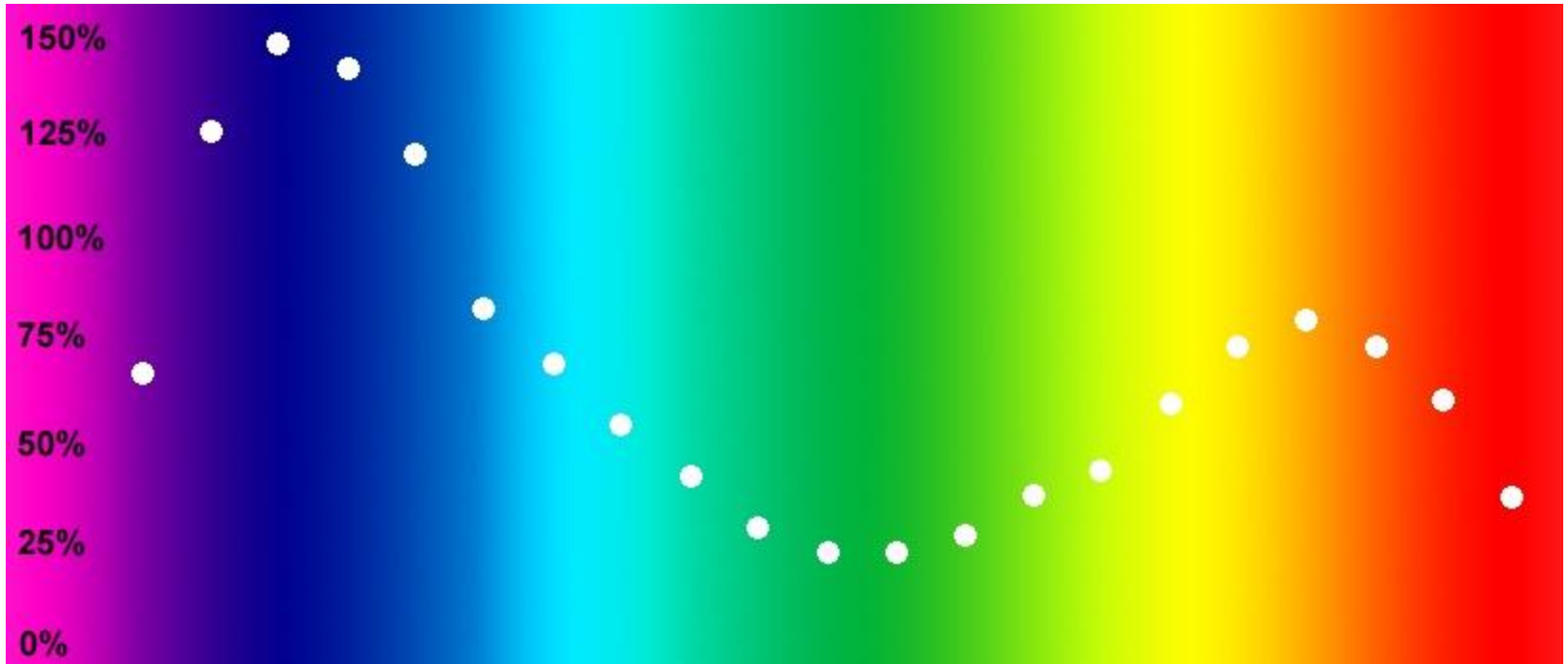
▶ 3 elements of color



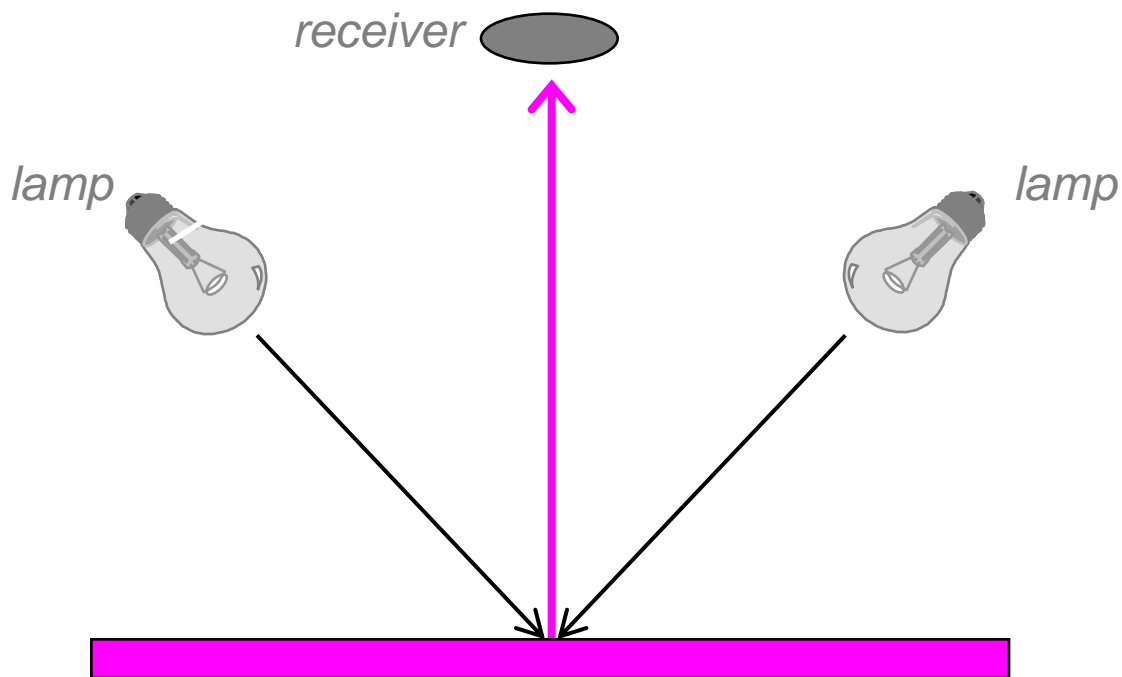
Metamerism



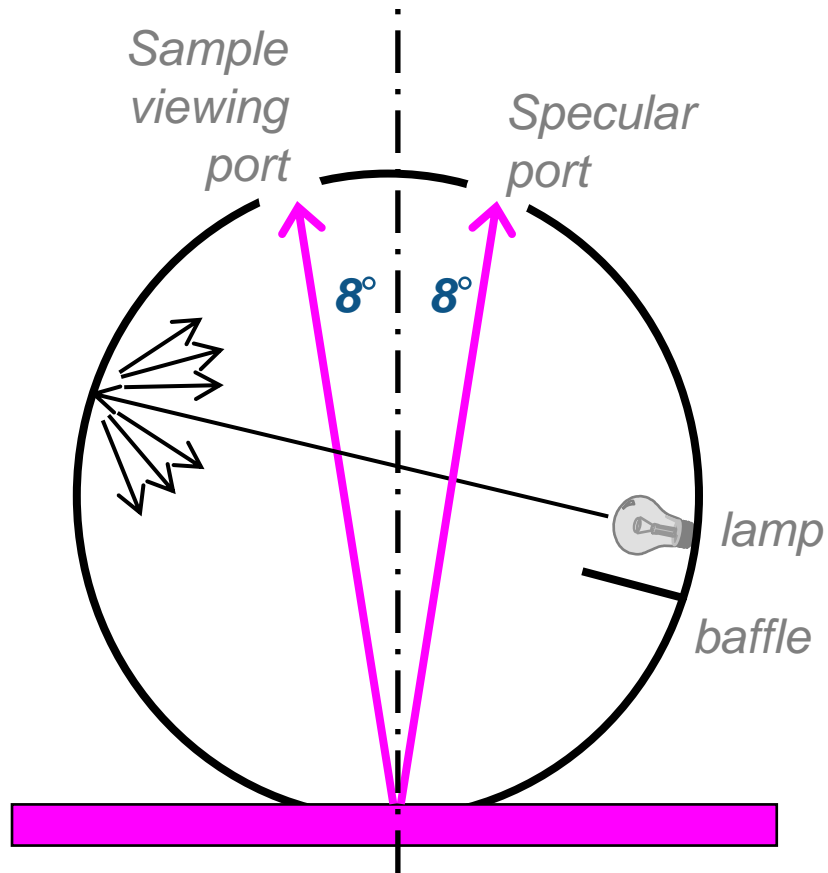
Fluorescent Color



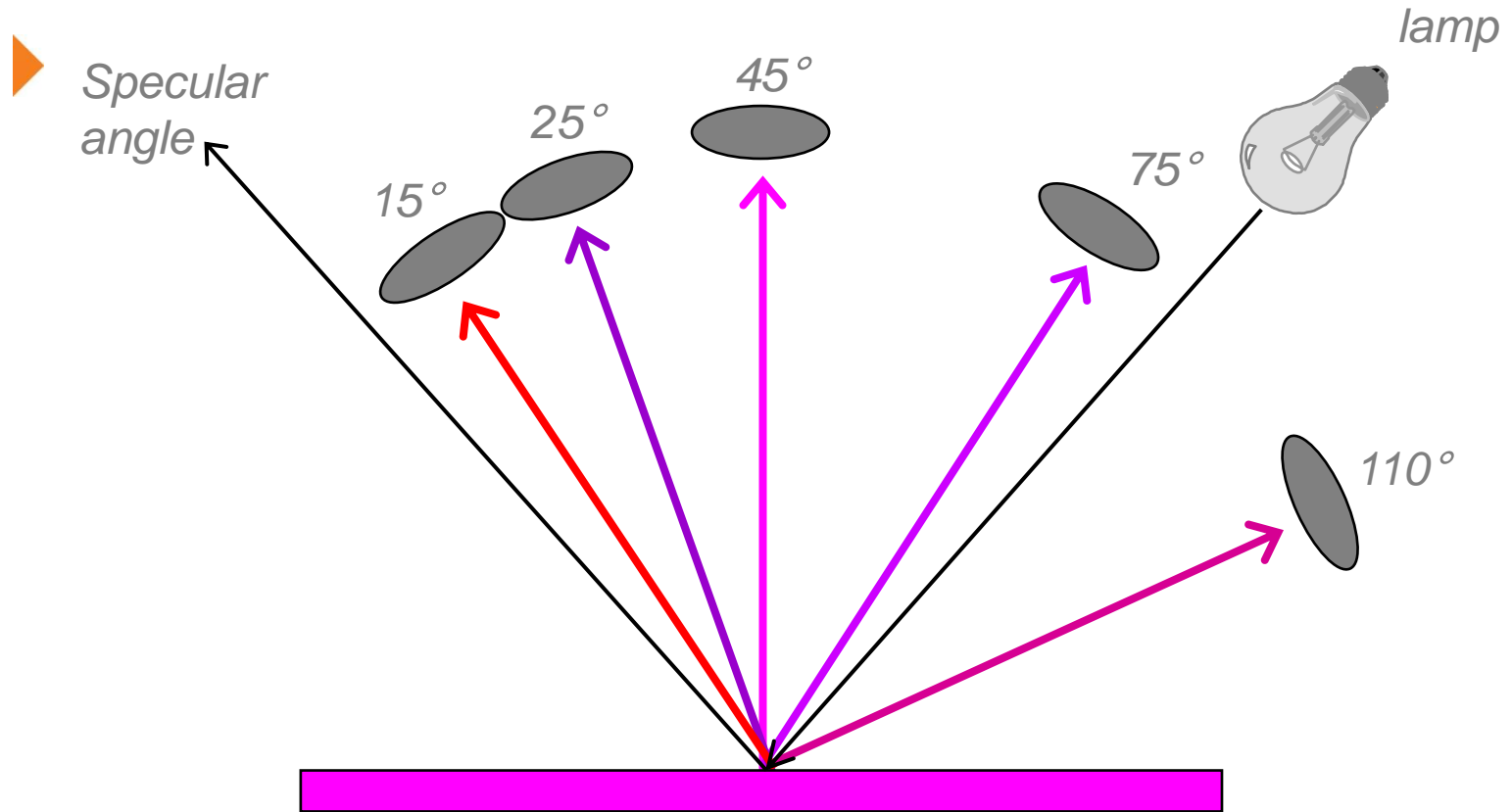
Instrument Geometry – Single-angle



Instrument Geometry - Sphere



Instrument Geometry – Multi-angle

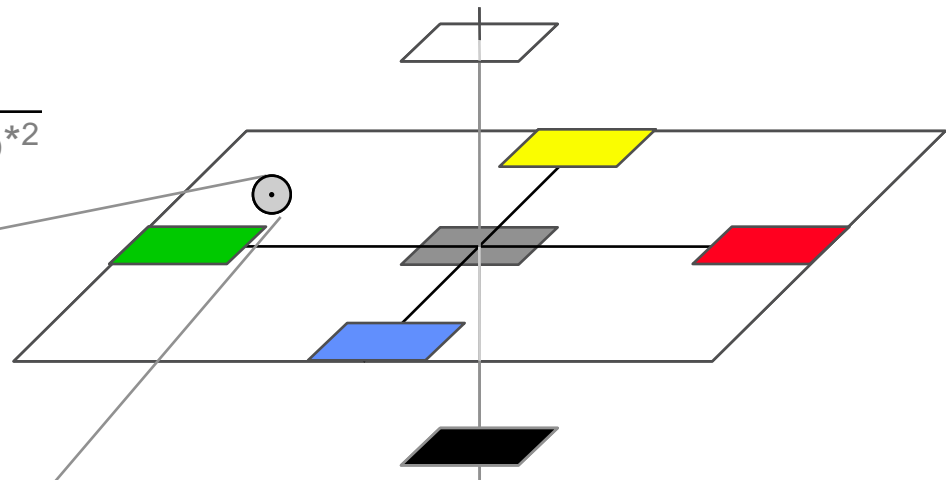
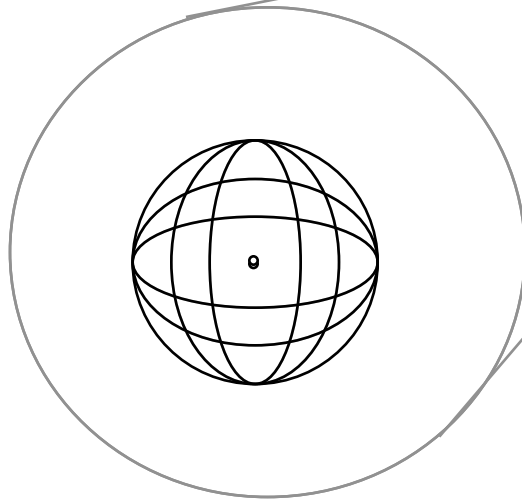


Tolerancing in L*a*b*

- ▶ First a point is measured

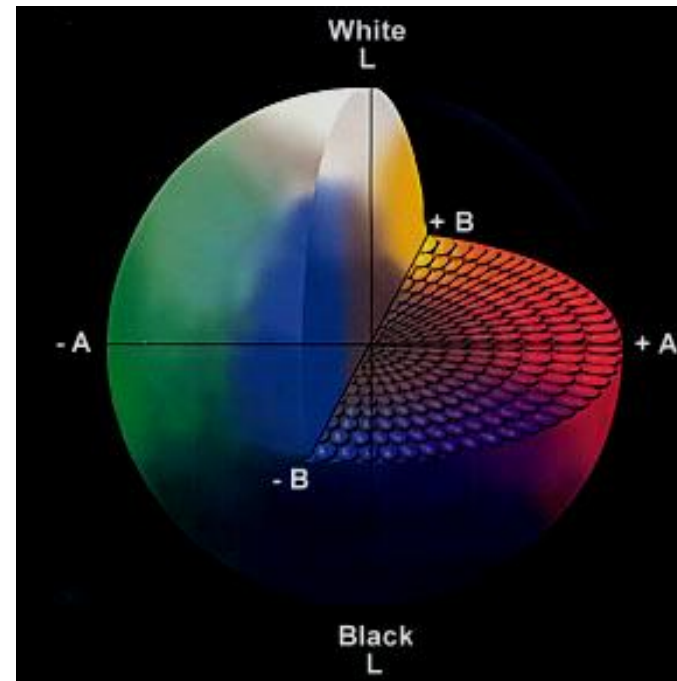
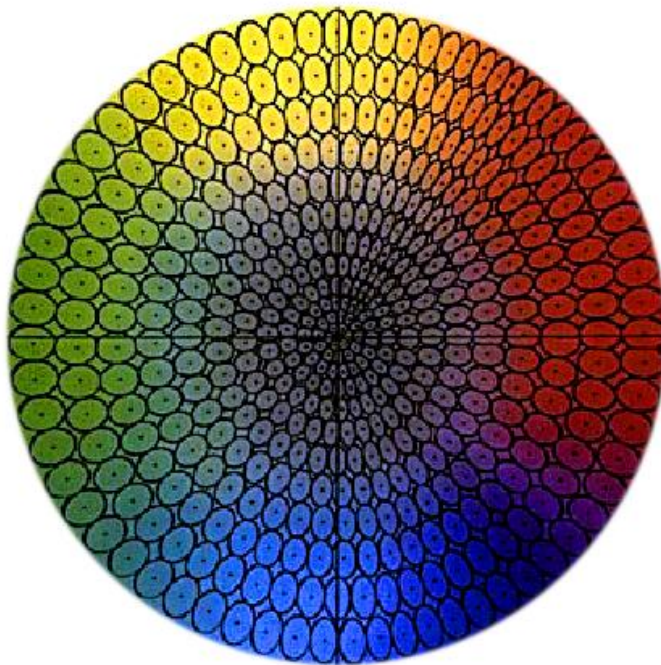
Then limits are set

$$\Delta E^* = \sqrt{\Delta L^{*2} + \Delta a^{*2} + \Delta b^{*2}}$$



Elliptical tolerancing

- ▶ The $CMC_{2:1}$ calculation *dynamically* scales and rotates tolerance ellipsoids in a manner consistent with human perception



 Questions