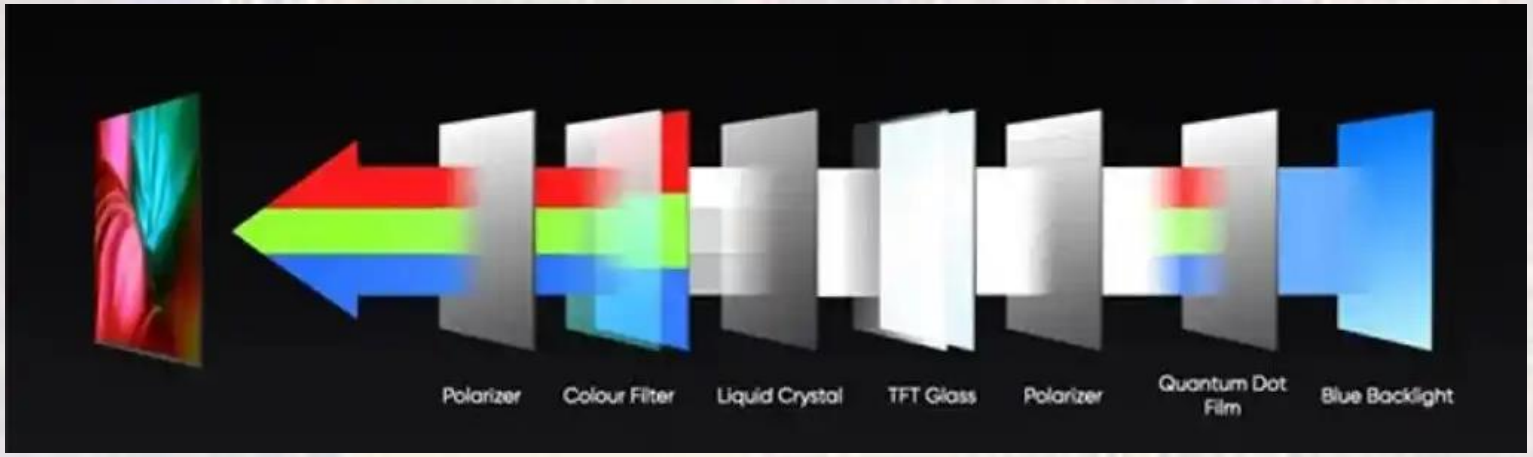
QLED Displays

Last updated 1/14/26

QLED Displays

- Modified version of the traditional LED Display

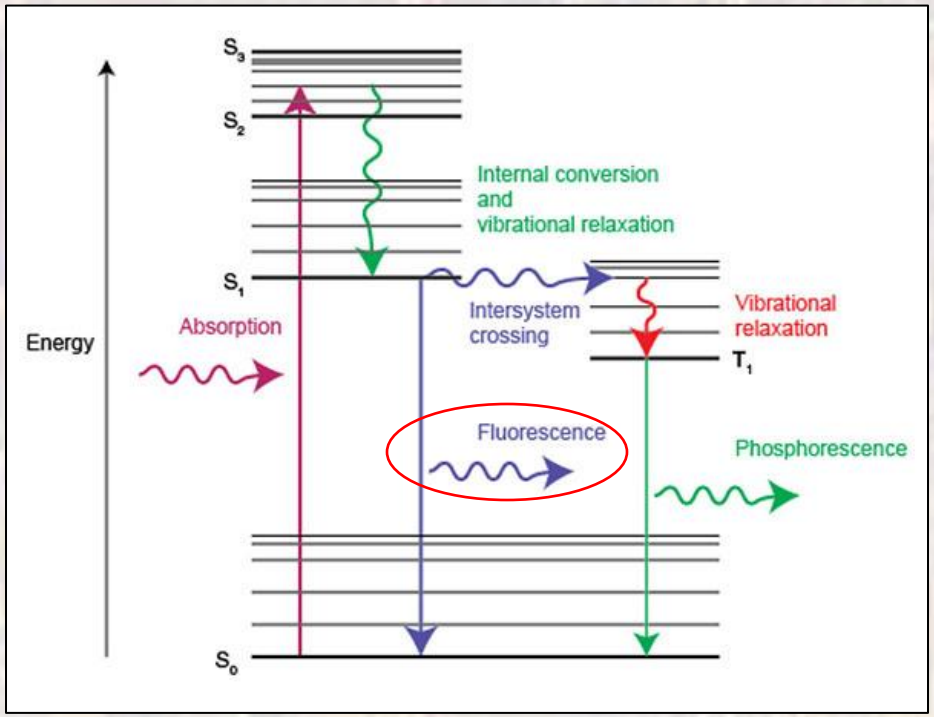


Quantum Dots

Blue Backlight

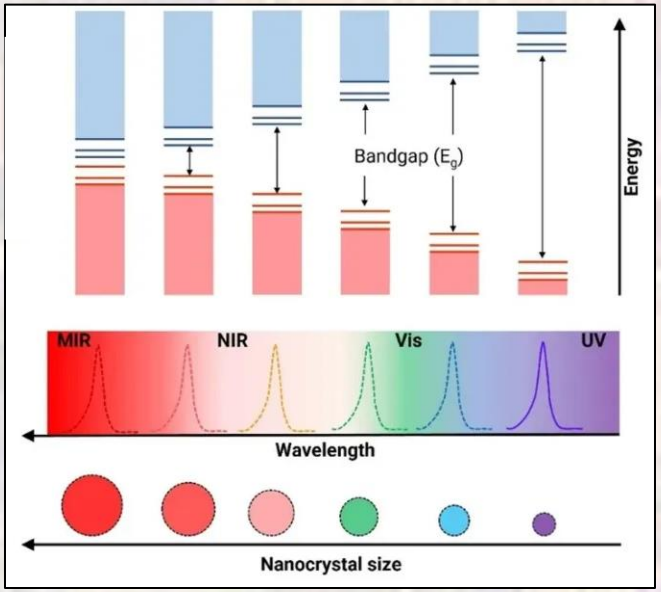
QLED Displays

- Fluorescence
  - The ability of a material to emit light at a different wavelength than the electromagnetic radiation it is exposed to.



QLED Displays

- Quantum Dot
  - Particles or nanocrystals of a semiconducting material that are fluorescent
  - Diameters in the range of 2-10 nanometers (10-50 atoms)
  - Cadmium selenide (CdSe), cadmium telluride (CdTe), indium phosphide (InP), gallium arsenide (GaAs)



QLED Displays

- Implementation
  - Additional film(s) with the quantum dot materials applied
  - Blue light backlight
    - Short wavelength
      - $E = hc/\lambda$ → high energy
      - Can create all other colors
    - Efficient – all the light energy can be used
      - White light would have energy at wavelengths that cannot be used
    - Direct emission for blue