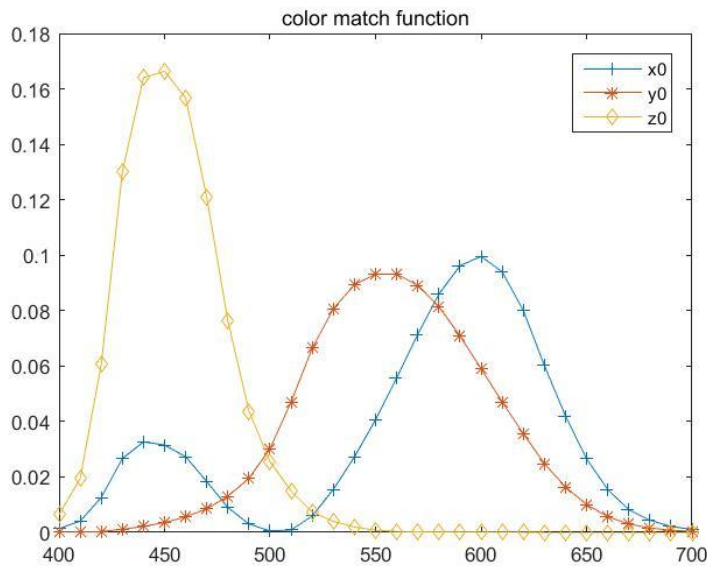


**ECE637 Lab report 6**  
**Introduction to Colorimetry**

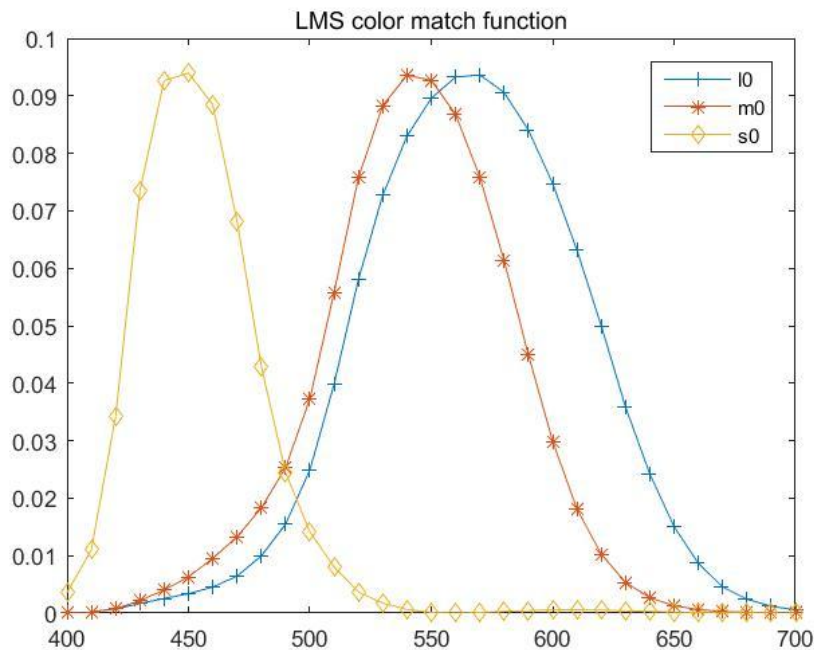
**Name: Chengzhang Zhong**

## Section 2 .Plotting Color Matching Functions and Illuminants

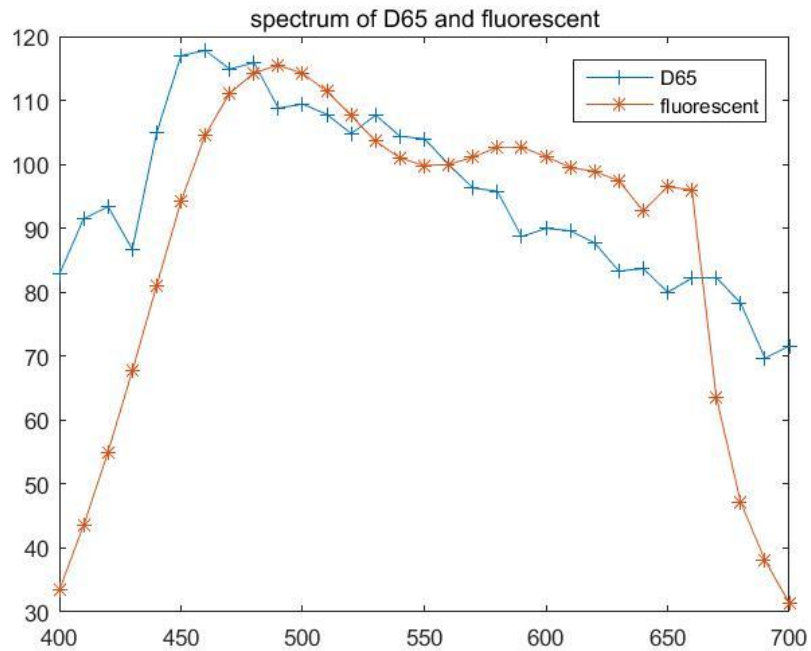
### 1. The plot of the $x_0(\lambda)$ , $y_0(\lambda)$ , and $z_0(\lambda)$ color matching functions



### 2. The plot of the $l_0(\lambda)$ , $m_0(\lambda)$ , and $s_0(\lambda)$ color matching functions

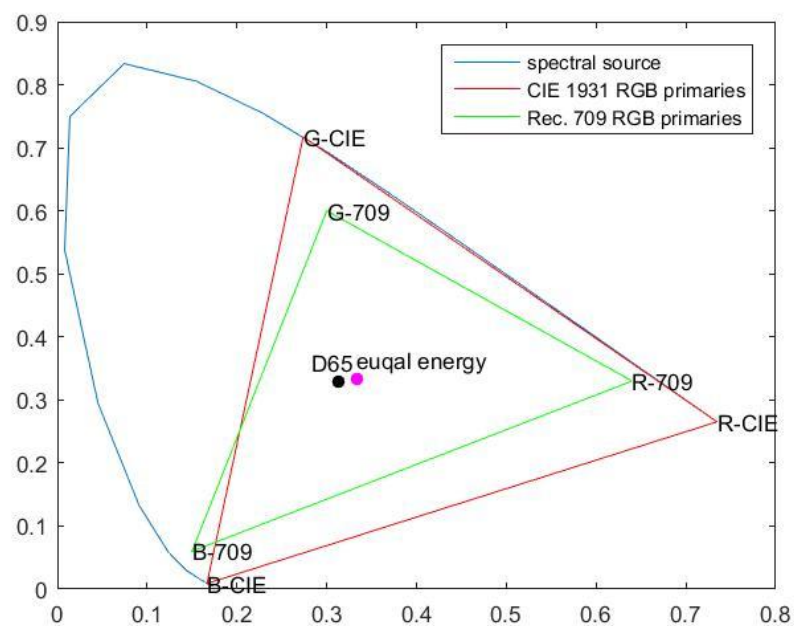


### 3. The plot of the $D_{65}$ and fluorescent illuminants.



## Session 3. Chromaticity Diagrams

### Labeled chromaticity diagram:

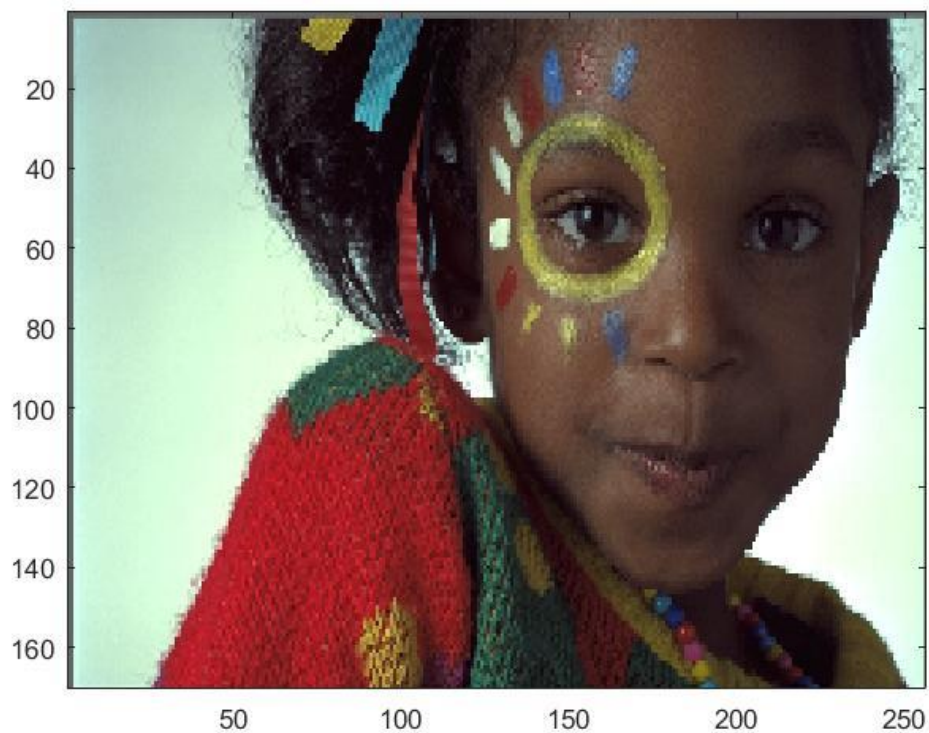


## Section 4. Rendering an Image from Illuminant, Reflectance, and Color Matching Functions

**Part 1.**The matrix  $M_{709\_D65}$  :

$$M_{709\_D65} = \begin{bmatrix} 0.4124 & 0.3576 & 0.1805 \\ 0.2126 & 0.7152 & 0.0722 \\ 0.0193 & 0.1192 & 0.9505 \end{bmatrix}$$

**Part 2.** The two images obtained from  $D_{65}$  and fluorescent light sources



**Figure 1.  $D_{65}$  light source**

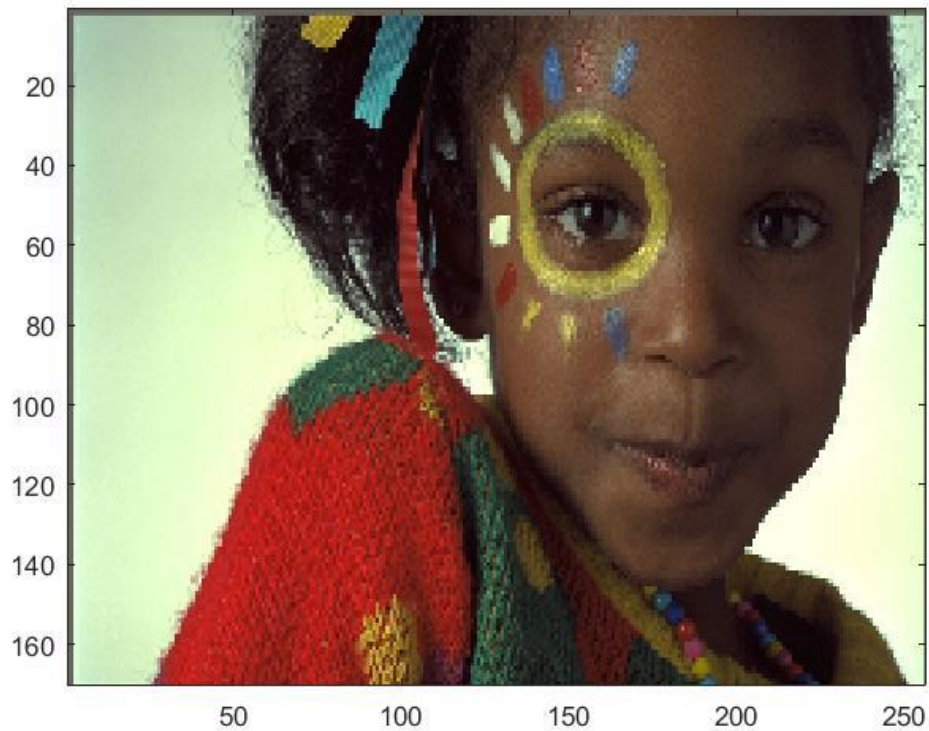


Figure 2. fluorescent light source

**Part 3. A qualitative description of the differences between the two images.**

The intensity of blue and red in image from fluorescent light source are less than  $D_{65}$  light source. That's why they look different.

## Section 5. Color Chromaticity Diagram

