

# Moderovacie a renderovacie techniky

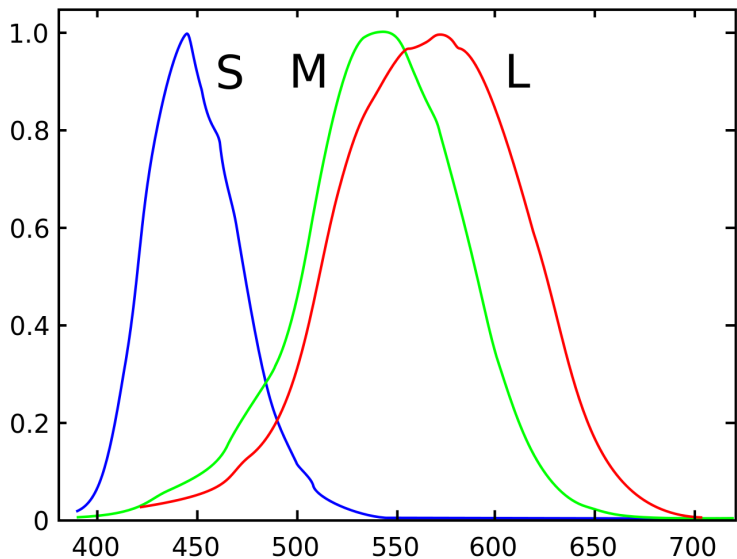
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21. septembra 2023

# Základné informácie

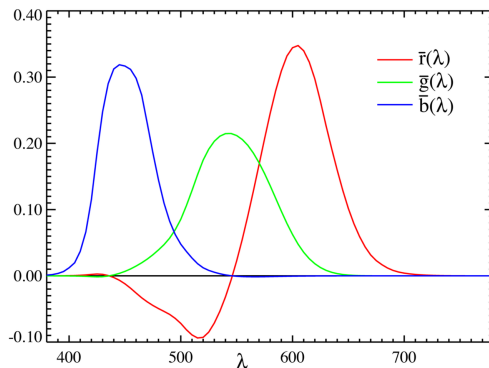
- ▶ Cvičenia vo štvrtok 14 5,0 M-V
- ▶ Bodovanie: 50 bodov za semester, 10 úloh
- ▶ Vyriešené úlohy poslať do ďalšieho cvičenia na email
- ▶ V prípade spolupráce uviesť spolupracovníka
- ▶ <https://github.com/frantisekdracek/Prezentacie/tree/main>

## Spektrálna citlivosť



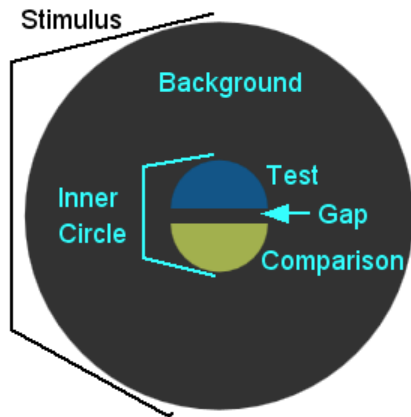
Obr.: Citlivosť ľudského oka

# Color matching



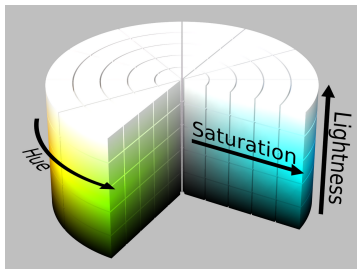
**Obv.:** Color matching: 700 nm (red), 546.1 nm (green) and 435.8 nm (blue).

# Color matching experiment



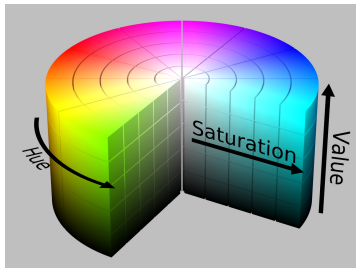
Obr.: Experiment

# Images



Obr.: HSL

- ▶ Hue: color:  $0^\circ \rightarrow R$ ,  $120^\circ \rightarrow G$ ,  $240^\circ \rightarrow B$
- ▶ Saturation: Čistota farby - od sivej po farbu
- ▶ Lightness: 0-čierna, 100-biela



Obr.: HSV

- ▶ Hue: color:  $0^\circ \rightarrow R$ ,  $120^\circ \rightarrow G$ ,  $240^\circ \rightarrow B$
- ▶ Saturation: Čistota farby - od bielej po farbu
- ▶ Value: 0 čierna, 100 farba

# RGB -> HSL

- ▶ RGB zoškálujeme na interval  $[0,1]$
- ▶  $C_{max} = \max r, g, b$ ,  $C_{min} = \min r, g, b$
- ▶  $V = C_{max}$
- ▶  $S = \begin{cases} 0 & \text{if } C_{max} = 0 \\ \frac{C_{max} - C_{min}}{C_{max}} & \text{else} \end{cases}$
- ▶  $H = 60 * \begin{cases} 0 & \text{if } C_{max} - C_{min} = 0 \\ 0 + \frac{g-b}{C_{max} - C_{min}} & \text{if } C_{max} = r \\ 2 + \frac{b-r}{C_{max} - C_{min}} & \text{if } C_{max} = g \\ 4 + \frac{r-g}{C_{max} - C_{min}} & \text{if } C_{max} = b \end{cases}$
- ▶ if  $H < 0$   $H \rightarrow H \bmod 360$

Thank you!