

Statements of

Kucsera, Itala: Modeling of human color vision based on experimental data
Ph.D Thesis

1. Statement: Cone responsivities both of normal color vision and of congenital color deficient people can be approached by two parametric Gaussian functions.

2. Statement: Color deficiency can be quantified by the squared error function of the anomalous cone responsivity functions weighted by the normal ones.

3. Statement: 8 groups can be identified among color deficient people based on functional color vision measurements.

4. Statement: The transfer functions of the color receptive cones can be described as.

L cone

$$l(s) = 0.408455 \frac{1 - 0.742888s}{(1 + 0.5s) \cdot (1 + 0.3333s + 0.0568182s^2)},$$

M cone

$$m(s) = -0.0413009 \frac{1 - 6.5s}{(1 + 0.5s) \cdot (1 + 0.3333s + 0.0568182s^2)},$$

S cone

$$s(s) = 0.245074 \frac{1 - 0.742888s}{(1 + 0.5s) \cdot (1 + 0.3333s + 0.0568182s^2)}.$$

5. Statement: Benham-effect can be modeled on the basis of the developed $l(s)$, $m(s)$ and $s(s)$ transfer functions.