

CIELAB 1976 $L^*a^*b^*$ -Farbraum und CIELAB_v 2022 $L^{*v} a^{*v} b^{*v}$ -Farbraum

$$\begin{aligned}
 L^* &= 116 (Y/Y_n)^{1/3} - 16 & [Y/Y_n]^{1/3} > 24/116 \\
 a^* &= 500 [(X/X_n)^{1/3} - (Y/Y_n)^{1/3}] & Y > 0,885 \\
 b^* &= 200 [(Y/Y_n)^{1/3} - (Z/Z_n)^{1/3}]
 \end{aligned}$$

$$\begin{aligned}
 L^{*v} &= 116 c_v (Y/Y_v)^{1/3} - 16 = L^* & Y_v=18,41 \\
 a^{*v} &= 500 c_v [(X/X_v)^{1/3} - (Y/Y_v)^{1/3}] = a^* \\
 b^{*v} &= 200 c_v [(Y/Y_v)^{1/3} - (Z/Z_v)^{1/3}] = b^*
 \end{aligned}$$

$$\begin{aligned}
 c_v &= [Y_v/Y_n]^{1/3} = 0,1841^{1/3} = 0,5689, \text{ ähnlich für } X, Z \\
 v_L &= 116c_v = 66, \quad v_a = 500c_v = 284,56, \quad v_b = 200c_v = 113,78
 \end{aligned}$$