

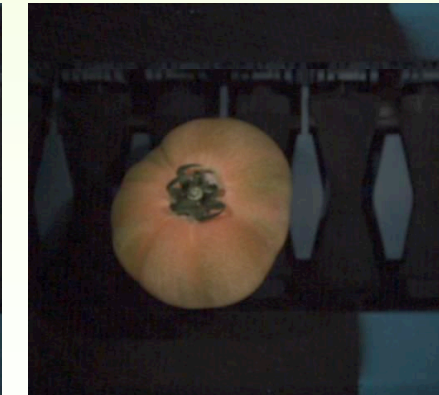
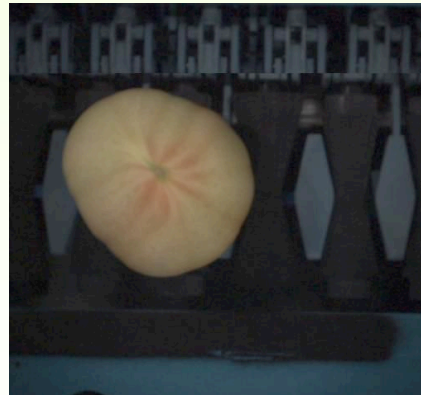
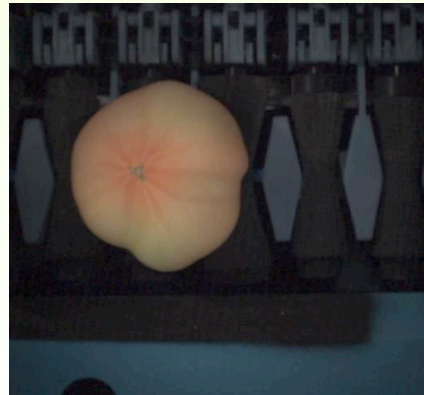
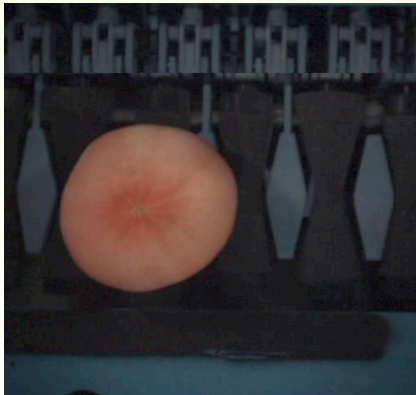
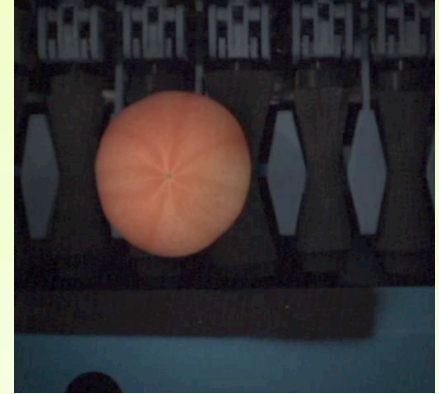
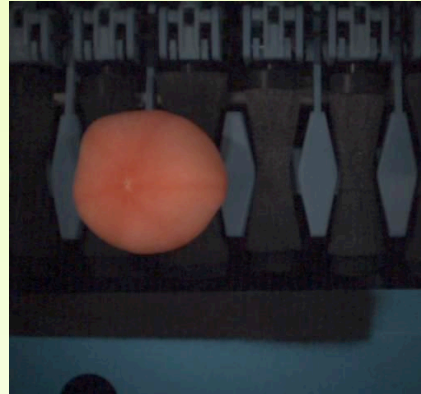
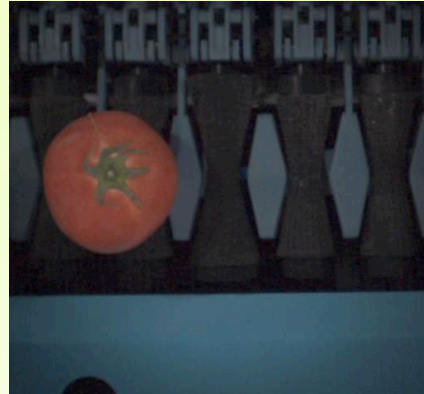
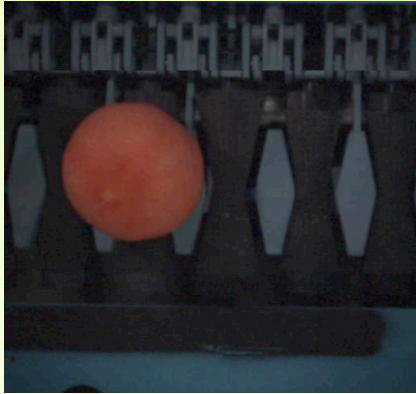
第5回

# 画像処理手法の基礎(1)

## 一色の計測一

授業の目的: 実際にPC演習室において果実を対象に色の計測を行う。RGBデータをもとに, 色度, HSIなどの色変換を行う。

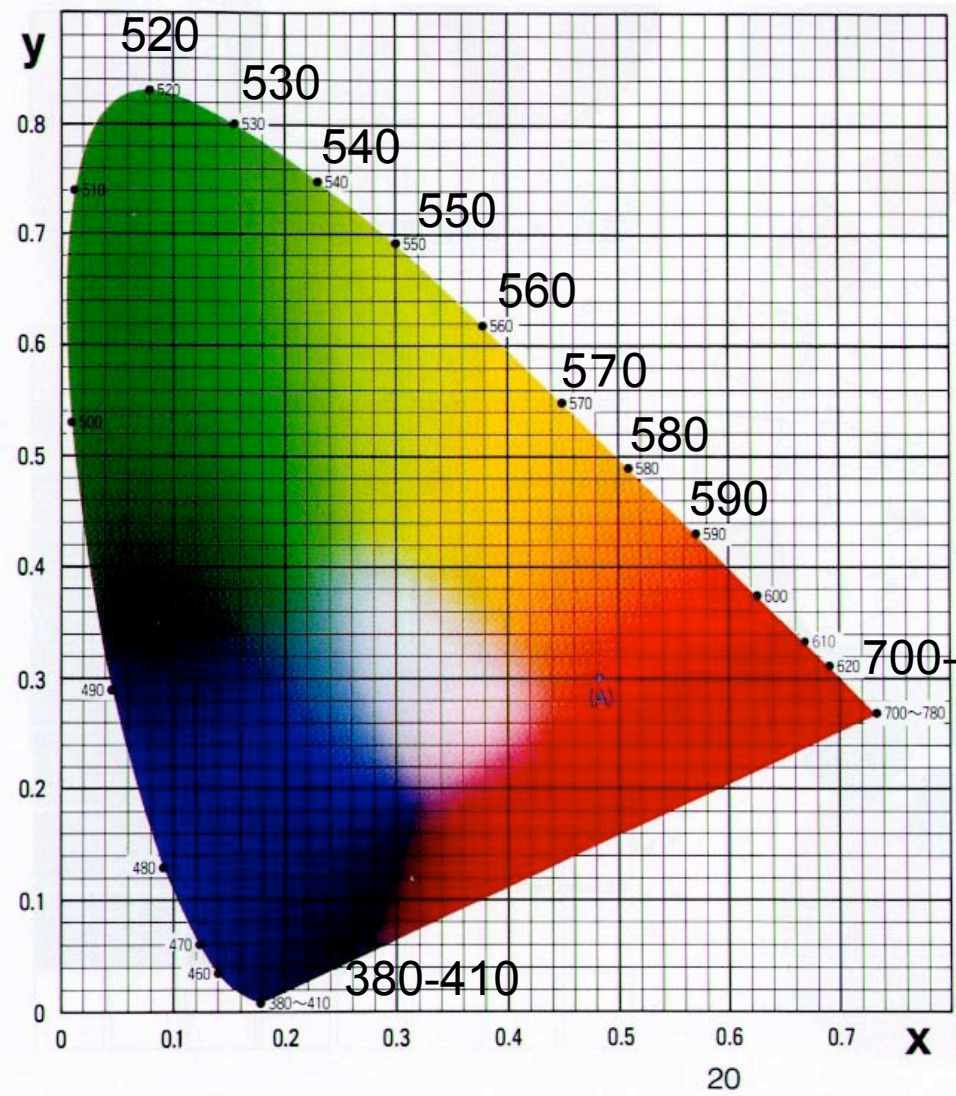
# 対象画像





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図12 XYZ表色系色度図



簡易色度の計算方法

$$R' = R_T / (R_T + G_T + B_T)$$

$$G' = G_T / (R_T + G_T + B_T)$$

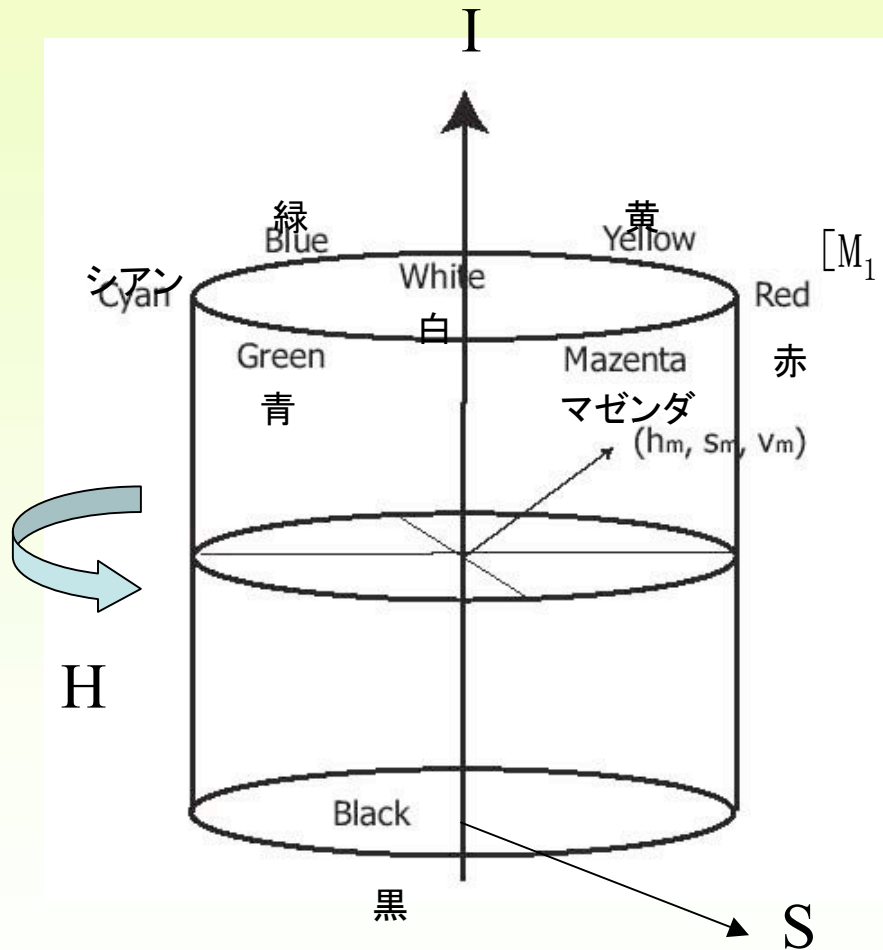
$$B' = B_T / (R_T + G_T + B_T)$$

# XYZ表色系色度図

# HSIの円柱モデル



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$$[M_1 \ M_2 \ I_1] = [R_T \ G_T \ B_T] \begin{vmatrix} 2/\sqrt{6} & 0 & 1/\sqrt{3} \\ -1/\sqrt{6} & 1/\sqrt{2} & 1/\sqrt{3} \\ -1/\sqrt{6} & -1/\sqrt{2} & 1/\sqrt{3} \end{vmatrix}$$

$$M_1 = (2/\sqrt{6}) R_T - (1/\sqrt{6}) G_T - (1/\sqrt{6}) B_T$$

$$M_2 = (1/\sqrt{2}) G_T - (1/\sqrt{2}) B_T$$

$$I_1 = (1/\sqrt{3}) R_T + (1/\sqrt{3}) G_T + (1/\sqrt{3}) B_T$$

$$H = \arctan(M_1/M_2)$$

$$S = (M_1^2 + M_2^2)^{1/2}$$

$$I = \sqrt{3} I_1$$

