

**Antagonistic Eigen and Gegen colour values  $E^*$ ,  $G^*$  and  $L^*$ ,  $X_u=Y_u=Z_u=50$**

Chromatic and tristimulus Eigen value  $E^*$  for  $X_E - Y_E > 0$ ,  $0 \leq X, Y, Z \leq 100$

$$E^* = [X_E - X_u - (Y_E - Y_u)]^{1/2} = [X_E - Y_E]^{1/2} = [X_E/Y_E - 1]^{1/2} Y_E^{1/2} = [x_E/y_E - 1]^{1/2} Y_E^{1/2}$$

Chromatic and tristimulus Gegen value  $G^*$  for  $X_E - Y_E < 0$ ,  $0 \leq X, Y, Z \leq 100$

$$G^* = -[X_E - X_u - (Y_E - Y_u)]^{1/2} = -[X_E - Y_E]^{1/2} = -[X_E/Y_E - 1]^{1/2} Y_E^{1/2} = -[x_E/y_E - 1]^{1/2} Y_E^{1/2}$$

$$\text{Eigen purity: } p_E^* = [(X_E - Y_E)/Y_E]^{1/2} = [(X_E/Y_E - 1)]^{1/2} = [(x_E/y_E - 1)]^{1/2}$$

$$\text{Gegen purity: } p_G^* = -[(X_E - Y_E)/Y_E]^{1/2} = -[(X_E/Y_E - 1)]^{1/2} = -[(x_E/y_E - 1)]^{1/2}$$

$$L_E^* = Y_E^{1/2}, L_G^* = Y_G^{1/2}$$

$$E^* = p_E^* L_E^*$$

$$G^* = -p_G^* L_G^*$$

