# General References

### Books

American Society for Testing and Materials (ASTM), *ASTM Standards on Color and Appearance Measurement*, 3rd ed., ASTM, New York (1991).

Abney, W. D. W., *Researches in Colour Vision*, Longmans, London (1913).

Berger-Schunn, A., *Practical Color Measurement*, John Wiley & Sons, New York (1994).

Berns, R. S., Billmeyer, F. W., and Saltzman, M., *Billmeyer and Saltzman's Principles of color technology*, Wiley, New York (2000).

Billmeyer, F. W. Jr., and Saltzman, M., *Principles of Color Technology*, 2nd. ed., John Wiley & Sons, New York (1981).

Byrne, A., David, R. H., and Hilbert, D. R., Eds., *Readings on Color: The Science of Color*, MIT, Cambridge, MA (1997).

Boynton, R. M., *Human Color Vision*, Holt, Rinehart and Winston, New York (1979).

CIE, *Colorimetry*, CIE Publication No. 15.2-1986, 2nd. ed., CIE, Vienna (1986).

DeCusatis, C., *Handbook of Applied Photometry*, AIP Press, New York (1999).

Doherty, P. and Rathjen, D., *The Magic Wand and Other Bright Experiments on Light and Color*, John Wiley & Sons, New York (1995).

Fairchild, M. D., *Color Appearance Models*, Addison-Wesley, New York (1997).

Fortner, B., Meyer, T. E., and Meyer, T., *Number by Colors: A Guide to Using Color to Understand Technical Data*, Springer, Berlin (1997).

Gegenfurtner, K. R. and Sharpe, L. T., Eds., *Color Vision: From Genes to Perception*, Cambridge University Press, Cambridge, UK (1999).

Giorgianni, E. J. and Madden, T. E., *Digital Color Management: Encoding Solutions*, Addison-Wesley, New York (1998).

Hunt, R. W. G., *Measuring Colour*, 2nd ed., Ellis Horwood, Sussex, UK (1991).

Hunt, R. W. G., *The Reproduction of Colour*, Fountain Press, London (1996).

Hunter, R. S. and Harold, R. W., *The measurement of appearance*, 2nd Ed., John Wiley & Sons, New York (1987).

Judd, D. B. and Wyszecki, G., *Color in Business, Science and Industry*, 3rd ed., John Wiley & Sons, New York (1975).

Kaiser, P. K. and Boynton, R. M., *Human Color Vision*, 2nd ed., Optical Society of America, Washington, DC (1996).

LeGrand, Y., *Light, Colour and Vision*, 2nd ed., Chapman and Hall, London (1968).

MacAdam, D. L., *Color Measurement: Theme and Variations*, 2nd ed., Springer, Berlin (1985).

MacAdam, D. L., Ed., *Selected Papers in Colorimetry—Fundamentals*, SPIE Press, Bellingham, WA (1993).

Minnaert, M. G. J., *The Nature of Light and Color in the Open Air*, Dover, New York (1954).

Minnaert, M. G. J. and Seymour, L., *Light and Color in the Outdoors*, Springer, Berlin (1993).

Mueller, C. G., and Rudolph, M., *Light and Vision*, Time-Life International, New York (1963).

Nassau, K., Ed., *The Physics and Chemistry of Color: The Fifteen Causes of Color*, John Wiley & Sons, New York (1983).

Nassau, K., Ed., *Color for Science, Art and Technology*, Elsevier Science B. V., Amsterdam, The Netherlands (1998).

Parsons, J. H., *An Introduction to Colour Vision*, 2nd ed., Cambridge University Press, Cambridge, UK (1924).

Rood, O. N., *Modern Chromatics, with Applications to Art and Industry*, Appleton, New York (1879).

Sanguine, S. J. and Horne, R. E. N., Eds., *The Colour Image Processing Handbook*, Chapman and Hall, London (1998).

Stiles, W. S., *Mechanisms of Colour Vision*, Academic, London (1978).

Tilley, R. J. D., *Color and the Optical Properties of Materials: An Exploration of the Relationships Between Light, the Optical Properties of Materials and Color*, John Wiley & Sons, New York (2000).

Volz, H. G. and Teaque. B. (Trans.), *Industrial Color Testing: Fundamentals and Techniques*, John Wiley & Sons, New York (1995).

Williamson, S. J., and Herman, Z. C., *Light and color in nature and art*, John Wiley & Sons, New York (1983).

Wyszecki, G., and Stiles, W. S., *Color Science: Concepts and Methods, Quantitative Data and Formulae*, 2nd ed., John Wiley & Sons, New York (1982).

### From *Scientific American*

Beck, J., "The perception of surface color," *Sci. Am.*, **233**, 62–75 (1975).

Brindley, G. S., "Afterimages," *Sci. Am.*, **209**, 85–91 (1963).

Brou, P., Sciascia, T. R., Linette. L., and Jerome, Y. L., "The colors of things," *Sci. Am.*, **255**, 80–87 (1986).

Clevenger, S., "Flower pigments," *Sci. Am.*, **209**, 84–92 (1963).

Evans, R. M., "Maxwell's color photograph," *Sci. Am.*, **205**, 112–128 (1961).

Favreau, O. E. and Corballis, M. C., "Negative after effects in visual perception," *Sci. Am.*, **235**, 42–48 (1976).

Gregory, R. L., "Visual illusions," *Sci. Am.*, **219**, 66–76 (1968).

Horridge, A., "The compound eye of insects," *Sci. Am.*, **237**, 108–120 (1977).

Kohler, I., "Experiments with goggles," *Sci. Am.*, **206**, 63–72 (1962).

Land, E. H., "Experiments in color vision," *Sci. Am.*, **200**, 84–99 (1959).

Land, E. H., "The retinex theory of color vision," *Sci. Am.*, **237**, 108–128 (1977).

Lerman, S., "Cataracts," *Sci. Am.*, **206**, 106–114 (1962).

Levine, J. S., and MacNichol, E. F., Jr., "Color vision in Fishes," *Sci. Am.*, **246**, 108–117 (1982).

MacNichol, E. F., Jr., "Three pigment color vision," *Sci. Am.*, **211**, 48–56 (1964).

Michael, C. R., "Retinal processing of visual images," *Sci. Am.*, **220**, 104–114 (1969).

Milne, L. J. and Milne, M. J., "How animals change color," *Sci. Am.*, **186**, 64–67 (1952).

Nathans, J., "The genes for color vision," *Sci. Am.*, **260**, 28–35, (1989)

Nassau, K., "The causes of color," *Sci. Am.*, **243**, 124–152 (1980).

Neisser, U. "The processes of vision," *Sci. Am.*, **219**, 204–214 (1968); reprinted in *Lasers and Light*, Schawlow, A. L., Ed., W. H. Freeman, San Francisco (1969).

Newman, E. A., and Hartline, P. H., "The infrared vision of snakes," *Sci. Am.*, **246**, 98–107 (1982).

Nijhout, H. F., "The color patterns of butterflies and moths," *Sci. Am.*, **245**, 104–115 (1981).

Pettigrew, J. D., "The neurophysiology of binocular vision." *Sci. Am.*, **227**, 84–95 (1972).

Rushton, W. A. H., "Visual pigments in man," *Sci. Am.*, **207**, 120–132 (1962).

Rushton, W. A. H., "Visual pigment and color blindness," *Sci. Am.*, **232**, 64–77 (1975).

Smith, N., "Color television," *Sci. Am.*, **182**, 13–15 (1950).

Thimann, K. V., "Autumn colors," *Sci. Am.*, **182**, 40 (1950).

Timberge, N., "Defense by color," *Sci. Am.*, **197**, 48–54 (1957).

Van Heyningen, R., "What happens to the human lens in cataract," *Sci. Am.*, **233**, 70–81 (1975).

Wallach, H., "The perception of neutral colors," *Sci. Am.*, **208**, 107–116 (1963).

White, H. E. and Levatin, P., "'Floaters in the eye," *Sci. Am.*, **206**, 119–127 (1962).

Wolfe, J. M., "Hidden visual processes," *Sci. Am.*, **248**, 72–85 (1983).

Young, R. W., "Visual cells," *Sci. Am.*, **223**, 80–91 (1970).

### Review Articles

Boynton, R. M., "Color vision," *Annu. Rev. Psychol.*, **39**, 69–100, 1988.

Boynton, R. M., "History and current status of a physiologically based system of photometry and colorimetry," *J. Opt. Soc. Am. A*, **13**, 1609–1621 (1996).

Luria, S. M., "Color vision," *Phys. Today*, **19**, 34-41 (1966).

MacAdam, D. L., "Color photography," *Phys. Today*, **20**, 27-39 (1967).

MacAdam, D. L., "Color essays," *J. Opt. Soc. Am.*, **65**, 483–493 (1975).

Mollon, J. D., "Color vision," *Annu. Rev. Psychol.*, **33**, 41–85 (1982).

Robertson, A. R., "Color perception," *Phys. Today*, **45**, December, Pags. 24–29 (1992).

Wald, G., "Human vision and the spectrum," *Science*, **101**, 653–658 (1945).

Wintringham, W. T., "Color television and colorimetry," *Proc. IRE*, **39**, 1135–1172 (1951).

### Internet Sites

International Commission on Illumination

This is the official site of the International Commission on Illumination (CIE). It contains the information on all color standards.

http://www.cie.co.at

Efg's Color Library

This page contains a very large amount of color information, with many web addresses, classified in three subjects: (a) General Color Information, (b) Color Science/Theory, and (c) Color and Computers.

http://www.efg2.com/Lab/Library/Color/

Color and Vision Research Laboratories, Institute of Opthalmology, London

These Web pages provide a very good library of easily downloaded standard data sets relevant to color and vision research. The focus of this site is primarily scientific and technical.

http://www.cvrl.org/

The Coloring Info Pages

This site contains some interesting information. Of special interest are some calculators to convert coordinates between different color systems.

http://www.colorpro.com/info/

Color Science

This web page by the Department of Physics and Astronomy of the Stephen F. Austin State University has a lot of interesting educational information about color science.

http://www.physics.sfasu.edu/astro/color.html

Coordinate Converter

This is a web page by the Lappeerants University of Technology in Finland. It has several interesting demonstrations and color coordinate converters, and it includes some links to other color sites.

http://www.it.lut.fi/research/color/coordinates/coordinates.html

Linocolor

This page is by the Linocolor Company. It has some interesting educative color pages.

http://www.linocolor.com/

# Index

**Daniel Malacara** obtained his B.Sc. in Physics in 1961 from the National University of Mexico and his Ph.D. in Optics in 1965 from the University of Rochester. At that time, he joined the Institute of Astronomy of the National University of México, and in 1972 he joined the *Instituto Nacional de Astrofísica, Optica y Electrónica*. He promoted the creation of the *Centro de Investigaciones en Optica* and served as its first General Director from 1980 to 1989. He was the Rudolf and Hilda Kingslake Professor at the University of Rochester in 1989 and 1990.

Dr. Malacara's central field of activity is optical testing and optical instrumentation. His scientific contributions include more than one hundred papers in well-known optics journals, and he has been the author and editor of several books in optics. His most widely acknowledged book, *Optical Shop Testing*, has been translated into several languages. He is a fellow of both SPIE, and the Optical Society of America (OSA). He has been vice president of the International Commission for Optics (ICO), a topical Editor for *Applied Optics*, and he has been a co-organizer of many international scientific meetings. In 1986 he received the Mexican National Prize for Technology; in 1994, SPIE's Conrady Award; and, in 1997, the ICO Galileo Galilei Prize.