

Mark D. Fairchild

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Physical:	Munsell Color Science Laboratory College of Science Rochester Institute of Technology One Lomb Memorial Drive Rochester, New York 14623 +1 585 475 2784
Education:	Ph.D., 1990 M.A., 1989 Vision Science (Human Sensation and Perception), URochester M.S., 1986 B.S., 1986 <i>summa cum laude</i> Imaging Science, Rochester Institute of Technology
Appointments:	June 2017 - present Rochester Institute of Technology Founding Head, Integrated Sciences Academy Professor & Director, PoCS / MCSL Aug. 2010 - May 2017 Rochester Institute of Technology Associate Dean of Research & Graduate Education, College of Science Professor & Director, PoCS / MCSL <i>Color Science Program Director, 2008 - 2011</i> <i>Director, Munsell Color Science Lab, 2013 - 2017</i> <i>Director, Program of Color Science, 2013 - 2017</i> July 1999 - Aug. 2010 Rochester Institute of Technology Professor, Imaging Science <i>Director, Munsell Color Science Lab, 1996 - 2008</i> <i>Xerox Professor of Color Science, 2003 - 2006</i> July 1997 - Aug. 1998 Cornell University Visiting Associate Professor, Computer Graphics July 1994 - June 1999 Rochester Institute of Technology Associate Professor, Imaging Science <i>Color Science M.S. Coordinator, 1991 - 1994</i> <i>Imaging Science Ph.D. Coordinator, 1994 - 1996</i> <i>Director, Munsell Color Science Lab, 1996 - 1999</i> July 1990 - June 1994 Rochester Institute of Technology Assistant Professor, Imaging Science <i>Awarded Tenure: September 1993</i> July 1987 - June 1990 Rochester Institute of Technology Instructor, Imaging Science July 1986 - June 1987 Rochester Institute of Technology Instructor, Color Science

March 1986 - May 1986 Rochester Institute of Technology
Adjunct Faculty, Department of Color Science

Sept. 1983 - May 1986 Rochester Institute of Technology
Research Assistant, Munsell Color Science Lab
Student Assistant, Chemistry Library
Mathematics & Physics Tutor, Special Services

Distractions in Viticulture & Enology:

University of California-Davis Winemaking Certificate, expected 2021
Cornell University Viticulture & Enology Experience, CUVÉE, 2010
University of Adelaide World of Wine: From Grape to Glass, 2016
UC-Davis Wine Tasting: Sensory Techniques for Wine Analysis, 2019
New York Wine and Grape Foundation, New York Wine Industry Certificate, 2017
Wine and Spirits Education Trust (WSET) Level 2 Award in Wines and Spirits
with Merit, 2017
Wine and Spirits Education Trust (WSET) Level 3 in Wine (*program only*), 2018
Wine and Spirits Education Trust (WSET) Level 4 in Wine (*program only*), 2018-20
Society of Wine Educators Certified Specialist of Wine (*program only*), 2017-18
Society of Wine Educators Certified Specialist of Spirits (*program only*), 2018

Biographical Sketch:

Mark Fairchild was born and raised in Trumansburg, New York where he graduated with honors from C.O. Dickerson High School. He entered Rochester Institute of Technology as a freshman in the Photographic Science program and graduated four years later with B.S. and M.S. degrees from that program, which had been renamed Imaging Science. He was a research assistant to Prof. Franc Grum in the newly formed Munsell Color Science Laboratory. Upon completion of his B.S. and M.S. degrees, he joined the Department of Color Science at R.I.T. and currently holds a tenured faculty position in the Program of Color Science (PoCS) and Munsell Color Science Laboratory (MCSL). He undertook a Ph.D. program at Rochester's Center for Visual Science, while continuing his work at R.I.T., earning that degree in 1990 after two and a half years of study. From 1996 to 2008, he was Director of the Munsell Color Science Laboratory, overseeing significant growth and the move to Color Science Hall, which has been renamed the "Munsell Color Science Laboratory". In 2010, he was appointed Associate Dean of Research and Graduate Education of RIT's College of Science. While continuing his work as Associate Dean, he resumed leadership roles in color science in 2013 by becoming the Director of MCSL and founding Director of PoCS. In 2017, Mark became founding Head of the Integrated Sciences Academy within RIT's College of Science while remaining Director of PoCS and MCSL, which became part to of the Integrated Sciences Academy. The Integrated Sciences Academy is a novel academic unit that houses multidisciplinary science programs and promotes multidisciplinary research and education. Dr. Fairchild has been actively involved in research in the areas of colorimetric measurement and standardization, color perception, color vision, color-appearance modeling, digital color reproduction, image quality, and computer graphics. He has authored/co-authored more than 400 papers, presentations, and technical reports in those areas, including more than 100 peer-reviewed journal articles. He has also supervised the graduate research of over 60 M.S. or Ph.D. students. The third edition of his book, *Color Appearance Models*, was published in 2013, following on the publication of the successful second edition in 2004 and first edition in 1997. Mark also co-edited of the 2015 *Handbook of Color Psychology*. He spent the 1997-98 academic year on sabbatical leave as a Visiting Associate Professor in Cornell University's Program of Computer Graphics, a 2007 sabbatical creating the HDR Photographic Survey and The Color Curiosity Shop, and is planning a 2022-23 sabbatical to conceive a new system of colorimetry. Additional activities, honors, and awards are listed below.

Professional Affiliations:

ISCC (Inter-Society Color Council)*

Co-Chair, IG #II, Appearance, Vision, & Modeling, 1991-1992
Chair, IG #I, Basic & Applied Color Research, 1992-1995
Board of Directors, 1995-1998
Chair, 67th Annual Meeting, 1998 (with OSA)
Program Committee, 2nd Panchromatic Conference, 2000
Macbeth Award Committee, 2004-2010
Liaison with OSA, 2015-Present
ISCC / AIC 2018 Munsell Celebration, Papers Chair, Core Committee, 2016-2018
ISCC / AIC Color Literacy Project, Consultant, 2019-present

IS&T (Society for Imaging Science and Technology)*

Fellow, 2003
Technical Committee, SPIE/IS&T EI Image Quality & System Performance Conference, 2003-2015
Color Imaging Editor, J.Im.Sci.Tech., 1999-2002
Scientific Technical Committee, CGIV 2002, 2008
General Chair, PICS Conference, 2003
Image Science Track Chair, International Congress of Imaging Science, 2006

VSS (Vision Sciences Society)*

OSA Color Technical Group*

OSA Vision Technical Group*

OSA Applications of Visual Science Technical Group*

OSA (The Optical Society)

Fellow, 2012
Senior Member, 2010
Voting Delegate to ISCC, 1990-2015
Liaison with ISCC, 2015-2019
Representative to CIE, 2003-2019
Councilor, Rochester Section, 1996-1997

CLSC (Chautauqua Literary & Scientific Circle)*

TS (The Thoreau Society)*

SWE (Society of Wine Educators)

AIC (International Color Association)

AIC2015 / MCS2015 International Scientific Committee, 2014-2015
AIC2017 International Scientific Committee, 2016-2017
AIC / ISCC 2018 Munsell Symposium, Papers Chair, 2016-2018

AAAS (American Association for the Advancement of Science)

USNC - CIE (Commission International de L'Éclairage)

Chair, TC1-34, Testing Colour Appearance Models, 1991-1999
Reporter, R1-24, Colour Appearance Models, 1999-2003
Reporter, R8-05, Image Appearance, 2003-2008
Reporter, R8-08, Image Appearance Model Framework, 2008-2010
Member, TC1-27, Specification of Colour Appearance for Reflective Media and Self-Luminous Display Comparisons, 1990-2011
Member, TC1-48, Revision of CIE Document 15.2 Colorimetry, 1997-2004
Member, TC1-52, Chromatic Adaptation Transforms, 1998-2005
Member, TC1-55, Uniform Colour Space for Industrial Colour Difference Evaluation, 2005-2016
Member, TC1-56, Improved Colour Matching Functions, 1999-2009
Member, TC1-60, Contrast Sensitivity Function for Detection and Discrimination, 2002-2011
Member, TC1-75, A Comprehensive Model of Colour Appearance, 2009-2015
Member, TC1-82, The Calculation of Colour Matching Functions as a Function of Age and Field Size, 2012-2015
Member, TC8-01, Colour Appearance Modeling for Colour Management Applications, 1998-2005
Member, TC8-02, Colour Difference Evaluation in Images, 2000-2011
Member, TC8-03, Gamut Mapping, 1998-2006
Member, TC8-08, Testing of Spatial Color Appearance Models, 2003-2008
Member, TC8-10, Office Lighting for Imaging, 2006-2015
Member, TC8-11, CIECAM02 Mathematics, 2007-2016
Advisor, JTC10, CAM16, 2017-2017

SID (Society for Information Display)

Technical Co-Chair, IS&T/SID Color Imaging Conference, 1994

Technical Committee, IS&T/SID Color Imaging Conference, 1994-2004

CORM (Council for Optical Radiation Measurements)

ACM-SIGGRAPH (Association for Computing Machinery-Special Interest Group on Graphics)

Program Committee, Symposium on Applied Perception in Graphics and Visualization, 2006-2010

IEEE

Transactions on Image Processing, Associate Editor, Special Issue on Color, 1997

Workshop on Color and Photometric Methods in Computer Vision, Program Committee, 2003

Multispectral Color Science

Technical Committee, 2001

International Workshop on Video Processing and Quality Metrics

Technical Program Committee, 2006-2014

American Society of Cinematographers

Member, Technology Committee Advanced Imaging Group, 2004-Present

TASCII (Tsinghua University Art & Science Research Centre, Color & Imaging Institute)

Member, TASCII Advisory Board, 2010-Present

HCCB (Houston Center for Biomaterials and Biomimetics of The University of Texas Dental Branch at Houston)

Adjunct Senior Scientist, 2011-Present

TandemLaunch, Inc.

Fellow, 2015-Present

(* = current member)

Honors & Awards:

2018 Nickerson Service Award (Inter-Society Color Council)

2017 Society of Motion Picture and Television Engineers (SMPTE) Journal Certificate of Merit Award

2012 Scientific Divulcation Award of the University of Granada (Awarded 2013)

2012 Fellow, The Optical Society (OSA)

2010 Senior Member, The Optical Society (OSA)

2008 Raymond C. Bowman Award (IS&T)

2007 Davies Medal (Royal Photographic Society)

2003 Fellow, Society for Imaging Science & Technology (IS&T)

2002 Macbeth Award (Inter-Society Color Council)

1995 C. James Bartleson Award (The Colour Group of Great Britain)

Best Paper Award, *VPQM 2010 - International Workshop on Video Processing and Quality Metrics* (Fairchild)

Best Paper Award, *2007 ITE/SID International Display Workshops* (M. Sakurai et al.)

MERL Best Student Paper Award, *2013 IS&T Color & Imaging Conference* (Y. Asano et al.)

Best Poster Presentation, *2007 IS&T/SID Color Imaging Conference* (Fairchild)

Best Poster Presentation, *2004 IS&T/SID Color Imaging Conference* (R.Patil, Fairchild and Johnson)

10-Year Author Award, *2002 IS&T/SID 10th Anniversary Color Imaging Conference*

Best Poster Presentation, *1997 IS&T/SID Color Imaging Conference* (G.Braun and Fairchild)

Best Poster Presentation, *1995 IS&T/SID Color Imaging Conference* (K.Braun and Fairchild)

Images in the RPS Collection of the National Science+Media Museum (Bradford, UK)

Image in the ISCC/AIC Munsell 2018 Symposium Art Show (Boston)

Xerox Distinguished Lectureship

NYSTAR-CEIS Technology Transfer Award

IBM Faculty Award

Du Pont Young Professor Grant

Numerous Industrial & Government Research Grants & Contracts

SPSE (IS&T) Raymond Davis Scholarship, 1986

NALC William C. Doherty Scholarship, 1982

National Merit Letter of Commendation

New York State Regents Scholarship

Highest Avg. in Mathematics, Greatest Proficiency in Science (C.O. Dickerson High School)

Graduate Students Supervised, Topics: (*=Ph.D.)

Amy North, Investigation of Observer Variability in Color Matching Functions
Mike Stokes, Colorimetric Tolerances of Digital Images
Brian Rose, Color Logic: Interactively Defining Color in the Context of Computer Graphics
Nathan Moroney, Color Space Selection for JPEG Image Compression
Elizabeth Pirrotta, Testing Chromatic-Adaptation Models Using Object Colors
Audrey Lester, Color Reproduction of CRT-Displayed Images as Projected Transparencies
Mike Mongeon, Image Transformation into Device-Independent Color ...
Rick Alvin, Computational Analysis of Observer Metamerism in Cross Media Color Matching
Susan Farnand, Effect of Image Content on Color Difference Perception
*Karen Braun, Color-Appearance Modeling for Cross-Media Image Reproduction
Cathy Daniels, Effect of Surround on Perceived Lightness Contrast of Pictorial Images
Dalei Huang, Monte Carlo Simulation of 2AFC Experiments
Jack Rahill, Sensitivity Analysis of Nayatani's Color Appearance Model
Chris Hauf, Iris Explorer Modules for Color Appearance and Reproduction
Alex Vaysman, Color Image Quantization and Spatial Resolution
Mihai Cuciurean-Zapan, Color Preference Reproduction of Ink-Jet Prints
Garrett Johnson, High-Resolution Spectral Computer Image Synthesis
*Fritz Ebner, Preferred Color Reproduction, Gamut Mapping, and Constant Hue Perception
Mark Shaw, Evaluation of Color Matching Functions and Observer Metamerism
Barb Grady, Illuminant Sensitivity of Printing Materials
Richard Suorsa, Color Identification under Simulated Chromatic Illumination
Kathy Loj, Impact of ICC Monitor Profile Settings on Printed Images
Jonathan Phillips, Evaluation of S-CIELAB using Halftone Color Patches
*Gus Braun, Color Gamut Mapping Algorithms
Susan Lubecki, Performance Testing of ICC Profiles,
Sharron Henley, Color Appearance for Cross-Media Comparisons in Mixed Adaptation
Sergio Gonzalez, Fluorescence Spectrophotometry of Printing Materials
Michael Sanchez, Lightness of Chromatic Video Colors
Sun Ju Park, Black-Point Adaptation
Meredith Graham, Color Image Quantization
Jason Gibson, Color Discrimination in Images on Various Displays
Barb Grady, Ink Jet Ink Optimization
Scot Fernandez, Color Preference Reproduction
Anthony Calabria, Image Contrast Perception and Modeling
Jason Babcock, Eye-Movements in Color Imaging Psychophysics
David Robinson, Psychophysical Red on EP Prints
*Garrett Johnson, Image Quality Metrics
Scot Fernandez, Measuring Preferences with an Image Difference Metric
*Qun Sun, Spectral, Portraiture and Image Quality
Xiaoyun Jiang, Illuminant Estimation Algorithms
Xiaoyan Song, Chromatic Noise Perception and Modeling
Rohit Patil, Image Rendering for Print Simulation
Jim Leland, Image Processing Bi-Spectral Fluorescence Matrices
Jim Hewett, Computing the Appearance of Mars Rover Images
Tim Hattenberger, Augmented Reality and Image Difference Perception
Joseph Stellbrink, Visual Masking of Display Defects
*Jiangtao Kuang, High-Dynamic-Range Image Tone Mapping
Ken Fleisher, Perceptual Image Categories
*Hongqin Zhang, Visualization of Spectral Image Information
Abhijit Sarkar, Assessment of Moving Image Quality
Stacey Casella, Expansion of Content to Fill WCG Displays
*Rod Heckaman, Perceptual Color Gamuts and Brilliance
John Grim, Review of Gamut Mapping

Ping-Hsu Chen, Lightness Perception Above Diffuse White
*Susan Farnand, Image Content in Image Quality Assessment
*Adrià Forés Herranz, Measuring and Modeling Gloss Appearance
*Yuta Asano, Observer Metamerism and Observer Categories
*David Long, Spectral Imaging in Motion Picture Science
Christopher Thorstenson, Measuring Physiological Changes in Skin Color
Morteza Maali Amiri, Spectral Reconstruction from RGB Images and Cone Responses
*Fu Jiang, HDR-WCG Appearance
*Adi Robinson, Image Quality & Usability in Medical Displays
*Hao Xie, Color Appearance Scales

Books:

A. Elliott, M.D. Fairchild, and A. Franklin, Eds. *Handbook of Color Psychology*, Cambridge University Press, Cambridge, UK (2015).

M.D. Fairchild, *Color Appearance Models, Third Edition*, Wiley-IS&T Series in Imaging Science and Technology, Chichester, UK (2013).

M.D. Fairchild and M. Melgosa, *La Tienda de las Curiosidades Sobre el Color (The Color Curiosity Shop, Spanish Translation)*, Editorial Universidad de Granada (2012).

M.D. Fairchild, *The Color Curiosity Shop, Abridged Edition*, MDF, Honeoye Falls, (2011).

M.D. Fairchild, *The Color Curiosity Shop*, MDF, Honeoye Falls, (2011).

M.D. Fairchild, *The HDR Photographic Survey*, MDF, Honeoye Falls, (2008).

M.D. Fairchild, *Color Appearance Models, Second Edition*, Korean Translation, Sigma Press, Seoul (2007).

M.D. Fairchild, *Color Appearance Models, Second Edition*, Wiley-IS&T Series in Imaging Science and Technology, Chichester, UK (2005).

M.D. Fairchild, *Color Appearance Models*, Addison-Wesley, Reading, MA (1998).

Internet Resources:

The HDR Photographic Survey, <mcs1.rit.edu/fairchild/HDR.html>.

Color Curiosity Shop, <whyiscolor.org>.

Ask A Color Scientist, <mcs1.rit.edu>.

Publications & Presentations (*Invited Presentations Follow Below*):

S. Abasi, M.A. Tehran, and M.D. Fairchild, Color metrics for image edge detection, *Color Research and Application* **44**, **submitted** (2019).

C. Thorstenson, M.D. Fairchild, and J.C. Anderson, Estimating skin spectral reflectance during physiological change using a digital camera, *Color Research and Application* **44**, **submitted** (2019).

S. Abasi, M.A. Tehran, and M.D. Fairchild, Distance metrics for very large color differences, *Color Research and Application* **44**, **in press** (2019).

A. Robinson and M.D. Fairchild, Comparing medical grade to commercial grade display in a radiation oncology department, *Medical Dosimetry* **44**, **in press** (2019).

F. Jiang, M.D. Fairchild, and K. Masaoka, Perceptual estimation of diffuse white level in HDR images, *IS&T 27th Color and Imaging Conference*, Paris, **in press** (2019).

S. Farnand, R. Ramchandran, and M.D. Fairchild, Color vision differences following retinal detachment and subsequent cataract surgery, *IS&T 27th Color and Imaging Conference*, Paris, **in press** (2019).

S. Farnand, R. Ramchandran, and M.D. Fairchild, Color vision differences following retinal detachment and subsequent cataract surgery, *Journal of Imaging Science and Technology* **63**, **in press** (2019).

M.D. Fairchild, What sets the state of chromatic adaptation?, *OSA Fall Vision Meeting*, Washington, D.C., *Journal of Vision* **19**, **in press** (2019).

K. Masaoka, F. Jiang, M.D. Fairchild, and R.L. Heckaman, Analysis of color volume of multi-chromatic displays using gamut rings, *Journal of the Society for Information Display* **50**, **in press** (2019).

M.D. Fairchild, Curious Kids: How do my eyes adjust to the dark and how long does it take?, *The Conversation*, Oct. 3, (2019). <<https://theconversation.com/curious-kids-how-do-my-eyes-adjust-to-the-dark-and-how-long-does-it-take-124044>>

K. Masaoka, F. Jiang, M.D. Fairchild and R.L. Heckaman, Color gamut of multi-chromatic displays, *SID International Symposium Digest of Technical Papers* **50**, 861-864 (2019).

M.D. Fairchild, CIE 015:2018 Colorimetry, 4th Edition, *Color Research and Application* **44**, 10.1002/col.22387 674-675 (2019).

F. Jiang, K. Masaoka and M.D. Fairchild, Subjective verification for color gamut volume of HDR WCG display, *ITE/SID 25th International Display Workshops*, Nagoya, invited paper VHF7 - 2 (2018).

A. Robinson and M.D. Fairchild, Recreating the Munsell crayon color spectrum, *Color Research and Application* **43**, 10.1002/col.22265 811-814 (2018).

M.D. Fairchild, Opponency - Red Spruce Cone Bud, *Color Research and Application* **43**, 10.1002/col.22318 810-810 (2018).

M.D. Fairchild, Unique hues & principal hues, *Color Research and Application* **43**, 10.1002/col.22261 804-809 (2018).

F. Jiang, M.D. Fairchild, and K. Masaoka, Estimation of HDR WCG display color gamut volume, *IS&T 26th Color & Imaging Conference*, Vancouver, 344-349 (2018).

M.D. Fairchild, One wine many colors, *IS&T 26th Color & Imaging Conference*, Vancouver, (2018).

M.M. Amiri and M.D. Fairchild, A strategy towards spectral and colorimetric color reproduction using ordinary digital cameras, *Color Research and Application* **43**, 10.1002/col.22231 675-684 (2018).

S. Cai and M.D. Fairchild, Bidirectional individual corresponding colors data, *Color Research and Application* **43**, 10.1002/col.22228, 643-654 (2018).

S. Morillas and M.D. Fairchild, Using supra threshold color-difference ellipsoids to estimate any perceptual color-difference, *Journal of Visual Communication and Image Representation* **55**, 10.1016/j.jvcir.2018.05.022 142-148 (2018).

M.D. Fairchild, Munsell's legacy: Foundation and Laboratory, ISCC-AIC Munsell Centennial Color Symposium, Boston (2018).

S. Morillas and M.D. Fairchild, A supra threshold color-difference ellipsoids hybrid model for color differences, ISCC-AIC Munsell Centennial Color Symposium, Boston (2018).

A. Robinson and M.D. Fairchild, Recreating the Munsell color crayon color spectrum, ISCC-AIC Munsell Centennial Color Symposium, Boston (2018).

K. Masaoka, F. Jiang, M.D. Fairchild and R.L. Heckaman, 2D representation of display color gamut, *SID International Symposium Digest of Technical Papers* **49**, 1048-1051(2018).

M.D. Fairchild, The colors of wine, *International Journal of Wine Research* **10**, 13-31(2018).

M.J. Murdoch and M.D. Fairchild, Modeling the effects of inter-observer variation on color rendition, *Lighting Research and Technology* **49**, 10.1177/1477153517744387, 1-18(2017).

M.D. Fairchild, Individual differences in color matching & adaptation and illumination, *OSA Fall Vision Meeting*, Washington, D.C., *Journal of Vision* **17**, 10.1167/17/15/2a (2017).

M.D. Fairchild, Color perception: Contexts and individuals, *American Glass Guild Proceedings*, Rochester, (2017).

M.M. Amiri and M.D. Fairchild, Use of spectral sensitivity variability in reflectance recovery from colorimetric information, *Journal of the Optical Society of America A* **34**, 1224-1235 (2017).

B. Zhou, K. Grotton, A. Kruse, A. Skinner, S. DoVale, S. Farnand and M.D. Fairchild, Observer calibrator for color vision research, *IS&T Electronic Imaging 2017 Conference*, IQSP XIV, San Francisco, 59-63 (2017).

M.D. Fairchild, Spotlight Summary of "Method to determine degrees of consistency in experimental datasets of perceptual color differences" by Morillas et al., *OSA Spotlight on Optics*, Nov. (2016).

M.D. Fairchild, Individual differences in color matching and adaptation: Theory and practice, *IS&T 24th Color & Imaging Conference*, San Diego, 115-120 (2016).

M.J. Murdoch and M.D. Fairchild, Effects of inter-observer variation on color rendering metrics, *IS&T 24th Color & Imaging Conference*, San Diego, 187-191 (2016).

S. Cai and M.D. Fairchild, Individual corresponding colors data and chromatic adaptation transform, *IS&T 24th Color & Imaging Conference*, San Diego, 248-253 (2016).

M.D. Fairchild, From photon to brain: The perception of a color, *IS&T 24th Color & Imaging Conference*, San Diego, 291-293 (2016).

Y. Asano, M.D. Fairchild, L. Blondé and P. Morvan, Color matching experiment for highlighting inter-observer variability, *Color Research and Application* **41**, 530-539 (2016).

M.D. Fairchild, *Gustav Theodor Fechner*, in the Encyclopedia of Color Science & Technology, Springer, ISBN: 978-3-642-27851-8 (Online) (2016).

M.D. Fairchild, *Johan Adolf von Kries*, in the Encyclopedia of Color Science & Technology, Springer, ISBN: 978-3-642-27851-8 (Online) (2016).

M.D. Fairchild, *Gabriel Lippmann*, in the Encyclopedia of Color Science & Technology, Springer, ISBN: 978-3-642-27851-8 (Online) (2016).

M.D. Fairchild, *Joseph William Lovibond*, in the Encyclopedia of Color Science & Technology, Springer, ISBN: 978-3-642-27851-8 (Online) (2016).

M.D. Fairchild, *Stanley Smith Stevens*, in the Encyclopedia of Color Science & Technology, Springer, ISBN: 978-3-642-27851-8 (Online) (2016).

D.L. Long and M.D. Fairchild, Observer metamerism models and multiprimary display systems, *SMPTE Motion Imaging Journal* **125**, 18-29 (2016).

M.D. Fairchild, Individual differences in color matching and adaptation: Importance in lighting, Light + Color: *IES Research Symposium III*, Gaithersburg, (2016).

Y. Asano, M.D. Fairchild, and L. Blondé, Individual colorimetric observer model, *PLOS ONE* **11**, e0145671 (2016).

M.D. Fairchild and R.L. Heckaman, Measuring observer metamerism: The Nimeroff approach, *Color Research and Application* **41**, 115-124 (2016).

M.D. Fairchild, Color models and systems, in A. Elliott, M.D. Fairchild and A. Franklin, Eds. *Handbook of Color Psychology*, Cambridge University Press, Cambridge, UK (2015).

M.D. Fairchild, *Metameric Blacks: A Color Curious Column*, ISCC News #445 - 472 (2010-2015).

D.L. Long and M.D. Fairchild, Observer metamerism models and multiprimary display systems, *SMPTE Annual Technical Conference*, Hollywood, (2015).

M.D. Fairchild and Y. Asano, Custom color matching functions: Extending the CIE 2006 model, *The 10th Biennial Joint CNC/CIE and CIE/USA Technical Conference*, Toronto, Abstract 1 (2015).

M. Melgosa, L. Gomez-Robledo, M.I. Sure and M.D. Fairchild, What can we learn from a dress with ambiguous colors?, *Color Research and Application* **40**, 525-529 (2015).

Y. Asano, M.D. Fairchild, and L. Blondé, Spectral pseudoisochromatic images: Vision test for color-normal observers, AIC2015 / MCS 2015, Tokyo (2015).

M.D. Fairchild, Seeing, adapting to, and reproducing the appearance of nature, *Virtual Journal for Biomedical Optics* **10**, Issue 3, republication (2015).

D.L. Long and M.D. Fairchild, Reducing observer metamerism in wide-gamut multiprimary displays, *SPIE/IS&T Electronic Imaging Conference*, San Francisco, Volume **9394**, 93940T (2015).

A. Forés Herranz, M.D. Fairchild and I. Tastl, An abridged goniometer for material appearance measurements, *SPIE/IS&T Electronic Imaging Conference*, San Francisco, Volume **9398**, 93980G (2015).

M.D. Fairchild, Seeing, adapting to, and reproducing the appearance of nature, *Applied Optics* **54**, B107-B116 (2015).

D.L. Long and M.D. Fairchild, Modeling observer variability and metamerism failure in electronic color displays, *Journal of Imaging Science & Technology* **58**, 30402-1-30402-14 (2014).

C.P. Sisson, S.P. Farnand, M.D. Fairchild and B. Fischer, Analysis of color consistency in retinal fundus photography: Application of color management and development of an eye model standard, *Analytical Cellular Pathology* **2014**, Article ID 398462 (2014).

D.L. Long and M.D. Fairchild, Modeling observer variability and metamerism failure in electronic color displays, *IS&T 22nd Color & Imaging Conference*, Boston, 14-20 (2014).

Y. Asano, M.D. Fairchild, L. Bondé and P. Morvan, Observer variability in image color matching on an LCD monitor and a laser projector, *IS&T 22nd Color & Imaging Conference*, Boston, 1-6 (2014).

A. Forés Herranz, M.D. Fairchild and I. Tastl, Improving the perceptual uniformity of a gloss space, *IS&T 22nd Color & Imaging Conference*, Boston, 7-13 (2014).

Y. Asano, M.D. Fairchild, and L. Blondé, Development of a vision model for individual colorimetric observers, *OSA Fall Vision Meeting*, Philadelphia, (2014).

M.D. Fairchild, A.M. Tourapis and D. Singer, New high dynamic range content based on still imagery, ISO/IEC JTC1/SC29/WG11 MPEG2014/mXXXX (2014).

A. Forés Herranz, M.D. Fairchild and I. Tastl, Perceptual gloss space BRDF projection, uniformity validation, and lightness distance metric, *ACM Symposium on Applied Perception*, Vancouver 136 (2014).

M.D. Fairchild, The value of colorfulness, brilliance, and similarity, *LD+A*, Illuminating Engineering Society, 44:8 16-18(2014).

R. Cao, M. Castle, W. Sawatwarakul, M.D. Fairchild, R. Kuehni, R. Shamey, Scaling perceived saturation, *Journal of the Optical Society of America A* **31**, 1773-1781 (2014).

S. Farnand and M.D. Fairchild, Designing pictorial stimuli for perceptual experiments, *Virtual Journal for Biomedical Optics* **9**, Issue 7, republication (2014).

Y. Asano, M.D. Fairchild L. Blondé and P. Morvan, Multiple color matches to estimate human color vision sensitivities, *International Conference on Image and Signal Processing 2014*, Cherbourg, France, 18-25 (2014).

S. Farnand and M.D. Fairchild, Designing pictorial stimuli for perceptual experiments, *Applied Optics* **53**, C72-C78 (2014).

J. Preiss, M.D. Fairchild, J. Ferwerda, and P. Urban, Gamut mapping in a high-dynamic-range color space, *SPIE/IS&T Electronic Imaging Conference*, San Francisco, doi:10.1117/12.2039747 (2014).

M.D. Fairchild and R.L. Heckaman, Metameric observers: A Monte Carlo approach, *IS&T 21st Color & Imaging Conference*, Albuquerque, 185-190 (2013).

Y. Asano and M.D. Fairchild, Observer variability experiment using a four-primary display, *IS&T 21st Color & Imaging Conference*, Albuquerque, 171-176 (2013).

M.D. Fairchild, Seeing, adapting to, and reproducing the appearance of nature, *OSA International Conference on Light and Color in Nature*, Fairbanks (2013).

ISO 1254-5:2013, *Graphic technology — Prepress digital data exchange — Part 5: Scene referred standard colour image data (RIMM/SCID)*, International Organization for Standardization (2013). *[Several images were contributed to this set of standard image data.]*

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