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Date of Birth: June 12, 1953

Married to Inger M. Williams, Ph.D., Ergonomics Consultant

Two Children, Erika and Kristoffer.

EDUCATION

1980 Postdoctoral Research Associate, Bell Laboratories, Murray Hill, NJ
1979 Ph.D., Department of Psychology, Univ. of California, San Diego
1976 M.A., Department of Psychology, Univ. of California, San Diego
1975 B.S., Department of Psychology, Denison University, Granville, OH

PRIMARY APPOINTMENTS

1995-pres Professor, Department of Brain and Cognitive Sciences, University of Rochester
1990-1995 Professor, Department of Psychology, University of Rochester
1984-1990 Associate Professor, Department of Psychology, University of Rochester
1981-1984 Assistant Professor, Department of Psychology, University of Rochester

JOINT APPOINTMENTS

2001-pres Professor, Department of Biomedical Engineering, University of Rochester
1997-1998 Visiting Professor, Department of Biological Structure, University of Washington, Seattle, WA
1997-pres Department of Ophthalmology, School of Medicine and Dentistry, University of Rochester
1988-pres Institute of Optics, College of Engineering and Applied Science, University of Rochester
1981-pres Center for Visual Science, College of Arts and Science, University of Rochester

AWARDS AND FELLOWSHIPS

2001 Honorary Doctor of Science, Denison University
1998 Semifinalist for Discover Award for Technological Innovation.
1998 Tillyer Medal, Optical Society of America, awarded not more than once every two years to a person who has performed distinguished work in the field of vision.
1997-pres William G. Allyn Professor of Medical Optics at the University of Rochester.
1997-98 John Simon Guggenheim Memorial Fellowship.
1992-pres Fellow, Optical Society of America.
1986 Distinguished Scientific Award for an Early Contribution to Psychology, American Psychological Association, for work on the limits of human visual resolution.
1985-1990 National Eye Institute Research and Career Development Award.
1987-1988 University of Rochester Mentor Award, for excellence in teaching, research, and service to the University.
1979-1980 Bell Laboratories Postdoctoral Fellowship.
1976-1979 National Science Foundation Graduate Fellowship.
1977 Association for Research in Vision and Ophthalmology Travel Fellowship.
1974 Psychology Student Fellow, Denison University.

GRANTS AND CONTRACTS

Federal:

- 2002-2004 National Science Foundation Research Grant, "Optimized Adaptive Optics for Human Vision", Total Costs (this year): \$191,151.
- 1999-2002 National Science Foundation Research Grant, "Optimized Adaptive Optics for Human Vision", Total Costs (this year): \$122,178.
- 2002-2003 National Eye Institute Research Grant, R01 EY04367, "Retinal Mechanisms and Visual Resolution", Total Costs (this year): \$308,460.
- 1995-2001 National Eye Institute Research Grant, R01 EY04367, "Retinal Mechanisms and Visual Resolution", Total Costs: \$1,354,644.
- 1990-1995 National Eye Institute Research Grant, R01 EY04367, "Retinal Mechanisms and Visual Resolution", Total Costs: \$935,000.
- 1985-1990 National Eye Institute Research Grant, R01 EY04367, "Retinal Mechanisms and Visual Resolution", Total Costs: \$450,000.
- 1985-1990 National Eye Institute Research and Career Development Award, K04 EYO0269, Total Costs: \$225,000
- 1982-1985 National Eye Institute Research Grant, R01 EY04367, "Retinal Mechanisms and Visual Resolution", Total Costs: \$275,000.
- 1995-1998 National Eye Institute Research Grant, R01 EY09625, "Topography of Primate Cone Classes" Total Costs: \$410,036..
- 1992-1995 National Eye Institute Research Grant, R01 EY09625, "Topography of Primate Cone Classes", Total Costs: \$365,000.
- 1987-1991 United States Air Force Grant, AFOSR-88-0292, "Peripheral Limitations on Spatial Vision", Total Costs: \$380,962.
- 1984-1987 United States Air Force Grant, AFOSR-85-0019, "Peripheral Limitations on Spatial Vision", Total Costs: \$461,738

Shared Federal:

- 2003 National Eye Institute Research Grant, "Adaptive Optics Instrumentation for Advanced Ophthalmic Imaging", Total costs: \$461,019.
- 2001-2003 DOE (Department of Engineering), "High-resolution Ophthalmic Imaging Systems", Scot Olivier, PI. David Williams, Co-PI. Total costs \$346,888.
- 1999-2004 National Science Foundation Science and Technology Center, "Center for Adaptive Optics", Jerry Nelson, PI. David Williams, Associate Director (Visual Science). Total costs to Center, 1999-2004: \$20,000,000. Total costs to Williams' laboratory, 2000-2001: \$200,000.
- 1998-2003 National Eye Institute Grant, P30 EY1319, "Core Grant for Vision Research", David Williams, PI, Total Costs (this year): \$429,000.
- 1993-1998 National Eye Institute Grant, P30 EY1319, "Core Grant for Vision Research", David Williams, PI, Total Costs: \$1,210,673.

Corporate:

- 2000-2005 Bausch and Lomb, "Vision Alliance" "Advanced Vision Correction and Wavefront Sensing", Total costs: \$200,000 plus NYSSTAR matching funds, Center for Electronic Imaging, \$40,000.
- 1999-2000 Bausch and Lomb, "Advanced Vision Correction and Wavefront Sensing", Total costs: \$267,728 plus NYSSTF matching funds, Center for Electronic Imaging, \$45,000.
- 1998-1999 Bausch and Lomb, "The Increase in Visual Performance Expected with Supercorrecting Contact Lenses", Total Costs: \$66,700 plus NYSSTF matching funds, Center for Electronic Imaging, \$45,000.

- 1997-1998 Bausch and Lomb, "Wavefront Sensor for the Human Eye", Total Costs: \$39,500.
 1994-1995 Rochester Eye and Human Parts Bank, "Recovery of Retinal Image Quality Following Corneal Transplantation", Total Costs: \$9,000, PI, Junzhong Liang.

Private Foundations:

- 2001-2004 Steinbach Foundation, "High-resolution Imaging of Patients with Age-related Macular Degeneration", Total costs: \$90,910.

LEADERSHIP POSITIONS

- 2004 Lead Investigator, Adaptive Optics Instrumentation for Advanced Ophthalmic Imaging
 2000-pres Associate Director, Vision Science, Center for Adaptive Optics
 1991-pres Director, Center for Visual Science
 1988-1991 Associate Director, Center for Visual Science

The Center for Visual Science is an interdisciplinary program consisting of 25 faculty from the departments of Brain and Cognitive Sciences, Computer Science, Neurobiology, and Anatomy, Neurology, and Ophthalmology. See website at <http://www.cvs.rochester.edu>.

LEADERSHIP POSITIONS IN PROFESSIONAL SOCIETIES

Optical Society of America:

- 1997-1998 Chair, Societal Objectives and Planning Committee which developed 5-year Strategic Plan for the OSA.
 1996-1998 Elected Director-at-large, Board of Directors.
 1988-1990 Chair, Vision and Medical Optics Division.
 1988-1989 Chair, Color Technical Group, Vice-Chair, 1986-1987.

Association for Research in Vision and Ophthalmology:

- 1989 Chair, Visual Psychophysics Program Committee, 1989.
 1986-1989 Member, Visual Psychophysics Program Committee, 1986-1989.

UNDERGRADUATE TEACHING

- Sensation and Perception.** A one semester survey of the human senses including vision, hearing, touch, taste, smell, proprioception, and balance.
Perception and Action. A course that evolved from Sensation and Perception but also addresses sensori-motor coordination and perceptual control of motor behavior.
Perception Laboratory. A one-semester lab course that follows Sensation and Perception

GRADUATE TEACHING

- Spatial Vision.** Optical, retinal, and cortical limits on human spatial vision.
Principles of Eye Design. Diversity of imaging systems in nature. Factors controlling the evolution of simple and compound eyes.
Physiological Optics. Optics of the human eye and implications for visual performance
Instrumentation and Methods for Vision Research. Covers psychophysical methods, optics systems for the eye, radiometry, photometry, colorimetry, display technology such as CRTs, eye movement recording, single unit recording, optical imaging of neural activity, FMRI.
Color Vision. Trichromacy, color matching, colorimetry, color discrimination and appearance, opponent color theory, photometry, color constancy.

CONTRIBUTED PRESENTATIONS AT PROFESSIONAL MEETINGS

- Williams, D.R. and MacLeod, D.I.A. Interchangeable backgrounds for cone afterimages. Association for Research in Vision and Ophthalmology, 1977.

Williams, D.R. Foveal cones often disobey the anterior pointing hypothesis. Optical Society of America, San Francisco, 1978.

Williams, D.R., MacLeod, D.I.A., and Hayhoe, M.M. Distribution of blue-sensitive cones in the fovea. Association for Research in Vision and Ophthalmology, 1978.

Hayhoe, M.M., and Williams, D.R. Suppression of signals from retinal regions shadowed by the head. Association for Research in Vision and Ophthalmology, 1980.

Krauskopf, J., Heeley, D.W., and Williams, D.R. Computer controlled color mixer with laser primaries. Association for Research in Vision and Ophthalmology, 1980.

Williams, D.R., Krauskopf, J., and Heeley, D.W. In search of the cardinal directions in color space. Optical Society of America, Chicago, 1980.

Krauskopf, J., and Williams, D.R. Temporal frequency response of chromatic and luminance mechanisms. Association for Research in Vision and Ophthalmology, 1981.

Williams, D.R., and Collier, R.J. Detection of high frequency gratings by the blue-sensitive mechanism. Association for Research in Vision and Ophthalmology, 1982.

Krauskopf, J., Brown, A., and Williams, D.R. Discrimination and detection of chromatic variation. Association for Research in Vision and Ophthalmology, 1983.

Williams, D.R. Detection of high frequency gratings with an improved laser interferometer. Optical Society of America, New Orleans, 1983.

Williams, D.R., D'Zmura, M. and Lennie, P. New interferometric estimate of neural contrast sensitivity. Association for Research in Vision and Ophthalmology, 1984.

Williams, D.R. Aliasing in human vision. Center for Visual Science, Symposium on Spatial Vision, University of Rochester, 1984.

Williams, D.R. Topography of the foveal cone mosaic. Association for Research in Vision and Ophthalmology, 1985.

MacLeod, D.I.A., Williams, D.R., and Makous, W. Difference frequency gratings above the resolution limit. Association for Research in Vision and Ophthalmology, 1985.

Makous, W., MacLeod, D.I.A., and Williams, D.R. Nonlinear transformation in human vision. Optical Society of America, Washington, DC, 1985.

Williams, D.R., Coletta, N.J. and Korte, R. Extrafoveal grating resolution and sampling theory. Association for Research in Vision and Ophthalmology, 1986

Coletta, N. and Williams, D. Psychophysical estimate of parafoveal cone spacing. Optical Society of America, Seattle, 1986.

Williams, D.R. Seeing through the photoreceptor mosaic. Interdisciplinary Conference, Whistler, British Columbia, 1986.

Hayhoe, M.M. and Williams, D.R. Spatial frequency dependence of the color of monochromatic light. Optical Society of America, Rochester, NY, 1987.

- Williams, D.R. Photoreceptor sampling and aliasing in the human retina. Optical Society of America, Rochester, NY, 1987.
- Coletta, N.J. and Williams, D.R. Motion reversal in peripheral retina. Optical Society of America, Rochester, NY, 1987.
- Coletta, N.J. and Williams, D.R. Undersampling by cones reverses perceived direction of motion. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1987.
- Williams, D.R. Peripheral limitations on spatial vision. Review of AFOSR Program, Visual Information Processing, Annapolis, MD, 1987.
- Chen, B., Makous, W. and Williams, D.R. Serial spatial filters in vision. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1988.
- Hayhoe, M. M., Williams, D.R. and Chen, B. Spatial frequency affects color appearance of monochromatic gratings. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1988.
- Chen, B., Makous, W. and Williams, D.R. A nonlinearity localized in the outer plexiform layer. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1989.
- Packer, O., Williams, D.R., Sekiguchi, N., Coletta, N.J. and Galvin, S. Effect of chromatic adaptation on foveal acuity and aliasing. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1989.
- Lennie, P., Haake, P.W. and Williams, D.R. Chromatic opponency through random connections to cones. Association for Research in Vision and Ophthalmology, Sarasota, FL, 1989.
- Lennie, P. Haake, P.W. and Williams, D.R. Chromatic opponency through indiscriminate connections to cones. Optical Society of America, Orlando, Fla., October 1989.
- Packer, O. and Williams, D.R. Eye movements and visual resolution. Association for Research in Vision and Ophthalmology, Sarasota, FL, April 1990.
- Koh, K., Lennie, P., and Williams, D.R. Mechanisms of adaptation to chromatic fringes. Association for Research in Vision and Ophthalmology, Sarasota, FL, April 1990.
- Williams, D.R., Sekiguchi, N, and Packer O. Spatial aliasing by chromatic mechanisms. Association for Research in Vision and Ophthalmology, Sarasota, FL, April 1990.
- Sekiguchi, N., Packer, O. and Williams, D.R. Spatial sampling by chromatic mechanisms in human vision. Society for Photographic Science and Engineering, Rochester, NY, 1990.
- Packer, O. and Williams, D.R. Do eye movements affect visual resolution? Society for Photographic Science and Engineering, Rochester, NY, 1990.
- Sekiguchi, N, Williams, D.R. and Brainard, D.H. Foveal resolution limit for chromatic interference fringes. Optical Society of America annual meeting, San Jose, California, November 3-8, 1991.
- Navarro, R., Artal, P. and Williams, D.R. Optical quality of the human eye across the visual field. Ophthalmic and Visual Optics, OSA meeting, Santa Fe, New Mexico, January 28-30, 1992.

Sekiguchi, N., Williams, D.R. and Brainard, D.H. Contrast sensitivity for isoluminant and isochromatic interference fringes. *Advances in Color Vision*, OSA meeting, Irvine, California, January 31-February 1, 1992.

Brainard, D.H. and Williams, D.R. Spatial reconstruction of signals from short-wavelength cones. *Advances in Color Vision*, OSA meeting, Irvine, California, January 31-February 1, 1992.

Artal, P. Navarro, R. Brainard, D., Galvin, S., and Williams, D. Off-axis optical quality of the eye and retinal sampling. *ARVO*, May 3-8, 1992.

Brainard, D., Williams, D., and Sekiguchi, N. Supra-Nyquist resolution in the extrafovea? *ARVO*, May 3-8, 1992.

Brainard, D.H. & Williams, D.R., Bayes estimator for reconstruction from samples. *ARVO*, May 1993.

Galvin, S.J., Williams, D.R., Coletta, N.J., Two-stage spatial sampling model predicts motion reversal effects. *ARVO*, May 1993.

Sekiguchi, N., Williams, D.R., Brainard, D.H., Neural limits on isoluminant and isochromatic contrast sensitivity. *ARVO*, May 1993.

O'Shea, R.P. and Williams, D.R. (1993) Binocular rivalry with stimuli visible only to short-wavelength-sensitive cones. *Internatl. J. Neurosci.*, 71, 124-125.

Sekiguchi, N., Williams, D.R., and Brainard, D.H. Neural limits on human spatial contrast sensitivity. *Frontiers in Information Optics Conference*, Kyoto, Japan, April 1994.

Packer, O., Williams, D.R., and Bensinger, D. Photopigment transmission imaging of the primate photoreceptor mosaic. *The John Dalton Conference*, Manchester, UK, September, 1994.

Liang, J. and Williams, D.R. Measurement of the wave aberrations of human eyes with a lens array wavefront sensor. *Imaging Science and Technology Conference*, Rochester, NY, May, 1994..

Packer, O., Bensinger, D.G., and Williams, D.R. In vitro angular tuning of single primate rods and cones and the Stiles-Crawford effect. *ARVO*, May, 1994.

Miller, D.T., Williams, D.R., and Morris, G.M. Images of the photoreceptor mosaic in the living human eye. *Optical Society of America Annual Meeting*, Dallas, TX, October, 1994

Liang, J., and Williams, D.R. Effect of higher order aberrations on image quality in the human eye. *Vision Science and its Applications*, Vol. 1, 1995 OSA Technical Digest Series (Optical Society of America, Washington, D.C., 1995), pp. 70-73.

Williams, D.R., Miller, D., and Morris, G.M. Images of the cone mosaic in the living human eye. *Vision Science and its Applications*, Vol. 1, 1995 OSA Technical Digest Series (Optical Society of America, Washington, D.C., 1995), 98-101.

Miller, D.T., Williams, D.R., Morris, G.M., and Liang, J. (1995) Images of cone photoreceptors in the living human eye, *Invest. Ophthalmol. Vis. Sci. Suppl.* 36, 8188.

Liang, J. and Williams, D.R. (1995) New objective measurements of the wave aberrations of the human eye. *Invest. Ophthalmol. Vis. Sci. Suppl.* 36, 8188.

McMahon, M.J., Lankheet, M., Lennie, P., and Williams, D.R. (1995) Fine structure of P-cell receptive fields in the fovea revealed by laser interferometry. *Invest. Ophthalmol. Vis. Sci. Suppl.* 36, 84.

Williams, D.R. and Liang, J. Adaptive Optics for High Resolution Retinal Imaging. Investigative Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 1996.

Packer, O.S. and Williams, D.R. (1996) Axial Absorptances of Individual Primate Photoreceptors. Investigative Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 1996.

Liang, J., Williams, D.R., and Miller, D.T. Adaptive Optics for Correcting the Wave Aberration of the Eye. OSA Annual Meeting & Exhibit, Optics & Imaging in the Information Age, Rochester, NY, October 1996.

Packer, O.S. and Williams, D.R. The Quantum Efficiency and Directional Sensitivity in Peripheral Primate Photoreceptor Mosaic. OSA Annual Meeting & Exhibit, Optics & Imaging in the Information Age, Rochester, NY, October 1996.

Packer, O. and Williams, D. Angular Tuning of Single Primate Photoreceptors and the Stiles-Crawford Effect. The Jay M. Enoch Vision Science Meeting, School of Optometry, University of California, Berkeley, April 1996.

Liang, J., Williams, D., and Miller, D. Adaptive Optics for High Resolution Retinal Imaging. The Jay M. Enoch Vision Science Meeting, School of Optometry, University of California, Berkeley, April 1996.

Liang, J. and Williams, D.R. Adaptive Optics for High-Resolution Imaging of the Living Human Retina. Conference on Lasers and Electro-Optics, Anaheim, California, June 1996.

Liang, J., Williams, D.R., and Miller, D.T. High resolution imaging of the living human retina with adaptive optics. Investigative Research in Vision and Ophthalmology, Fort Lauderdale, Florida, April 1997.

Roorda, A. and Williams, D.R. Spectrally and spatially resolved imaged of the human cone mosaic, Optical Society of America, Long Beach, California, October, 1997.

Hofer, H.J. and Williams, D.R. Dynamics of the eye's wave aberration, Optical Society of America Annual Meeting, Baltimore, MD. 10/98.

Roorda, A. and Williams, D.R. The arrangement of the three cone classes in the living human eye, Optical Society of America Annual Meeting, Baltimore, MD. 10/98.

Hofer, H.J., Porter, J., and Williams, D.R. Dynamic measurement of the wave aberration of the human eye [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 1998; 39(4): S203. Abstract nr 955.

Roorda, A. and Williams, D.R. Objective identification of M and L cones in the living human eye [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 1998; 39(4): S204. Abstract nr 957.

Roorda, A. and Williams, D.R. The arrangement of the three cone classes in the living human eye, Optical Society of America Annual Meeting, Baltimore, MD. 10/98.

Metha, A., Roorda, A, Williams, D.R., and Lennie, P. Determining L, M, and S cone photoreceptor distribution in the primate retina. Australian Ophthalmic and Visual Science Meeting, Australian National University, Canberra, Australia, 11/98.

Yoon, G-Y., Cox, I., Williams, D.R. /the Visual Benefit of Static Correction of the Monochromatic Wave Aberration. [ARVO abstract]. *Invest Ophthalmol Vis Sci.* 1999; 40(4): B171 Abstract nr. 211

Verweij, J, Diller, L.C., Williams, D.R. The Relative Strength of L and M Cone Inputs To H1 Horizontal Cells in Primate Retina. [ARVO abstract]. *Invest Ophthalmol Vis Sci.* 1999; 40(4): B176 Abstract nr. 1268

Roorda, A., Metha, A.B., Lennie, P., Williams, D.R. The Packing arrangement of S, M and L Cones in the Living Primate Retina. . [ARVO abstract]. *Invest Ophthalmol Vis Sci.* 1999; 40(4): Abstract nr. 1938

Hofer, H., Artal, P., Aragon, J.L., Williams, D.R. Temporal Characteristics of the Eye's Aberrations. . [ARVO abstract]. *Invest Ophthalmol Vis Sci.* 1999; 40(4) Abstract nr. 1939.

Diller, L.C., Verweij, J., Williams, D.R., Dacey, D.M. L and M Cone Inputs to Peripheral Parasol and Midget Ganglion Cells in Primate Retina. . [ARVO abstract]. *Invest Ophthalmol Vis Sci.* 1999; 40(4) Abstract nr. 4302

Artal, P., Guirao, A., Williams, D.R. Aberrations of the Internal Ocular Surfaces Measured in Vivo with a Hartmann-Shack Sensor. [ARVO abstract] *Invest Ophthalmol Vis Sci* 1999;40(4):S206. Abstract nr B166.

Yoon, G-Y., Williams, D. Optimized Hartmann-Shack wave-front sensor for the human eye. Optical Society of America Annual Meeting, Santa Clara, CA 9/99.

Artal, Pablo, Hofer, H.J., Williams, D.R., Aragon, J.L. Dynamics of ocular aberrations during accommodation. Optical Society of America Annual Meeting, Santa Clara, CA 9/99.

Brainard, D.H., Calderone, J.B., Jacobs, G.H. Roorda, A. Neitz, M., Neitz, J., Williams, D.R. Functional consequences of individual variation in relative L/M cone numerosity. Optical Society of America Annual Meeting, Santa Clara, CA 9/99.

Guirao, A, Artal, P., and Williams, D.R. Localization of ocular aberrations in the human eye. XIV International Congress for Eye Research, Santa Fe, New Mexico, 10/00.

Hofer, H., Singer, B., Yoon, G.Y., Chen, L., Yamauchi, Y., and Williams, D.R. "Performance of the Rochester 2nd generation adaptive optics system for the eye", paper presented at the Optical Society of America annual meeting 2000.

Yoon, G.Y., Chen, L, Singer, B., Yamauchi, Y., Hofer, H., Porter, J., and Williams, D.R. "Design of the Rochester 2nd generation adaptive optics system for the eye", paper presented at the Optical Society of America annual meeting 2000.

Yamauchi, Y., Williams, D.R., Brainard, D.H., Calderone, J.B., Roorda, A., Neitz, M., Neitz, J., and Jacobs, G.H. "Is unique yellow determined by the relative numbers of L and M cones?", *Investigative Ophthalmology and Visual Science* 41, S526 (2000)

Yoon, G.Y., and Williams, D.R. "Visual benefit of correcting higher order monochromatic aberrations and chromatic aberration in the eye", Optical Society of America meeting on Visual Science and Its Applications 2000, Santa Fe, NM.

Cox, I., Potvin, R., Lagana, M., Williams, D.R., and Porter, J. "Wavefront aberrations of the human eye- a large population sample", British Contact Lens Association Annual Meeting 2000: Poster Abstract nr 14.

Porter, J., Cox, I., Guirao, A., Potvin, R., Lagana, M., and Williams, D.R. "A compact description of the eye's aberrations in a large population", Investigative Ophthalmology visual Science 2000; 41 (4): S428. Abstract nr 2265.

Guirao, A, Artal, P., and Williams, D.R. Localization of ocular aberrations in the human eye. XIV International Congress of Eye Research, Santa Fe, New Mexico (2000).

Guirao, A. and Williams, D.R. Higher order aberrations in the eye and the best subjective refraction, Optical Society of America Annual Meeting, Providence, Rhode Island, 10/00.

Guirao, A., Williams, D.R., and Cox, I. Effect of rotation and translation on the expected benefit of ideal contact lenses [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 2000;41(4). Abstract nr 2269.

Roorda, A. and Williams, D.R. Angular tuning of single cones in the living human eye [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 2000;41(4). Abstract nr 521.

Yamauchi, Y., Williams, D.R., Brainard, D.H., Calderone, J.B., Roorda, A., Neitz, M., Neitz, J., Jacobs, G.H. Is unique yellow determined by the relative numbers of l and m cones? [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 2000;41(4). Abstract nr 2804.

Yoon, G.Y., Hofer, H., Chen, L., Porter, J., Singer, B., Yamauchi, Y., Guirao, A., Cox, I.G., Doble, N., and Williams, D.R. Design and performance of Rochester's 2nd generation adaptive optics system for the human eye. International Symposium: Adaptive Optics: From telescopes to the human eye. Murcia, Spain. November 2000. Poster Abstract.

Porter, J., Hofer, H., Guirao, A., Yoon, G.Y., Chen, L., Cox, I., and Williams, D.R. The spatial and temporal properties of the wave aberration of the human eye. OPTO Northeast and Imaging, SPIE Meeting, 2001, Rochester, NY.

Chen, L., Yoon, G.Y., Singer, B., Doble, N., Hofer, H., Porter, J., and Williams, D.R. Adaptive optical system design and optimization for the human eye. OPTO Northeast and Imaging, SPIE Meeting, 2001, Rochester, NY.

Doble, N., Yoon, G.Y., Chen, L., Wilks, S., Thompson, C., Olivier, S., and Williams, D.R. The use of MEMS and liquid crystal technology for adaptive optics in the human eye. OPTO Northeast and Imaging, SPIE Meeting, 2001, Rochester, NY.

Yoon, G. Hofer, H., Roorda, A., Chen, L., Porter, J., Doble N., Yamauchi Y., Williams D., Applications of adaptive optics to vision science. OPTO Northeast and Imaging, SPIE Meeting, 2001, Rochester, NY.

Roorda, A., Williams, D. Adaptive optics reveals the cone receptors in a human retina, AAS Meeting, January 2001.

Chen, L., Doble, N., Pallakaris, A., Yoon, G. and Williams, D., "Design and performance of an adaptive optical system for the human eye" Integrating Research and A Conference for the Graduate Students and Postdoctoral Researchers of the Center for Adaptive Optics (CfAO), Kailua-Kona, Hawaii, April 18-23, 2001

Doble, Yoon, Chen, Williams, Bierden, Wilks, Thompson, Carr, Olivier. The Use of a MEMS Mirror for Adaptive Optics in the Human Eye, Presentation at the CfAO Summer School, Santa Cruz August 4-10 2001.

Doble N., Chen, L., Yoon, G., Bierden, P., Olivier S. and Williams D., "Alternative wavefront corrects for adaptive optics in the human eye", *The 3rd international conference on the use of adaptive optics for industry and medicine*, Albuquerque, NM, 2001.

Chen, L., Yoon, G., Hofer, H., Singer B., Yamauchi Y., Doble, N., Porter J. and Williams D., "A real time adaptive optics system for the human eye", *The 3rd international conference on the use of adaptive optics for industry and medicine*, Albuquerque, NM, 2001.

Doble, Yoon, Chen, Williams, Bierden, Wilks, Thompson, Carr, Olivier. A MEMS mirror for adaptive optics in the human eye, OSA Annual Meeting, Long Beach, CA, October 2001.

Williams, D. What optical factors computed from the wavefront correlate best with visual performance, OSA Annual Meeting, Long Beach, CA, October 2001.

Cox, I., Potvin, R., Lagana, M., Williams, D., Porter, J. Wave aberrations of the human eye - a large population sample, Academy of Ophthalmology Meeting, October 2001.

Kurczynski, P., Tyson, J., Sadoulet, B., Bishop, D., Williams, D. Membrane mirrors for vision science adaptive optics, paper presented at SPIE/Micromachining and Microfabrication Conference, October 2001.

Doble, Yoon, Chen, Williams, Bierden, Wilks, Thompson, Carr, Olivier. A MEMS Mirror for Adaptive Optics in the Human Eye, CfAO Retreat, Monterey, California, December 10-12, 2001.

Guirao, A., Williams, D.R.. An objective method to predict refractive errors from wave aberration data [ARVO Abstract]. *Invest Ophthalmol Vis Sci.* 42(4). Abstract nr 540, 2001.

Yoon, GY., Hofer, H., Chen, L., Singer, B., Porter, J., Yamauchi, Y., Doble, N., Williams, D. Dynamic correction of the eye's aberration with the Rochester 2nd generation adaptive optics system [ARVO Abstract]. *Invest Ophthalmol Vis Sci.*;42(4). Abstract nr 545, 2001.

Cox, I., MacRae, S., Williams, D. Comparison of wavefront aberrations of the eye following successful and unsuccessful conventional lasik procedures [ARVO Abstract]. *Invest Ophthalmol Vis Sci.*;42(4). Abstract nr 3242, 2001.

Artal, P., Guirao, A., Williams, D. A model to explain how the lens compensates for corneal aberrations [ARVO Abstract] *Invest Ophthalmol Vis Sci.*;42(4). Abstract nr 4804, 2001.

Yamauchi, Y., Williams, D. R., Carroll, J., Neitz, J., and Neitz, M.: The longevity of the effect caused by a long-term chromatic alteration, Optical Society of America and University of California Irvine Vision and Color meeting, 2001.

Yamauchi, Y., Williams, D.R., Calderone, J. B., Brainard, D. B., Roorda, A., Neitz, M, Neitz, J., and Jacobs, G. H.: What determines unique yellow, L/M cone ratio or visual experience?, AIC01, Rochester, NY, 2001.

Yamauchi, Y., Williams, D., Carroll, J., Neitz, J., Neitz, M. Chromatic adaptation can cause long-term shifts in color appearance that arise in binocular visual pathways [ARVO Abstract]. *Invest Ophthalmol Vis Sci.*;42(4). Abstract nr 3873, 2001.

Doble, N., Yoon, G.Y., Chen, L., Singer, B., Bierden, P., Olivier, S., Williams, D.R. Low Cost, Compact Wavefront Correctors for Ophthalmic Instrumentation Equipped with Adaptive Optics., ARVO, Ft. Lauderdale, FL, May 2002.

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Doble, N., Yoon, G., Chen, L., Bierden, P., Olivier, S. and Williams, D., High Resolution Retinal Imaging with a Microelectromechanical (MEMS) Mirror”, University of Rochester, Center for Visual Science's 23rd Symposium “Engineering the Eye” June 13-15, 2002, Rochester, New York.

Pallikaris, A., Williams, D. R., Temporal variation in the reflectance of single cones in the living human eye, University of Rochester, Center for Visual Science's 23rd Symposium “Engineering the Eye” June 13-15, 2002, Rochester, New York.

Chen, L., Kruger, P. and Williams, D., Accommodation without higher order monochromatic aberrations, University of Rochester, Center for Visual Science's 23rd Symposium “Engineering the Eye” June 13-15, 2002, Rochester, New York.

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Doble, N., Yoon, G.Y., Chen, L., Bierden, P., Olivier, S., Williams, D.R. High Resolution Imaging with a Microelectromechanical MEMS Mirror, [Poster] Center for Adaptive Optics Fall Retreat, Santa Cruz, CA, November 2002.

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Kurczynski, P., Bogart, G., Lai, W., Lifton, V., Mansfield, B., Tyson, J.A., Sadoulet, B., Williams, D.R. Electrostatically actuated membrane mirrors for adaptive optics. Submitted to Photonics West 2003 Conference.

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INVITED PRESENTATIONS AT PROFESSIONAL MEETINGS

Williams, D.R., and Collier, R.J. Spatial resolution of the short wavelength mechanism, Conference on Colour Vision, University of Cambridge, Cambridge, England, 1982.

Williams, D.R. Human visual resolution. Image Technology, Society of Photographic Scientists and Engineers, Boston, Massachusetts, 1984.

Yellott, J. and Williams, D.R. Imaging sampling properties of photoreceptors, Rank Prize Symposium on Biological Engineering Aspects of Visual Hyperacuity, Cambridge, England, 1984.

Krauskopf, J., Williams, D.R., Mandler, M., and Brown, A. Cardinal directions and beyond, Workshop on System Approaches to Vision, Amsterdam, The Netherlands, 1984.

Williams, D.R. Visual Resolution and the photoreceptor mosaic. Conference on Vision, Nordita, Nordisk Institut for Teoretisk Atomfysik, Copenhagen, Denmark, 1986.

Williams, D.R. Seeing through the photoreceptor mosaic. Interdisciplinary Conference, Whistler, British Columbia, 1986.

Williams, D.R. Color, space, and the cone mosaic. The Cuernavaca Workshop on Vision, Cuernavaca, Mexico, 1987

Williams, D.R. Visual resolution and the photoreceptor mosaic. Society for Neuroscience, New Orleans, LA, 1987.

Williams, D.R. The Unobtrusive Photoreceptor Mosaic, Symposium on Photoreception, Frontiers of Visual Science, National Research Council, Washington, DC, 1988.

Williams, D., Coletta, N., Tiana, C., Haake, W. Spatial sampling & image motion, Workshop on Computational Models of Visual Processing, Cold Spring Harbor, June, 1989.

Lennie, P. Haake, P.W. and Williams, D.R. Chromatic opponency through indiscriminate connections to cones. Workshop on Computational Models of Visual Processing, Cold Spring Harbor, June 1989.

Williams, D.R. Photoreceptor sampling of moving images. Applied Vision Topical Meeting, San Francisco, CA, July 1989.

Williams, D.R., Coletta, N., Tiana, C. and Packer, O. Spatial sampling, image motion, and visual resolution. "Optics, Physiology and Vision," The Westheimer Symposium, Berkeley, CA, August, 1989.

Williams, D.R., Sekiguchi, N. and Packer, O. Spatial sampling by the human foveal cone mosaic and its implications for color vision. International Congress of Eye Research, Helsinki, Finland, July, 1990.

Williams, D.R. Interpolation and trichromatic spatial sampling in foveal vision. Advances in Understanding Visual Processes. Roros, Norway, August, 1990.

Williams, D.R. Spatial sampling in human vision. Curso Interuniversitario para Postgraduados Sobre meeting, Madrid, Spain, November, 1991.

Williams, D.R. The cost of trichromacy for human vision. Curso Interuniversitario para Postgraduados Sobre, Madrid, Spain, November, 1991.

Williams, D.R. Spatial sampling in human vision. Conference on Vision, Funcacion Ramon Areces, Madrid, Spain, November, 1991.

Williams, D.R. The Limits of Vision. Educator's Day, Optical Society of America, San Jose, CA, November, 1991.

Williams, D.R. The mechanisms that prevent aliasing in the visual system. Ophthalmic and Visual Optics, OSA Topical Meeting, Santa Fe, New Mexico, January, 1992.

Williams, D.R. Perceptual consequences of the trichromatic cone mosaic. Advances in Color Vision, OSA Topical meeting, Irvine, California, January, 1992.

Williams, D.R. Implications of Photoreceptor Sampling for Spatial and Color Vision. FASEB Summer Research Conference on Vision, Saxtons River, Vermont, June, 1992.

Williams, D.R. The optical quality of the human eye. Workshop on Physical Optics and Human Vision, Rochester, June, 1993.

Williams, D.R., McMahon, M, Brainard, D.H., and Navarro, R. Comparison of noninvasive measures of the optical quality of the eye. Vision Science and its Applications, 1994 Technical Digest Series, Vol. 2 (Optical Society of America, Washington DC, 1994), pp. 68-71.

Williams, D.R., Brainard, D.H., McMahon, M.J., and Navarro, R. Comparison of noninvasive measures of the optical quality of the human eye. Frontiers in Information Optics Conference, Kyoto, Japan, April, 1994.

Packer, O., Williams, D.R., and Bensinger, D.G. Photopigment transmittance imaging of the primate photoreceptor mosaic. FASEB Conference on the Biology, Chemistry, and Modeling of Vision, June, 1994. (invited).

Williams, D.R. Aberrations of the eye measured with wavefront sensing. Noninvasive Optical Methods in Vision and Ophthalmology, Madrid, Spain, March, 1995.

Williams, D.R. Prospects for improving spatial resolution in fundus imaging. Noninvasive Optical Methods in Vision and Ophthalmology, Madrid, Spain, March, 1995.

Williams, D.R. Applications of Adaptive Optics in Human Vision, Adaptive Optics Working Group Meeting, SPIE, San Diego, 1995.

Williams, D.R. Visual Aspects of Night Flying, Holiman Air Force Base, New Mexico, January, 1996.

Pushing the Optical Limits of the Human Eye, Twelfth Annual James M. Sprague Lecture, Thirteenth Annual Neuroscience Retreat, University of Pennsylvania, Philadelphia, April, 1996 .

Williams, D.R. High Resolution Fundus Imaging, 41st Annual Rochester Ophthalmology Conference, Rochester, NY, May, 1996.

Williams, D.R., Liang, J., and Miller D.T. (1996) Adaptive Optics for the Human Eye. OSA Topical Meeting on Adaptive Optics, Maui, Hawaii, July, 1996.

Williams, D., Liang, J., and Miller, D.T. Adaptive Optics for High Resolution Retinal Imaging, Mopane Conference on Refraction and Keratometry, Kruger National Park, South Africa, August, 1996.

Williams, D.R. Adaptive Optics for the Human Eye. Plenary talk for colocated meetings, Laser Munich and Nonastronomical Adaptive Optics, Munich, Germany, June, 1997.

Roorda, A. and Williams, D.R. Adaptive Optics for the Human Eye. International Workshop Adaptive Optics for Industry and Medicine, Shatura, Russia, June, 1997.

Williams, D. R. Imaging Photoreceptors in Vivo, 27th Cambridge Ophthalmological Symposium, Cambridge, England, September, 1997.

Williams, D.R. Toward Supernormal Vision, National Science Writers Seminar, Research to Prevent Blindness, Universal City, California, September, 1997.

Williams, D. R. The Arrangement of the Three Cone Classes in the Living Human Eye, FASEB Research Conference on Retinal Neurobiology and Visual Processing, Saxtons River, Vermont, July, 1998.

Williams, D.R. Adaptive Optics for the Human Eye, American Academy of Optometry Annual Meeting and 75th Anniversary of the UC Berkeley College of Optometry, San Francisco, December, 1998.

Williams, D. R. Microscopic Imaging of the Living Human Retina through Adaptive Optics. Symposium on Frontiers in Imaging, ARVO, Ft. Lauderdale, Florida, May, 1999.

Williams, D.R. Adaptive Optics for the Human Eye. Plenary talk. Annual Meeting of the Australian Optical Society, University of Sydney, Sydney, Australia, July, 1999.

Williams, D.R. Tillyer Award lecture: Exceeding the Resolution Limit of the Human Eye. Optical Society of America Annual Meeting, Santa Clara, CA, September, 1999.

Williams, D.R. High Resolution Imaging of the Living Human Fundus. Opening Ceremony, Interuniversitair Oogheekundig Instituut, Amsterdam, Netherlands, October, 1999.

Williams, D.R. High Resolution Imaging of the Retina with Adaptive Optics. National Eye Institute Predoctoral Trainees' Meeting, NIH, Bethesda, MD., November, 1999.

Williams, D.R. Evaluating Multifocal Contact Lenses with Wavefront Sensing. Keynote Address, International Society for Contact Lens Research, Phuket, Thailand, August, 1999.

Williams, D.R. The new wavefront technology. Refractive Alliance 2000, Boston, MA, 5/00.

Williams, D.R. Adaptive Optics: From Astronomy to Visual Neuroscience, New Directions in Biomedical Engineering, Stanford University, Stanford, CA, 2/00.

Williams, D.R. Magnitude of ocular aberrations: Visual and imaging significance. First International Congress of Wavefront Sensing and Aberration-Free Refractive Correction, Santa Fe, New Mexico, 2/00.

Williams, D.R. Adaptive Optics for the Human Eye, Plenary Talk, American Academy of Astronomy, 6/00.

Williams, D.R. Fundamentals of visual science, Center for Adaptive Optics Summer School, 6/00.

Williams, D.R. Correction of the eye's wave aberration, Center for Adaptive Optics Summer School, 6/00.

Williams, D.R. History and Principles of Hartmann-Shack Wavefront Sensing. 2nd International Congress of Wavefront Sensing and Aberration-Free Refractive Correction, Monterey, California, February 2001.

Williams, D.R. Visual Acuity and How It May Be Improved. AAPT Meeting, Rochester, NY, July 2001.

Williams, D.R. Adaptive Optics for Vision Correction. Industrial Physics Forum, October 2001.

Williams, D.R. Clinical Applications of Adaptive Optics, Invited Talk, CfAO Summer School. August, 2001.

Williams, D.R. American Association of Physics Teachers, Invited Talk, The Limits of Human Vision, Rochester, July, 2001.

Williams, D.R. When Correcting the Eye's Aberrations Makes Vision Worse, UC, Irvine Satellite Meeting, October, 2001.

Williams, D.R. Wavefront Approach to Laser Refractive Surgery, Invited Talk, Food and Drug Administration, October 2001.

Williams, D.R. High Resolution Imaging of the Human Retina With Adaptive Optics, Columbia University, January, 2001.

Williams, D.R. Wavefront Sensing and Visual Performance, Columbia University, January, 2001.

Williams, D.R. The Visual Benefit of Correcting Higher Order Aberrations, Visual Science and its Applications, Monterrey, CA, 2, 2001.

Williams, D.R. Wavefront basics, New Orleans Academy of Ophthalmology, 51st Annual Symposium, New Orleans, LA, February 2002.

Williams, D.R. What can adaptive optics do for refractive surgery, New Orleans Academy of Ophthalmology, 51st Annual Symposium, New Orleans, LA, February 2002.

Williams, D.R. The limits of human vision, GSFC Scientific Colloquium, NASA Goddard Space Flight Center, Greenbelt, MD, March 2002.

Williams, D.R. A role for high resolution retinal imaging with adaptive optics in clinical research?, Steinbach Fund Meeting, New York City, April 2002.

Williams, D.R. Limits of human vision, Department of Physics and Astronomy Colloquium, UCLA, Los Angeles, CA, May 2002.

Williams, D.R. Assessment of optical aberrations of the eye: wavefront sensing and adaptive optics. ARVO, Ft. Lauderdale, FL, May 2002.

Williams, D.R. What adaptive optics can do for the eye, 1st Aegean Summer School in Visual Optics and Aegean Cornea VI, Thesoloniki, Greece, July 2002.

Williams, D.R. Color Vision, 1st Aegean Summer School in Visual Optics and Aegean Cornea VI, Thesoloniki, Greece, July 2002.

Williams, D.R. Subjective impact of higher order aberrations, 1st Aegean Summer School in Visual Optics and Aegean Cornea VI, Thesoloniki, Greece, July 2002.

Williams, D.R. Photoreceptors and resolution, 1st Aegean Summer School in Visual Optics and Aegean Cornea VI, Thesoloniki, Greece, July 2002.

Williams, D.R. Plenary talk, International Conference on Image Processing, Rochester, NY, September 25, 2002.

Williams, D.R. Measurement and correction of higher order aberrations, International Symposium on the Eye & Vision, Montreal, Canada, October 26, 2002.

Williams, D.R. Progress and puzzles at Rochester, CfAO Fall Retreat, Santa Cruz, CA, November 8, 2002.

Williams, D.R. Vision technology showcase presentation, Vision Technology Showcase, Lake Arrowhead, CA, November 9, 2002.

Williams, D.R. Wavefront research at Rochester, Lasik Plus VIP Tour/Visit, Rochester, NY, December 11, 2002.

COLLOQUIA

Distribution of blue-sensitive cones in the fovea. Kenneth Craik Club, University of Cambridge, Cambridge, England, 1978.

Punctate sensitivity of the blue-sensitive mechanism. Bell Telephone Laboratories, 1979.

Spatial organization of the blue cone system. Cambridge, England, 1980.

Punctate sensitivity of the blue sensitive cones. Department of Ophthalmology, University of Washington, 1980.

Punctate sensitivity of the blue sensitive cones. Department of Psychology, University of Rochester, 1980.

Aliasing by a human photoreceptor mosaic. Institute for Sensory Research, Syracuse University, 1983.

Optical and neural constraints on the human visual resolution. Laboratory of Laser Energetics, University of Rochester, 1984.

Optical and neural constraints on human visual resolution. University of Washington, 1984.

Optical and neural constraints on human visual resolution. Stanford University, California, 1984.

Optical and neural constraints on human visual resolution. University of California, Irvine, 1984.

Optical and neural constraints on human visual resolution. University of California, San Diego, 1984.

Optical and neural constraints on human visual resolution. University of California, Berkeley, 1984.

Limits of human visual resolution. Johns Hopkins University School of Medicine, Wilmer Eye Institute, 1985.

Human visual resolution. Cornell University, 1985.

How well can the eye really see? Denison University Alumni Scholar Colloquium, Department of Psychology, 1985.

The limits of human vision. Provost's Wednesday Evening Lecture Series, University of Rochester, 1985.

Neural contrast sensitivity. Cornell University, 1986.

Limits of vision. Nazareth College, 1986

Seeing through the photoreceptor mosaic. Good Samaritan Hospital, Department of Ophthalmology, Portland Oregon, 1986.

The limits of human vision, Department of Radiology, University of Rochester, 1986.

The limits of human vision, Department of Psychology, Dartmouth College, 1987.

Visual resolution and the photoreceptor mosaic, Brain and Cognitive Sciences, Massachusetts Institute of Technology, 1987.

Visual resolution and the photoreceptor mosaic, Institute of Optics, University of Rochester, 1987.

Visual resolution and the grain of the cone mosaic, University of Pennsylvania, 1988.

Color vision and the cone mosaic, New York University, 1988.

Limits of spatial vision, University of Alabama, 1988.

A nonlinearity in early spatial vision, Columbia University, 1989

Aliasing in human foveal vision, Columbia University, 1989

Spatial sampling in human vision, University of Texas, Austin, 1989

Image motion and spatial sampling, University of California, San Diego, 1989

On measuring the cone mosaic in the living human eye. Eye Research Institute, Boston, MA, 1989

There is more to seeing than meets the eye. University Forum, University of Rochester, 1989.

Spatial sampling in human vision. University of Waterloo, Waterloo, Canada, 1990.

Spatial aliasing by chromatic mechanisms in human vision, Polaroid Corporation, Boston, MA, 1990.

Spatial aliasing by chromatic mechanisms in human vision, University of Michigan, Ann Arbor, MI, 1990.

The cost of trichromacy for spatial vision, Laboratoire de Physique Appliquée du Muséum, Paris, France, 1990.

The cost of trichromacy for spatial vision, University of Valencia, Valencia, Spain, 1990.

The cost of trichromacy for spatial vision, C.S.I.C. Instituto de Optica, Madrid, Spain, 1990.

The cost of trichromacy for spatial vision, Rochester Institute of Technology, Rochester, New York, 1991.

Color, contrast sensitivity, and the cone mosaic, Rockefeller University, 1992.

The passage of light through primate photoreceptors, Universidad de Murcia, Murcia, Spain, 1995.

Images of cone photoreceptors in the living human eye, University of Chicago, 1995.

Images of cone photoreceptors in the living human eye, University of California, San Diego, 1995.

Images of cone photoreceptors in the living human eye, Institute for Sensory Research, Syracuse University, 1995.

Images of cone photoreceptors in the living human eye, School of Optometry, University of Waterloo, Waterloo, Ontario, 1995.

High resolution imaging of the living human retina, Department of Biological Structure, University of Washington, Seattle, Washington, May, 1996.

Photopigment transmittance imaging, Vision Group, University of Washington, Seattle, Washington, May, 1996.

Pushing the optical limits of the human eye, Section of Neurobiology and Behavior Seminar, Cornell University, Ithaca, NY, May, 1996.

Adaptive optics for the human eye, University of Houston College of Optometry, April, 1997.

Adaptive optics for the human eye, University of California, San Diego, February, 1998.

Adaptive optics for the human eye, University of California, Berkeley, February, 1998.

Microscopic imaging of the living human retina, University of Washington, March, 1998.

Adaptive Optics for the Human Eye, Center for Neural Science, NYU, New York, NY, 4/98.

Adaptive Optics for the Human Eye, Department of Ophthalmology, Mt. Sinai School of Medicine, NY, NY, 4/98

Adaptive Optics for the Human Eye, Bioengineering, UCB, Berkeley, CA, 11/98.
High Resolution Retinal Imaging through Adaptive Optics, Stanford University, Palo Alto, CA
12/98

Adaptive Optics for the Human Eye, Lawrence Livermore National Laboratory, Livermore, CA
12/98.

Adaptive Optics for the Human Eye, Broadhurst Distinguished Lecture, Schepens Eye Research
Institute, Boston, MA, March, 1999.

BOOKS EDITED

Handbook of Optics, Optical Society of America, Editor in Chief, Michael Bass, Assoc. Editors,
E.W Van Stryland, D.R. Williams, and W.L. Wolfe, 2nd edition, McGraw-Hill, Inc., 1995.

BOOK CHAPTERS , BOOK REVIEWS, AND UNREFEREED PUBLICATIONS

Williams, D.R., Collier, R., and Thompson, B.J. (1983) Spatial resolution of the short
wavelength mechanism. In: Mollon, J.D. and Sharpe, L.T. (eds.) *Colour Vision: Physiology and
Psychophysics*, Academic Press, London.

Wagner, S.H. and Williams, D.R. (1983) Out of the eyes and ears of babes. *Contemporary
Psych.*, 28, 531-532. (Review of "Development in Infancy" by J.G.R. Bower.)

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readings from *Scientific American*, with introductions by Jeremy M. Wolfe.)

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pp. 135-148.

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(Ed.), *Tutorials in Optics*, Optical Society of America.

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Processing*. MIT Press. pp. 71-82.

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Roorda, A. and Williams, D.R. (1997) New directions in imaging the retina. *Optics & Photonics News*, 8, 23-29.

Liang, J., Williams, D.R., Miller, D.T. (1997) Imaging photoreceptors in the living eye with adaptive optics. In: Lakshminarayanan, V. (Ed.). *Basic and Clinical Applications of Vision Science, The Professor Jay M. Enoch Festschrift Volume, Documeta Ophthalmologica Proceedings Series 60*, Kluwer Academic Publishers, Dordrecht, the Netherlands, 43-46.

Packer, O.S. and Williams, D.R. (1997) Photopigment absorptance and directional sensitivity in peripheral primate retina. Lakshminarayanan, V. (Ed.) *Basic and Clinical Applications of Vision Science, The Professor Jay M. Enoch Festschrift Volume, Documeta Ophthalmologica Proceedings Series 60*, Kluwer Academic Publishers, Dordrecht, the Netherlands, 47-50.

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Williams, D.R., Liang, J., Miller, D.T., and Roorda, A. (2000). Wavefront Sensing and Adaptive Compensation for the Human Eye. Robert K. Tyson (Ed) *Adaptive Optics Engineering Handbook*, Marcel Dekker. 287-310.

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Porter, J., Guirao, a., Williams, D.R., Cox, I., (2000) "A compact description of the eye's monochromatic aberrations in a large population.", *OSA Trends in Optics and Photonics Vol. 35, Vision Science and its Applications*, Vasudevan Lakshminarayanan, Ed. (Optical Society of America, Washington, DC) 199-204

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Applegate, R., Azar, D., Klyce, S., Williams, D.R. Corneal Topography versus Wavefront Sensing. *Review of Refractive Surgery* 2002, 3(3), 7-13.

Williams, D.R. What Adaptive Optics Can Do For The Eye. *Review of Refractive Surgery* 2002, 3(3), 14-20.

Guirao, A., Williams, D.R., Porter, J., Yamauchi, Y. (in press) Fundamentals of vision. Proceeding of the Summer School on Adaptive Optics.

Guirao, A., Miller, D.T., Williams, D.R., Porter, J., Yamauchi, Y. (in press) Ocular aberration and their measurement. Proceeding of the Summer School on Adaptive Optics.

Yamauchi, Y., Williams, D.R., Porter, J., Guirao, A. (in press) Correction of the eye's wave aberration. Proceeding of the Summer School on Adaptive Optics.

Yamauchi, Y., Roorda, A., Williams, D.R., Porter, J., Guirao, A. (in press) Applications of adaptive optics for vision science. Proceeding of the Summer School on Adaptive Optics.

Packer, O., Williams, D.R. (in press) Light, the retinal image, and photoreceptors. (The Science of Color), 2nd Edition, Chapter 2.

Williams, D.R., Porter, J., Yoon, G.Y., Guirao, A., Hofer, H., Chen, L., Cox, I., MacRae, S. (in press) Chapter 2. How far can we extend the limits of human vision?

Roorda, A., Williams, D.R. (in press) Retinal imaging using adaptive optics.

Williams, D.R. (in press) Wavefront Basics. Wavefront and Emerging Refractive Technologies, p. xx-xx. Proceedings of the 51st Annual Symposium of the New Orleans Academy of Ophthalmology, New Orleans, LA, USA, February 22-24, 2002.

Williams, D.R. (in press) What Adaptive Optics Can Do For The Eye. Wavefront and Emerging Refractive Technologies, p. xx-xx. Proceedings of the 51st Annual Symposium of the New Orleans Academy of Ophthalmology, New Orleans, LA, USA, February 22-24, 2002.

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- Williams, D.R. and Coletta, N.J. (1987) Cone spacing and the visual resolution limit. *J. Opt. Soc. Am.*, 4, 1514-1523.
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OTHER 2002

Review Grant Proposals- NEI Vision 01 Meeting, Washington DC, March 14, 2002.

Proposal Reviewer for Science Foundation Ireland, Dublin, Ireland.

Served as panel for Wavefront Technology, New Orleans Academy of Ophthalmology

Chairs the Bi-Weekly Video/Teleconferences with members of Center for Adaptive Optics

Coordinated the Fall and Spring Retreats for the Center for Adaptive Optics

Chaired the AOI2 Bi-Weekly Video/Telecon Meetings

Coordinated AOI2 Site Visit Meetings in October (Houston), November (Boston), and January (Rochester)

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