

JENNIFER JOAN HUNTER

CURRENT POSITION Assistant Professor of Ophthalmology
Flaum Eye Institute
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EDUCATION Ph.D. Physics and Vision Science, 2007,
“Image Quality in Ocular Development and Fundus Imaging”
Advisor: Melanie CW Campbell
Completed October 27, 2006
University of Waterloo, Waterloo, Ontario, Canada

M.Sc. Physics, 2001,
“Optical Analysis of New Methods for Presbyopia Correction”
Advisor: Melanie CW Campbell
University of Waterloo, Waterloo, Ontario, Canada

B.Sc. Honours Physics, 1999,
University of Waterloo, Waterloo, Ontario, Canada

PROFESSIONAL EXPERIENCE

09/2011 – present Assistant Professor; Flaum Eye Institute, Department of Ophthalmology, University of Rochester, Rochester, NY; Steven Feldon (department chair)

09/2011 – present Joint Appointment; Biomedical Engineering, University of Rochester, Rochester, NY

05/2011 – present Joint Appointment; Center for Visual Science, University of Rochester, Rochester, NY; David Williams (director)

06/2010 – 08/2011 Research Assistant Professor; Flaum Eye Institute, Department of Ophthalmology, University of Rochester, Rochester, NY; Steven Feldon (department chair)

09/2006 – 05/2010 Postdoctoral Research Associate; Center for Visual Science, University of Rochester, Rochester, NY; David Williams (supervisor)

09/1999 – 04/2006 Teaching Assistant; School of Optometry, University of Waterloo, Waterloo, ON, Canada; William Bobier (department chair); part-time

05/1999 – 08/1999 Summer Research Assistant; Department of Physics, University of Waterloo, Waterloo, ON, Canada; James Lepock (supervisor)

09/1998 – 04/1999 Research Student; Department of Physics, University of Waterloo, Waterloo, ON, Canada; Stefan Idziak (supervisor); part-time

05/1998 – 08/1998 Summer Research Assistant; Department of Physics, University of Waterloo, Waterloo, ON, Canada; Anthony Anderson (supervisor)

PROFESSIONAL SOCIETIES AND PUBLIC ADVISORY COMMITTEES

2014 – present	NEI Special Emphasis Panel ZRG1 ETTN-G (12) Small business: Sensory technologies, member
2014 – present	Chair, Vision and Color Division, Optical Society of America (OSA)
2012 – present	ANSI Z136 Safe Use of Lasers standards subcommittee (SSC-1), member
2012 – present	OSA VA Applications of Visual Science technical group development committee, member
2011 – 2013	Associate Chair, Vision and Color Division, Optical Society of America (OSA)
2011 – 2012	Chair, Local organising committee, OSA Vision Meeting 2012
2011	National Eye Institute Special Emphasis Panel ZEY1 -(01) NEI Mentored Training Grant Applications, member
2010 – present	Reviewer for Vision Research, Journal of Biomedical Optics, Biomedical Optics Express, Investigative Ophthalmology and Vision Science, Optometry & Vision Science, PLOS ONE
2010 – 2013	Chair, Vision and Color subcommittee, Frontiers in Optics, OSA
2010	International Society for Eye Research, member
2010	American Society for Photobiology, member
2009 – present	ANSI Z136 Laser Bioeffects & Medical Surveillance subcommittee (TSC-1), member
2001 – present	Association for Research in Vision and Ophthalmology, member
2004, 2007 – present	Optical Society of America, member
2008	OSA Vision Meeting Local Organising Committee, member
2007	Rochester Local Section of OSA member
2004 – 2006	University of Waterloo Graduate Student Association Vice-President Operations & Finance
2000 – 2006	South Western Ontario Section of OSA, educational outreach committee member
2001, 2006	University of Waterloo Graduate Student Association Director-at-Large
2002 – 2005	University of Waterloo Graduates in Vision Science Treasurer
2000 – 2004	South Western Ontario Section of the Optical Society of America, treasurer and student representative
2000 – 2001	University of Waterloo Graduates in Vision Science representative to the Graduate Student Association
2000 – 2001	University of Waterloo Graduate Student Association Council Member
2000 – 2001	Joint Health and Safety committee of the University of Waterloo, Graduate Student Representative

HONORS

2010	ISER Travel Fellowship
2010	Frederick Urbach Memorial Travel Award
2007	Summer School on Visual Optics Travel Fellowship
2001, 2005, 2007	American Academy of Optometry Travel Fellowship
2006	Engineering the Eye II Travel Fellowship
2006	ARVO International Travel Grant
2006	Best Health Poster Presentation, University of Waterloo Graduate Student Research Conference
2006	Doctoral Thesis-Completion Award, University of Waterloo
2005-2006	Ontario Graduate Scholarship
2005-2006	President's Graduate Scholarship, University of Waterloo
2004-2006	University of Waterloo Graduate Scholarship

2000, 2002-2006 2005	Graduate Studies Office, Research Travel Assistance, University of Waterloo H. Winston Algate Bursary, University of Waterloo
1999-2005	Faculty of Science Provost's Incentive Program Scholarship, University of Waterloo
2001, 2004 2003	Ontario Graduate Scholarship in Science and Technology Best Health Oral Presentation, University of Waterloo Graduate Student Research Conference
2001-2002 1999 1998 1995	NSERC Industrial Postgraduate Scholarship NSERC Undergraduate Research Award, University of Waterloo WATSPA Summer Research Scholarship, University of Waterloo Biology Entrance Scholarship, University of Waterloo

PUBLICATIONS

Articles in refereed journals

1. Masella BD, Hunter JJ, Williams DR. (2014) New wrinkles in retinal densitometry. *IOVS*. **55**(11):7525-34.
2. Masella BD, Hunter JJ, Williams DR. (2014) Rod photopigment kinetics after photodisruption of the retinal pigment epithelium. *IOVS*. **55**(11):7535-44.
3. Palczewska G, Dong ZQ, Golczak M, Hunter JJ, Williams DR, Alexander NS, Palczewski K. (2014) Noninvasive two-photon microscopy imaging of mouse retina and retinal pigment epithelium through the pupil of the eye. *Nature Medicine*. **20**(7):785-789.
4. Strazzeri JM, Hunter JJ, Masella BD, Yin L, Fischer WS, DiLoreto DA Jr, Libby RT, Williams DR, Merigan WH. (2014) Focal damage to macaque photoreceptors produces persistent visual loss. *Exp Eye Res*. **119**:88-96.
5. Palczewska G, Golczak M, Williams DR, Hunter JJ, Palczewski K. (2014) Endogenous fluorophores enable two-photon imaging of the primate eye. *IOVS*. **55**(7): 4438-4447.
6. Masella BD, Williams DR, Fischer WS, Rossi EA, Hunter JJ. (2014) Long-term reduction in infrared autofluorescence caused by infrared light below the maximum permissible exposure. *IOVS*. **55**(6):3929-3938.
7. Sharma R, Yin L, Geng Y, Merigan WH, Palczewska G, Palczewski K, Williams DR, Hunter JJ. (2013) *In vivo* two-photon imaging of the mouse retina. *Biomedical Optics Express*. **4**(8):1285-1293.
8. Yamamoto K, Zhou J, Hunter JJ, Williams DR, Sparrow JR. (2012) Toward an Understanding of Bisretinoid Autofluorescence Bleaching and Recovery. *IOVS* **53**(7):3536-44.
9. Kisilak ML, Bunghardt K, Hunter JJ, Irving EL, Campbell MC. (2012) Longitudinal *in vivo* imaging of cones in the alert chicken. *Optom Vis Sci*. **89**(5):644-51.
10. Hunter JJ, Morgan JIW, Merigan WH, Sliney DH, Sparrow JR, Williams DR. (2012) The susceptibility of the retina to photochemical damage from visible light. *Progress in Retinal and Eye Research*. **31**(1):28-42.

11. Rossi EA, Chung M, Dubra A, Hunter JJ, Merigan WH, Williams DR. (2011) Imaging retinal mosaics in the living eye. *Eye*. **25**:301-308; doi:10.1038/eye.2010.221.
12. Yin L, Greenberg K, Hunter JJ, Dalkara D, Kolstad KD, Masella BD, Wolfe R, Visel M, Stone D, Libby RT, DiLoreto Jr. D, Schaffer DV, Flannery J, Williams DR, Merigan WH (2011) Intravitreal injection of AAV2 transduces macaque inner retina. *IOVS* **52**(5):2775-2783.
13. Hunter JJ, Masella B, Dubra A, Sharma R, Yin L, Merigan WH, Palczewska G, Palczewski K, Williams DR. (2011) Images of photoreceptors in living primate eyes using adaptive optics two-photon ophthalmoscopy. *Biomedical Optics Express*. **2**(1):139-148.
14. Morgan JIW, Hunter JJ, Merigan WH, Williams DR. (2009) The reduction of retinal autofluorescence caused by light exposure. *IOVS*. **50**(12):6015-22.
15. Geng Y, Greenberg KP, Wolfe R, Gray DC, Hunter JJ, Dubra A, Flannery JG, Williams DR, Porter J. (2009) In vivo imaging of microscopic structures in the rat retina. *IOVS*. **50**(12):5872-5879.
16. Hunter JJ, Campbell MCW, Ksilak ML, Irving EL. (2009) Blur on the retina due to higher-order aberrations: Comparison of eye growth models to experimental data. *J Vis*. **9**(6):12, 1-20, <http://journalofvision.org/9/6/12/>, doi:10.1167/9.6.12.
17. Scoles D, Gray DC, Hunter JJ, Wolfe R, Gee BP, Geng Y, Masella BD, Libby RT, Russell S, Williams DR, Merigan WH. (2009) *In-vivo* imaging of retinal nerve fiber layer vasculature: imaging histology comparison. *BMC Ophthalmology*. **9**:9 doi:10.1186/1471-2415-9-9.
18. Bueno JM, Cookson CJ, Hunter JJ, Ksilak ML, Campbell MCW. (2009) Depolarization properties of the optic nerve head: The effect of age. *Ophthalmic and Physiological Optics*. **29**(3):247-55.
19. Morgan JIW, Hunter JJ, Masella B, Wolfe R, Gray DC, Merigan WH, Delori FC, Williams DR. (2008) Light-induced retinal changes observed using high-resolution autofluorescence imaging of the retinal pigment epithelium. *IOVS*. **49**(8):3715-3729.
20. Ksilak ML, Hunter JJ, Huang L, Campbell MCW, Irving EL. (2008) In chicks wearing high powered negative lenses, spherical refraction is compensated and oblique astigmatism is induced. *Journal of Modern Optics*. **55**(4):611-623.
21. Bueno JM, Hunter JJ, Cookson CJ, Ksilak ML, Campbell MCW (2007) Improved scanning laser fundus imaging using imaging polarimetry. *JOSA A*. **24**(5):1337-48.
22. Hunter JJ, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW (2007) Characterizing image quality in a scanning laser ophthalmoscope with differing pinholes and induced scattered light. *JOSA A*. **24**(5):1284-95.
23. Bueno JM, Hunter JJ, Campbell MCW (2007) Miopia y aberraciones en adultos jóvenes. *Gaceta Optica* **413**:20-26.
24. Bueno JM, Hunter JJ, Cookson CJ, Ksilak ML and Campbell MCW. (2006) Polarization and confocal ophthalmoscopy. *Opt Pura Apl*. **39**(3):225-233.
25. Hunter JJ, Campbell MCW. (2006) Potential effect on the retinoscopic reflex of scleral expansion surgery for presbyopia. *Optom Vis Sci*. **83**(9):649-656.

26. Ksilak ML, Campbell MCW, Hunter JJ, Irving EL, Huang L. (2006) Aberrations of chick eyes during normal growth and lens induction of myopia. *J Comp Physiol A*. **192**(8):845-55.
27. Hunter JJ, Campbell MCW, Geraghty E. (2006) Optical analysis of an accommodating IOL. *J Cataract Refract Surg*. **32**(2):269-278.
28. Anderson A, Hunter J. (2000) Raman spectra of molecular crystals at high pressure: V. Iodine cyanide. *Journal of Raman Spectroscopy*. **31**:955-958.

Conference communications

1. Hunter JJ, Masella BD, Fisher W, Rossi EA, Williams DR. (2014) Long-term reduction of infrared autofluorescence caused by infrared light below the maximum permissible exposure. IOVS 55: ARVO E-Abstract 2172 (paper).
2. Masella BD, Hunter JJ, Williams DR. (2014) Rod photopigment kinetics after disruption of the retinal pigment epithelium with visible light exposure. IOVS 55: ARVO E-Abstract 1651 (paper).
3. Saito K, Nozato K, Suzuki K, Roorda A, Dubra A, Song H, Hunter JJ, Williams DR, Rossi EA. (2014) Rods and cones imaged with a commercial adaptive optics scanning light ophthalmoscope (AOSLO) prototype. IOVS 55: ARVO E-Abstract 1594 - D0009 (poster).
4. Zhang J, Saito K, Yang Q, Nozato K, Suzuki K, Hunter JJ, Williams DR, Rossi EA. (2014) An integrated adaptive optics scanning light ophthalmoscope (AOSLO) and wide-field SLO (WF-SLO) for steerable high resolution retinal imaging. IOVS 55: ARVO E-Abstract 5017 (paper).
5. Song H, Pugliese A, Rossi EA, Latchney LR, Stone EM, Dubra A, Hunter JJ, Chung MM. (2013) Adaptive Optics Scanning Laser Ophthalmoscopy in Stargardt Disease Reveals Decreased Cone and Rod Densities. IOVS 54: ARVO E-Abstract 1743 (paper).
6. Hunter JJ, Masella BD, Fischer W, Williams DR. (2013) Long term retinal changes from near IR light exposure well below current safety standards. International Laser Safety Conference. Paper 901.
7. Sharma R, Sulai YN, Geng Y, Hunter JJ, Williams DR (2012) Tunable achromatizing lens for the mouse eye. *Frontiers in Optics, OSA Annual Meeting*. FTu5G.2
8. Hunter JJ. (2012) Two-photon imaging of the retina. *European Topical Meeting on Visual & Physiological Optics (EMVPO)*, Dublin, Ireland, August 20-22, 2012 (invited paper).
9. Hunter JJ, Rossi EA, Fischer W, Dubra A, Chung MM. (2012) Disrupted RPE and intact photoreceptors observed *in vivo* with Fluorescence Adaptive Optics Scanning Laser Ophthalmoscopy years following accidental laser exposures in humans. IOVS 53:ARVO E-Abstract 5673 (poster).
10. Sharma R, Geng Y, Yin L, Merigan WH, Williams DR, Hunter JJ. (2012) *In Vivo* Two-Photon Imaging Of Mouse Retina. IOVS 53: ARVO E-Abstract 5600 (paper).
11. Masella BD, Hunter JJ, Williams DR. (2012) Quantitative Assessment of Photoreceptor Function using Adaptive Optics Photopigment Densitometry. IOVS 53: ARVO E-Abstract 5677 (poster).

12. Masella B, Hunter JJ, Yin L, Strazzeri J, Dubra A, Merigan WH, Williams DR. (2011) No Loss Of Photopigment Kinetics Or Contrast Sensitivity Seen After Photochemical Insult To The Retinal Pigment Epithelium. IOVS 52: ARVO E-Abstract 3199 (poster).
13. Zhou J, Hunter JJ, Masella B, Williams DR, Sparrow JR. (2011) Bleaching and Recovery of RPE Autofluorescence. IOVS 52:ARVO E-Abstract 3201 (poster).
14. Merigan WH, Strazzeri J, DiLoreto Jr. DA, Fischer W, Hunter JJ, Masella B, Williams DR. (2011) Visual Recovery After Outer Retinal Damage in the Macaque. IOVS 52: ARVO E-Abstract 3202 (poster).
15. Geng Y, Sharma R, Dubra A, Ahmad K, Twietmeyer T, Masella B, Hunter JJ, Libby RT, Williams DR. (2011) High Resolution In Vivo Imaging Of The Mouse Retina Using An Adaptive Optics Scanning Laser Ophthalmoscope. IOVS 52: ARVO E-Abstract 5871 (paper).
16. Schallek JB, Masella B, Hunter JJ, Williams DR (2011) Stimulus-dependent Changes In Capillary Blood Velocity Revealed With Adaptive Optics Scanning Laser Ophthalmoscopy. IOVS 52: ARVO E-Abstract 6029 (poster).
17. Hunter JJ. (2011) Pushing the limits of high-resolution retinal imaging. Optics in the Life Sciences: OSA Optics and Photonics Congress, Bio-Optics: Design and Application, Monterey, CA. BMA4 (invited paper).
18. Yin L, Dalkara D, Greenberg K, Hunter JJ, Masella BD, Visel M, DiLoreto Jr. D, Flannery J, Williams DR, Merigan WH. (2010) AAV-mediated gene delivery to retinal ganglion cells in the macaque eye. Society for Neuroscience Annual Meeting, San Diego, CA (poster).
19. Hunter JJ, Masella B, Dubra A, Sharma R, Yin L, Merigan WH, Palczewska G, Palczewski K, Williams DR. (2010) Towards Functional Measurements of Vision in the Living Macaque Retina using Two-Photon Fluorescence Imaging. Fall Vision Meeting, Rochester, NY (paper).
20. Hunter JJ, Masella B, Dubra A, Sharma R, Palczewska G, Palczewski K, Williams DR. (2010) Advances in *in vivo* two-photon retinal imaging. International Society for Eye Research, Montreal, QC, Canada. O220 (invited paper).
21. Hunter J, Morgan J, Masella B, Merigan W, Delori F, Sliney D, Williams D. (2010) Progress on New Thresholds for Photochemical Damage from Ophthalmic Exposures. American Society for Photobiology, Providence, RI. MN6-6 (invited paper).
22. Hunter JJ, Masella B, Dubra A, Sharma R, Palczewska G, Palczewski K, Williams DR. (2010) *In vivo* two-photon imaging of macaque retina. IOVS 51:ARVO E-Abstract 3451 (paper).
23. Sliney D, Hunter JJ, Delori FC, Williams DR, Mellerio J. (2010) Competing photochemical retinal damage mechanisms from visible light: Implications for human retinal exposure limits. IOVS 51:ARVO E-Abstract 3456 (paper). Hunter JJ, Morgan JIW, Williams DR. (2009) Unexpected retinal damage below the ANSI standard. Frontiers in Optics, OSA Annual Meeting (invited paper).
24. Hunter JJ, Morgan JIW, Norris JL, Williams DR. (2009) Multiple lipofuscin fluorophores are involved in photochemically-induced autofluorescence reduction. IOVS 50:ARVO E-Abstract 5168 (paper).

25. Merigan WH, Morgan JIW, Wolfe R, Hunter JJ, Williams DR. (2009) Ex vivo Changes in Retinal Pigment Epithelial Autofluorescence With Light Exposure. IOVS 50:ARVO E-Abstract 345 (poster).
26. Hunter JJ, Morgan JIW, Merigan WH, Williams DR. (2009) Retinal phototoxicity observed using high-resolution autofluorescence imaging. International Laser Safety Conference. Paper 202 (invited paper).
27. Hunter JJ, Morgan JIW, Sentiff J, Merigan WH, Williams DR. (2008). Photochemically induced autofluorescence decrease and retinal pigment epithelial damage [Abstract]. Journal of Vision, 8(17):59 (poster).
28. Geng Y, Porter J, Greenberg KP, Wolfe R, Gray DC, Hunter JJ, Dubra A, Masella BD, Flannery JG, Williams DR. (2008). Adaptive optics imaging of microscopic structures in rat retina in vivo [Abstract]. Journal of Vision, 8(17):18 (paper).
29. Campbell MCW, Hunter JJ, Kisilak ML, Irving EL (2008) Wavefront-based eye models for the study of developmental changes. Frontiers in Optics, OSA Annual Meeting, FThA4 (paper).
30. Hunter JJ, Morgan JIW, Wolfe R, Sparrow JR, Williams DR (2008) Ex vivo Changes in Retinal Pigment Epithelial Autofluorescence With Light Exposure. IOVS 49: ARVO E-Abstract 1843 (poster).
31. Bueno JM, Cookson CJ, Hunter JJ, Kisilak ML, Campbell MCW (2008) Imaging the Fundus of the Eye Through Polarization: Dependence With Age. IOVS 49: ARVO E-Abstract 3209 (poster).
32. Campbell MCW, Hunter JJ, Kisilak ML, Irving EL (2008) Retinal Image Quality During Ocular Development in Chick, Monkey and Human. IOVS 49: ARVO E-Abstract 3715 (paper).
33. Cookson CJ, Bueno JM, Kisilak ML, Hunter JJ, Campbell MCW (2008) Comparison of Polarization Techniques for Enhanced Fundus Imaging. IOVS 49: ARVO E-Abstract 4212 (poster).
34. Merigan WH, Scoles D, Hunter JJ, Masella B, Greenberg KP, Flannery JG, Libby RT, Williams DR (2008) Tracking Transfection of Macaque Retinal Ganglion Cells With AAV2 Viral Vectors; In vivo Imaging Reveals Differences Between Two Promoters. IOVS 49: ARVO E-Abstract 4514 (paper).
35. Morgan JIW, Hunter JJ, Wolfe R, Masella B, Sparrow JR, Merigan WH, Williams DR (2008) Reciprocity of Light-Induced Reduction in Retinal Pigment Epithelial Autofluorescence. IOVS 49:ARVO E-Abstract 4516 (paper).
36. Hunter JJ, Morgan JIW, Wolfe R, Sparrow J, Williams DR (2007) Decrease and Recovery of *in vitro* Retinal Pigment Epithelium Autofluorescence Intensity in Response to Visible Light. Journal of Vision 7(15):67 (poster).
37. Morgan JIW, Hunter JJ, Masella B, Wolfe R, Merigan WH, Williams DR (2007) Light Exposures Cause In Vivo Changes in Retinal Autofluorescence. Journal of Vision 7(15):16 (paper).
38. Hunter JJ, Cookson CJ, Kisilak ML, Bueno JM, Campbell MCW (2007) Metrics to Quantify the Global Quality of Confocal Scanning Laser Ophthalmoscopic Images of the Aging Eye. IOVS 48: Abstract 2768 (poster).

39. Ksilak ML, Hunter JJ, Irving EL, Campbell MCW (2007) In Vivo Imaging of Photoreceptors in the Alert Chicken. IOVS 48: Abstract 1191 (poster).
40. Epps LGL, Hunter JJ, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW (2007) Quantifying the Quality of Confocal Scanning Laser Ophthalmoscopic Images of Blood Vessels. IOVS 48: Abstract 2755 (poster).
41. Cookson CJ, Bueno JM, Ksilak ML, Hunter JJ, Campbell MCW (2007) Enhancing Fundus Retinal Images through Polarization and Overall Image Quality Metrics. IOVS. 48: Abstract 4251 (poster).
42. Masella B, Morgan JIW, Merigan W, Gray DC, Hunter JJ, Wolfe R, Geng Y, Williams DR. (2007) Retinal Damage Observed With Autofluorescence Imaging of Retinal Pigment Epithelium Cells *in Vivo*. IOVS 48: Abstract 2770 (poster).
43. Hunter JJ, Campbell MCW, Ksilak ML (2006) Behaviour of Image Quality Metrics in the Presence of Defocus and Aberrations. Journal of Vision. 6(13):52 (poster).
44. Hunter JJ, Ksilak ML, Campbell MCW, Irving EL and Huang L. (2006) Predictions of blur sensitivity improvement in the growing chick eye. IOVS 47: E-Abstract 3337 (poster).
45. Ksilak ML, Hunter JJ, Campbell MCW, Irving EL and Huang L. (2006) Chicks track -30D goggles and large amounts of astigmatism are induced. IOVS. 47:E-Abstract 1799 (paper).
46. Bueno JM, Cookson CJ, Ksilak ML, Hunter JJ, Campbell MCW. (2006) Degree of polarization of light reflected from optic nerve head. IOVS 47: E-Abstract 4059 (poster).
47. Hutchings N, Cookson CJ, Hunter JJ, Ksilak ML, Liang Q, Bueno JM, Campbell MCW (2006) Subjective evaluation of polarisation images of the optic nerve head and retinal structures. IOVS 47: E-Abstract 4060 (poster).
48. Campbell MCW, Bueno JM, Cookson CJ, Liang Q, Ksilak ML, Hunter JJ. (2005) Enhanced confocal microscopy and ophthalmoscopy with polarization imaging. Photonics North: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging 5969, 611-6 (paper).
49. Hunter JJ, Ksilak ML, Campbell MCW, Irving EL, Huang L. (2005) The chick's view during normal growth and lens induction of myopia. IOVS 46: E-Abstract 2282 (paper).
50. Ksilak ML, Hunter JJ, Campbell MCW, Irving EL, Huang L. (2005) Optical changes in normal chick eyes with age and in eyes with lens-induced myopia. IOVS 46: E-Abstract 1971 (poster).
51. Campbell MCW, Hunter JJ, Cookson CJ, Bueno JM, Ksilak ML. (2005) Spatially resolved mueller matrix analysis of properties of the optic nerve head. IOVS. 46:E-Abstract 2556 (poster).
52. Hunter JJ, Ksilak ML, Campbell MCW, Huang L, Irving EL. (2004) Astigmatism in chicks growing with and without goggles. IOVS 45: Abstract 4299 (poster).
53. Ksilak ML, Campbell MCW, Hunter JJ, Huang L, Irving EL. (2004) Monochromatic aberrations emmetropize in chicks with and without goggles. IOVS 45: Abstract 1155 (paper).
54. Huang L, Ksilak ML, Irving EL, Hunter JJ, Campbell MCW. (2004) Monochromatic aberrations and astigmatism in chicks recovering from lens induced myopia. IOVS. 45: Abstract 4300 (poster).

55. Guthrie SI, Bueno JM, Kisilak ML, Hunter JJ, Campbell MCW. (2004) Polarimetry of the optic nerve head and lamina cribrosa. IOVS. 45: Abstract 2796 (poster).
56. Campbell MCW, Bueno JM, Hunter JJ, Kisilak ML, Irving EL. (2003) Ophthalmic lens effects in hartmann-shack measurements. Journal of Vision. 3(12): Abstract 29 (paper).
57. Hunter JJ, Campbell MCW, Kisilak ML, Irving EL. (2003) Signals to the direction of defocus from monochromatic aberrations in chick eyes that develop lens induced myopia. IOVS. 44, Abstract 4341 (paper).
58. Campbell MCW, Hunter JJ, Kisilak ML, Irving, Huang L. (2003) Image quality on the retina of the chick eye during emmetropization: Goggled vs control eyes. IOVS. 44, Abstract 1993 (poster).
59. Kisilak ML, Campbell MCW, Hunter JJ, Irving EL, Huang L. (2003) Monochromatic aberrations in the chick eye during emmetropization: Goggled vs control eyes. IOVS. 44, Abstract 4340 (paper).
60. Campbell MCW, Kisilak ML, Hunter JJ, Bueno JM, King D, Irving EL. (2002) Optical aberrations of the eye and eye growth: Why aberrations may be important to understanding refractive error development. Journal of Vision. 2(10): Abstract 111 (invited paper).
61. Hunter JJ, Campbell MCW, Priest AD. (2002) An optical model of the human eye and its applications. Opto-Canada: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging, SPIE TD01, 324-6 (paper).
62. Hunter JJ, Campbell MCW, Kisilak ML. (2002) Photonics professionals and the new grade 8 optics curriculum. Opto-Canada: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging, SPIE TD01, 533-4 (paper).
63. Campbell MCW, Bueno JM, Hunter JJ, King D, Kisilak M. (2002) Optical wavefronts and the eye: Implications to vision and diagnosis. Opto-Canada: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging, SPIE TD01, 327-330 (paper).
64. Kisilak ML, Campbell MCW, Irving EL, Hunter JJ. (2002) Hartmann-Shack measurements of the monochromatic image quality in the chick eye during emmetropization. IOVS. 43, Abstract 2924 (paper).
65. Campbell MCW, Bueno JM, Hunter JJ. (2002) Improvement of confocal scanning laser ophthalmoscope images using polarimetry. IOVS. 43, Abstract 953 (paper).
66. King D, Campbell MCW, Bueno JM, Hunter J J. (2001) Image quality as a function of defocus and monochromatic aberrations and implications to emmetropization. OSA 2001 Annual Meeting Program, 75 (paper).
67. Hunter JJ, Campbell MCW, Priest D. (2001) Possible explanations of changes seen following scleral expansion surgery for presbyopia. IOVS. 42, S394 (poster).
68. Campbell MCW, Priest D, Hunter JJ. (2001) The Importance of monochromatic aberrations to detecting defocus in retinal images. IOVS. 42, S98 (paper).

69. Hunter JJ, Campbell MCW, Geraghty E. (2000) Accommodative power change with lens (IOL) movement. Optical Society of America (OSA) Annual Meeting, Optics and Photonics News (supp), 11, 100 (paper).

Other

1. Hunter JJ. (2014) Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. IEEE EMBS Rochester Chapter Seminar. Rochester, NY (invited paper).
2. Hunter JJ. (2014) Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. Center for Imaging Science Seminar. Rochester Institute of Technology, Rochester, NY (invited paper).
3. Hunter JJ. (2014) Seeing cells in the living retina using two-photon fluorescence imaging. ARVO SIG. Orlando, FL (invited paper).
4. Sharma R, Williams DR, Palczewska G, Palczewski K, Hunter J. (2014) Two-photon imaging of inner and outer retina in the living primate eye. ARVO/ISIE Imaging Conference. Orlando, FL. Program Number 23 (paper).
5. Hunter JJ. (2014) Fluorophores as Optical Sensors. American Glaucoma Society. Washington, DC (invited paper).
6. Hunter JJ. (2014) Seeing Cells in the Living Eye. Wavefront Presbyopic & Refractive Corrections. Dana Point, CA (invited paper).
7. Hunter JJ. (2013) Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. OSA Rochester Section. Rochester, NY (paper).
8. Hunter JJ. (2013) Seeing cells in the living eye using two-photon fluorescence imaging. Biomedical Engineering, Cornell University. Ithaca, NY (paper).
9. Hunter JJ. (2013) Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. Indiana University School of Optometry Oxyopia Research Seminar Series. Bloomington, IN (paper).
10. Hunter JJ. (2013) Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. University of Waterloo Physics Colloquium. Waterloo, ON (paper).
11. Hunter JJ. (2013) Towards understanding thresholds & mechanisms of photochemical damage from Ophthalmic exposures. 1st International Symposium of the Blue Light Society, Tokyo, Japan (invited paper).
12. Hunter JJ. (2012) Retinal injury from yellow laser light exposures – type 1, 2, or 3? Retinal light toxicity: The impact of new lighting technologies, Paris, France (invited paper).
13. Hunter JJ. (2011) Laser safety in Ophthalmology and Optometry. DOE Laser Safety Officer Workshop, Massachusetts Institute of Technology, Cambridge, MA (invited paper).
14. Hunter JJ. (2011) Multiphoton imaging of the living retina. Engineering the Eye III, Benasque, Spain (invited paper).

15. Putnam NM, Maness HL, Rossi EA, Hunter JJ. (2010) An inquiry-based vision science activity for graduate students and postdoctoral scientists. In: Hunter L, Metevier AJ (Eds.), *Learning from Inquiry in Practice*, Astronomical Society of the Pacific Conference Series Volume 436 (pp. 226-236). San Francisco, CA: ASP.
16. Hunter JJ, Masella B, Dubra A, Sharma R, Yin L, Merigan WH, Palczewska G, Palczewski K, Williams DR. (2010) Two-Photon Imaging of the Living Macaque Retina. *CVS Symposium: Photons and Neurons*, Rochester, NY (poster).
17. Hunter JJ. (2010) Seeing cellular mosaics in the living eye. State University of New York Optometry, New York City, New York (seminar).
18. Hunter JJ. (2009) Seeing cellular mosaics in the living eye. Medical College of Wisconsin, Milwaukee, Wisconsin (seminar).
19. Hunter JJ, Masella B, Palczewska G, Palczewski K, Williams DR. (2009) *In vivo* two-photon retinal imaging. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).
20. Hunter JJ, Morgan JIW, Merigan WH, Williams DR. (2008) Retinal Phototoxicity. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).
21. Hunter JJ, Campbell MCW, Kisilak ML, Irving EL (2007) Image Quality Metrics which Best Quantify Changes in Retinal Image Quality in the Chick Eye during Emmetropization and Lens Induction of Myopia. Wavefront Congress, Santa Fe, New Mexico, February 2007 (paper).
22. Hunter JJ, Morgan JIW, Delori FC, Williams DR. (2007) Retinal Damage and the ANSI Standard for Light Exposures, Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).
23. Hunter JJ, Campbell MCW, Kisilak ML and Irving EL. (2006) Predictions of blur sensitivity improvement in the growing chick eye. Graduate Student Research Conference, University of Waterloo, Waterloo, Ontario (poster, received best poster presentation award in Health, Life & Environment theme category).
24. Kisilak ML, Campbell MCW, Hunter JJ, Irving EL and Huang L. (2006) Chicks track -30D goggles and large amounts of astigmatism are induced. Graduate Student Research Conference, University of Waterloo, Waterloo, Ontario (paper, received best oral presentation award in Health, Life & Environment theme category).
25. Hunter JJ, Campbell MCW, Cookson CJ, Kisilak ML, and Bueno JM. (2006) Quantifying the Impact of Scattered Light on Confocal Scanning Laser Ophthalmoscopy. *Engineering the Eye II*, 2006, Galway, Ireland (poster).
26. Kisilak ML, Hunter JJ, Campbell MCW, Huang L and Irving EL. (2006) Comparative optical effects of differing high-powered negative lenses in chicks. *Engineering the Eye II*, 2006, Galway, Ireland (poster).
27. Campbell MCW, Bueno JM, Kisilak ML, Hunter JJ, Cookson CJ, Lee C, Damaskinos S (2006) Mueller matrix polarisation imaging of biological tissues produces improved images and reveals structural details. Canadian Association of Physicists Congress, Brock University, June 2006, *Physics in Canada* 62(3) (paper).

28. Hunter JJ, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW. (2006) The impact of scattered light on imaging of the eye. Discovery 2006, Toronto, ON (poster).
29. Hunter JJ. (2006) Life as a Graduate Student. PHYS 010, Physics Seminar Series, University of Waterloo, Waterloo, ON (invited paper).
30. Hunter JJ, Ksilak ML, Campbell MCW, Irving EL. (2005) Assessment of ocular image quality in chicks developing with and without goggles. CVS Research Talk, Center for Visual Science, University of Rochester, Rochester, NY (invited paper).
31. Ksilak ML, Hunter JJ, Campbell MCW, Irving EL, Huang L. (2005) Optical quality of the chick eye. PHYS 010, Physics Seminar Series, University of Waterloo, Waterloo, ON (invited paper).
32. Hunter JJ, Ksilak ML, Campbell MCW, Irving EL. (2005) Assessment of ocular image quality in chicks developing with and without goggles. German-Canadian Workshop: Young Scientists in Photonics, Munich, Germany (invited paper & poster).
33. Cookson C, Campbell MCW, Hunter JJ, Ksilak MJ, Bueno JM, Liang Q. (2005) Polarization imaging of the fundus. Neuroimaging the Retina, Ft Lauderdale, Florida (poster).
34. Hunter JJ, Ksilak ML, Campbell MCW, Irving EL, Huang L. (2005) A chicken's view of the world. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
35. Ksilak ML, Hunter JJ, Campbell MCW, Irving EL, Huang L. (2005) Optical changes in chicken eyes. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
36. Ksilak ML, Hunter JJ, Campbell MCW, Irving EL, Huang L. (2004) Monochromatic aberrations and image quality in the chick eye during emmetropization. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (poster).
37. Ksilak ML, Hunter JJ, Campbell MCW. (2004) Applications of the hartmann-shack wavefront sensor. Ontario Nano Symposium, M^cMaster University, Hamilton, ON (poster).
38. Campbell MCW, Hunter JJ, Ksilak ML, Irving EL. (2004). Monochromatic aberrations and defocus: potential signals to growth in the chick eye. Myopia Down Under sponsored by ISER Conference Proceedings, 27, Australia (paper).
39. Campbell MCW, Ksilak ML, Hunter JJ, Huang L, Irving EL. (2004) Monochromatic aberrations and changes in eye size in growing and myopic chick eyes. II Topical Meeting on Physiological Optics, European Optical Society, page 26, Granada, Spain (paper).
40. Hunter JJ, Ksilak ML, Campbell MCW, Huang L, Irving EL. (2004) Astigmatism in growing chicks. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
41. Ksilak ML, Campbell MCW, Hunter JJ, Huang L, Irving EL. (2004) Monochromatic aberrations emmetropize in chicks with and without goggles. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
42. Campbell MCW, Hunter JJ. (2003) How aberration maps are used to compute retinal images (An introduction to fourier optics). Mopane: Astigmatism, Aberrations and Vision: Aberrometry Workshop. Mopani, South Africa (invited paper).

43. Campbell MCW, Kisilak ML, Hunter JJ, Irving EL, Bueno JM. (2003) Optical aberrations of the eye and ocular development. Mopane: Astigmatism, Aberrations and Vision. Mopani, South Africa (paper).
44. Hunter JJ, Campbell MCW, Kisilak ML, Irving EL. (2003) Signals to the direction of defocus from monochromatic aberrations in chick eyes that develop lens induced myopia. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper, received best oral presentation award in Health theme category).
45. Hunter JJ, Leat SJ, Simpson T, Campbell MCW. (2003) Imaging eyes with age-related macular degeneration. Photonics Research Ontario (PRO) Industry-Student Retreat, Toronto, ON (poster).
46. Hunter JJ, Leat SJ, Simpson T, Campbell MCW. (2003) Imaging eyes with age-related macular degeneration. Southwestern Ontario Local Section of the Optical Society of America (OSA) Student-Industry Night, Waterloo, ON (poster).
47. Hunter JJ, Campbell MCW, Priest D. (2002) Design and application of the waterloo eye model. Guelph-Waterloo Physics Institute Summer Poster Session, Waterloo, ON (poster).
48. Hunter JJ, Campbell MCW, Priest D. (2002) An optical model of the human eye and its applications. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
49. Hunter JJ, Campbell MCW, Priest D. (2002) Design and application of the waterloo eye model. Center for Visual Science Symposium: Engineering the Eye, Rochester, NY (poster).
50. Kisilak ML, Campbell MCW, Irving EL, Hunter JJ. (2002) Hartmann-Shack measurements of the monochromatic image quality in the chick eye during emmetropization. Center for Visual Science Symposium: Engineering the Eye, Rochester, NY (poster).
51. Campbell MCW, Bueno JM, King D, Hunter JJ, Kisilak ML. (2002) Monochromatic aberrations, myopia and directional signals in the eye. Center for Visual Science Symposium: Engineering the Eye, Rochester, NY (poster).
52. Kisilak ML, Campbell MCW, Irving EL, Hunter JJ. (2002) Hartmann-Shack measurements of the monochromatic image quality in the chick eye during emmetropization. SPIE's Opto-Canada Conference on Biophotonics, Ottawa, ON (paper and poster).
53. Hunter JJ, Campbell MCW, Priest D. (2002) An optical model of the human eye and its applications. Photonics Research Ontario (PRO) industry-student retreat, Niagara-on-the-Lake, ON (paper).
54. Campbell MCW, Hunter JJ, Kisilak ML. (2002) Light, colour and optics. Science Teachers Association of Ontario, Annual Meeting Conference Program, 1225, Toronto, ON (paper).
55. Hunter JJ, Campbell MCW, Geraghty E. (2001) A surgical lens implant to replace reading glasses, Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
56. Campbell MCW, Hunter JJ. (2001) Optics in a suitcase, in a bag and overhead. Science Teachers Association of Ontario, Annual Meeting Conference Program, 72, 79, Toronto, ON (paper).

57. Hunter JJ, Campbell MCW, Geraghty E. (2000) Accommodative power change with lens movement. Guelph-Waterloo Physics Institute Symposium, Guelph, ON (poster).
58. Hunter JJ, Campbell MCW. (2000) Accommodative power as a function of lens position. Bausch & Lomb University of Presbyopia, Fort Lauderdale, FL (invited paper).
59. Hunter JJ. (2000) CSLO image improvement by frame averaging. Photonics Research Ontario (PRO) Industry-Student Retreat, Niagara-on-the-Lake, ON (poster).
60. Hunter JJ. (1999) Hyperthermia of citrate synthase. Guelph-Waterloo Physics Institute Summer Poster Session, Waterloo, ON (poster).
61. Hunter JJ. (1999) Microscopy of poiseuille flow of a complex fluid. Fourth Year Undergraduate Research Project Poster Session, Waterloo, ON (poster).
62. Hunter JJ. (1998) Microscopy of poiseuille flow of a complex fluid. Fourth Year Undergraduate Research Project Presentation Session, Waterloo, ON (paper).
63. Hunter JJ. (1998) Vibrational spectroscopy of simple crystals under high pressure. Canadian Undergraduate Physics Conference, Kingston, ON (paper, received minor talk award).
64. Hunter JJ. (1998) Vibrational spectroscopy of simple crystals under high pressure. Guelph-Waterloo Physics Institute Summer Poster Session, Guelph, ON (poster).

RESEARCH SUPPORT

R01 EY022371

Hunter (PI)

5/1/2012 – 4/30/2017

High-Resolution Functional Imaging of the Retina

The goal of this project is to develop and incorporate a new technology, two-photon imaging, into an AOSLO for mouse imaging. We will image multiple retinal structures and develop assays of retinal function. These techniques will then be transferred to use in non-human primates.

Role: PI

R01 EY004367-24

Williams (PI)

4/1/2012 – 3/31/2016

Retinal Mechanisms

This grant studies the functional impact of light damage caused to the photoreceptor RPE complex by long duration exposures to visible light. In addition, the thresholds for photochemical lesions will be determined for wavelengths across the visible spectrum.

Role: Co-Investigator

SBIR phase II 9 R44 AG043645-2

Palczewska (PI)

8/15/12 – 7/31/15

Subcellular imaging of biochemical process within human retina

The goal of this project is to improve the efficiency of two-photon imaging for visualizing the retinal pigment epithelium and establish light safety levels in the living eye using a mouse and monkey model, with the goal of imaging in humans.

Role: Co-Investigator

Pending Support.

NIH U01 Audacious goals proposal

Williams (PI)

4/1/15 – 3/31/20

Accelerating vision restoration with in vivo cellular imaging of retinal function

This collaborative grant will develop in vivo two-photon imaging of genetically encoded calcium indicators. This imaging modality will be applied to study the efficacy of three methods of vision restoration: gene therapy, optogenetics and stem cell therapy.

Role: Co-Investigator