

## CURRICULUM VITAE

### **Jennifer J Hunter, PhD**

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**Citizenship:** Canadian, US permanent resident

### **CURRENT POSITIONS**

Associate Professor, Department of Ophthalmology, Flaum Eye Institute, Center for Visual Science, Department of Biomedical Engineering, The Institute of Optics  
Director, Advanced Retinal Imaging Alliance (ARIA)  
University of Rochester, Rochester, NY

### **EDUCATION**

1995-1999                    BSc in Honours Physics, University of Waterloo, Waterloo, ON, Canada  
1999-2001                    MSc in Physics, University of Waterloo, Waterloo, ON, Canada; Advisor:  
  Melanie CW Campbell, Title: Optical Analysis of New Methods in  
  Presbyopia Correction  
2001-2007                    PhD in Physics and Vision Science, University of Waterloo, Waterloo,  
  ON, Canada; Advisor: Melanie CW Campbell, Title: Image Quality in  
  Ocular Development and Fundus Imaging, Completed October 27, 2006

### **POST-DEGREE TRAINING**

2006-2010                    Postdoctoral Research Associate, Center for Visual Science, University of  
  Rochester, Rochester, NY; Advisor: David R Williams

### **FACULTY APPOINTMENTS**

2010-2011                    Research Assistant Professor, Department of Ophthalmology, Flaum Eye  
  Institute, University of Rochester, Rochester, NY  
2011-2018                    Assistant Professor, Department of Ophthalmology, Flaum Eye Institute,  
  Center for Visual Science, Department of Biomedical Engineering, The  
  Institute of Optics (2017-2018), University of Rochester, Rochester, NY  
2018-present                    Associate Professor with Tenure, Department of Ophthalmology, Flaum  
  Eye Institute, Center for Visual Science, Department of Biomedical  
  Engineering, The Institute of Optics, University of Rochester, Rochester,  
  NY

### **HONORS AND AWARDS**

1995                            Biology Entrance Scholarship, University of Waterloo  
1998                            WATSPA Summer Research Scholarship, University of Waterloo  
1999                            NSERC Undergraduate Research Award, University of Waterloo

1999-2005	Faculty of Science Provost's Incentive Program Scholarship, University of Waterloo
2000, 2002-2006	Graduate Studies Office, Research Travel Assistance, University of Waterloo
2001, 2004	Ontario Graduate Scholarship in Science and Technology
2001, 2005, 2007	American Academy of Optometry Travel Fellowship
2001-2002	NSERC Industrial Postgraduate Scholarship
2003	Best Health Oral Presentation, University of Waterloo Graduate Student Research Conference
2004-2006	University of Waterloo Graduate Scholarship
2005	H. Winston Algate Bursary, University of Waterloo
2005-2006	Ontario Graduate Scholarship
2005-2006	President's Graduate Scholarship, University of Waterloo
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
2006	Engineering the Eye II Travel Fellowship
2007	Summer School on Visual Optics Travel Fellowship
2010	Frederick Urbach Memorial Travel Award
2010	ISER Travel Fellowship
2017	Research to Prevent Blindness Ernest & Elizabeth Althouse Special Scholar Award
2020	Fellow of the Optical Society (OSA)

### **ACADEMIC & PROFESSIONAL ORGANIZATIONS**

2001-present	Member, Association for Research in Vision and Ophthalmology (ARVO)
2004, 2007-present	Member, The Optical Society (OSA)
2007	Member, Rochester Local Section of OSA
2010	Member, American Society for Photobiology
2010, 2016, 2018	Member, International Society for Eye Research
2011-2013	Associate Chair, Vision and Color Division, The Optical Society (OSA)
2014-2016	Chair, Vision and Color Division, The Optical Society (OSA)

### **COMMITTEES & OTHER ADMINISTRATIVE SERVICE**

2000-2001	Council Member, University of Waterloo Graduate Student Association
2000-2001	Graduate Student Representative, Joint Health and Safety committee of the University of Waterloo,
2000-2004	Treasurer and student representative, South Western Ontario Section of the Optical Society of America
2000-2006	Educational outreach committee member, South Western Ontario Section of OSA
2001, 2006	Director-at-Large, University of Waterloo Graduate Student Association
2002-2005	Treasurer, University of Waterloo Graduates in Vision Science

2004-2006	Vice-President Operations & Finance, University of Waterloo Graduate Student Association
2008, 2011-2012	Local Organizing Committee OSA Vision Meeting (chair, 2011-2012)
2009-present	Member, ANSI Z136 Laser Bioeffects & Medical Surveillance subcommittee (TSC-1) (chair, 2017-2020)
2010-2013	Chair, Vision and Color subcommittee, Frontiers in Optics, OSA
2012-2016	OSA VA Applications of Visual Science technical group development committee, member
2012-present	Member, ANSI Z136 Safe Use of Lasers standards subcommittee (SSC-1)
2016-present	Member, ANSI Z136 Safe Use of Lasers ASC standards committee
2017-2019	OSA Edgar D. Tillyer Award Committee
2017-present	ARVO Annual Meeting Program Committee, Visual Psychophysics/Physiological Optics (VI) section (chair 2020-present)

## EDUCATIONAL CONTRIBUTIONS

### Research Mentoring

#### Postdoctoral Fellows

2014-2017	Christina Schwarz, PhD (co-advised with David R Willaims); <i>currently Group Leader "High-Resolution Functional Imaging and Testing", Institute for Ophthalmic Research, University of Tübingen</i>
2015-2016	Robin Sharma, PhD (co-advised with David R Willaims); <i>currently employed by Facebook Reality Lab</i>
2019	Sarah Walters, PhD; <i>currently employed by IDEX Health &amp; Science, LLC</i>
2019-present	Kristen Bowles-Johnson, OD PhD

#### Graduate Students

2011-2015	Robin Sharma, PhD, The Institute of Optics (co-advised with David R Willaims); <i>currently employed by Facebook Reality Lab</i>
2012-2018	James Feeks, PhD, The Institute of Optics; <i>currently employed by IDEX Health &amp; Science, LLC</i>
2014-2019	Sarah Walters, PhD, The Institute of Optics (co-advised with David R Willaims); <i>currently employed by IDEX Health &amp; Science, LLC</i>
2015-present	Khang Huynh, PhD candidate, Biomedical Engineering
2019	Anne Woronecki, The Institute of Optics [Left program with terminal Master's Degree]; <i>currently attending Harvard Law School</i>
2020-present	Janet Tang, PhD student, The Institute of Optics
2020-present	Wuao Jia, MS student, The Institute of Optics

#### Rotation Students

2012	Greg Madejski (BME)
2015	Khang Huynh (BME)
2017	Danielle Desa (BME)
2018	Raquel Murillo (BME)
2020	Chi Huang (BME)
2021	Tresa Elias (BME)

Undergraduate Students

2011-2013	Chun Yu (Judy) Hu (University of Rochester)
2012	HoanVu Nguyen (University of Denver)
2014	Andrew Dorion (Cornell University)
2014	Jessica Kraker (Boston College)
2014-2017	Ge Song (University of Rochester); <i>won the President's award for Engineering and Applied Sciences at UR Undergraduate Research Exposition</i>
2015-2016	Sarah Bjornland (University of Rochester); <i>won the Dean's award for Engineering and Applied Sciences at UR Undergraduate Research Exposition</i>
2017-2019	Emma Foley (University of Rochester)
2017-2019	Sabrina Villanueva (University of Rochester)
2018	Joe Caron (Michigan Technological University)
2019	Caroline Nelson (University of North Carolina at Greensboro)
2019-2020	Malika Zakarina (University of Rochester)

**Classroom Teaching**

2012	Ophthalmic Imaging Lab, Rochester Institute of Technology, Introduction to Adaptive Optics Imaging lecture and lab tour
2012-2019	Optics 248/448/BCS 223/TEO 448, Vision and the Eye (4 credit hours per week)

**Thesis Committee Service**

2011-2013	Benjamin Masella, PhD (Optics)
2012	Abbie Tippie, PhD (Optics)
2012	Eric Brost, MS (Optics); MS essay reviewer
2014	Len Zheleznyak, PhD (Optics); <i>chair, Thesis Defense committee</i>
2015	Drew Scoles, MD PhD (BME)
2016	Marlen Mahendraratnam, MS (BME); MS exit exam
2016-2020	Charles Granger, PhD (Optics)
2017	Hao Xie, MS (Electrical and Computer Engineering)
2018	Qiuzhi Ji, MS (Optics)
2018	Yun Hui (Ken) Ni, MS (Optics); MS essay reviewer
2018-present	Danielle Desa (BME)
2019	Daniel Wahl, PhD (Engineering Science, Simon Fraser University); <i>external examiner</i>
2020-present	Vincent Ralph Ching-Roa (BME)

**NATIONAL AND INTERNATIONAL RESEARCH REVIEW COMMITTEES**

2011	National Eye Institute Special Emphasis Panel ZEY1 -(01) NEI Mentored Training Grant Applications (ad hoc)
2014-2015	NIH Special Emphasis Panel ZRG1 ETTN-G (12) Small business: Sensory Technologies

2015	NIH Special Emphasis Panel ZRG1 ETTN-NOIT Neuroscience and Ophthalmic Imaging Technologies (ad hoc)
2018-2019	NIH Special Emphasis Panel/Scientific Review Group: ETTN-12 Small Business: Aging and Development, Auditory, Vision and Low Vision Technologies
2021	National Centers for Biomedical Imaging and Bioengineering (NCBIB) P41 Biotechnology Resource Grant site review

## EDITORIAL ASSIGNMENTS IN PROFESSIONAL JOURNALS

**Ad hoc reviews for:** Acta Ophthalmologica, Biomedical Optics Express, Experimental Eye Research, Investigative Ophthalmology and Visual Science, JCI Insight, Journal of Biomedical Optics, Journal of Innovative Optical Health Sciences, Journal of Laser Applications, Neurophotonics, Optica, Optometry & Vision Science, PLoS ONE, PNAS, Scientific Reports, Vision Research

### Editorial Assignments

2018-present Topical editor (Visual and Physiological Optics), Journal of the Optical Society of America A

## GRANTS & CONTRACTS

### As Principal Investigator / Co-Principal Investigator

Research to Prevent Blindness Ernest & Elizabeth Althouse Special Scholar Award

Hunter, Jennifer J (PI) 06/01/2017-12/31/2019

*Adaptive optics fluorescence lifetime ophthalmoscopy of retinal pigment epithelial cells*

This grant will support the engineering of an instrument to measure in vivo the fluorescence lifetime of human RPE autofluorescence at the cellular-scale.

NIH R01 EY022371 Hunter, Jennifer J (PI) 04/01/2012-06/30/2021

*High-Resolution Functional Imaging of the Retina*

The goal of this project is to develop two-photon excited fluorescence ophthalmoscopy to non-invasively assess cellular metabolism and function in the living eye. Changes to important properties of excited retinal fluorophores will be recorded at a single-cell level in animal models of altered cellular-respiration.

NIH R01 EY004367 Hunter JJ & Williams DR (MPI) 08/01/2017-07/31/2021

*Retinal Mechanisms*

This grant aims to translate two-photon fluorescence ophthalmoscopy into the realm of human imaging and studies the associated factors to ensure light safety.

### Other Roles

NIH R44 AG043645 Palczewska, Grazyna (PI) 08/01/2012-07/31/2015

*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 safe light levels in the living eye using a monkey model, with the eventual goal of imaging in humans.

Role: Subcontract Co-Investigator

NIH U01 EY025497 Williams, David R (PI) 05/01/2015-04/30/2020

*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 two methods of vision restoration: gene therapy and stem cell therapy.

Role: Co-Investigator

NIH P30 EY001319 Williams, David R (PI) 03/01/1997 – 08/31/2023

*Core Grant for Vision Research*

Major goal: To provide core resources to NEI-funded investigators in the Center for Visual Science.

Role: Imaging Module Director

## PRESENTATIONS

*\* denotes trainee / supervisee*

### Local, Regional, & State Conferences

- 1998 **Hunter JJ.** Vibrational spectroscopy of simple crystals under high pressure. Guelph-Waterloo Physics Institute Summer Poster Session, Guelph, ON (poster).
- 1999 **Hunter JJ.** Hyperthermia of citrate synthase. Guelph-Waterloo Physics Institute Summer Poster Session, Waterloo, ON (poster).
- 1999 **Hunter JJ.** Microscopy of poiseuille flow of a complex fluid. Fourth Year Undergraduate Research Project Poster Session, Waterloo, ON (poster).
- 2000 **Hunter JJ, Campbell MCW, Geraghty E.** Accommodative power change with lens movement. Guelph-Waterloo Physics Institute Symposium, Guelph, ON (poster).
- 2000 **Hunter JJ.** CSLO image improvement by frame averaging. Photonics Research Ontario (PRO) Industry-Student Retreat, Niagara-on-the-Lake, ON (poster).
- 2001 Campbell MCW, **Hunter JJ.** Optics in a suitcase, in a bag and overhead. Science Teachers Association of Ontario, Annual Meeting Conference Program, 72, 79, Toronto, ON (paper).
- 2001 **Hunter JJ, Campbell MCW, Geraghty E.** A surgical lens implant to replace reading glasses, Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2002 Campbell MCW, **Hunter JJ, Kisilak ML.** Light, colour and optics. Science Teachers Association of Ontario, Annual Meeting Conference Program, 1225, Toronto, ON (paper).
- 2002 **Hunter JJ, Campbell MCW, Priest D.** An optical model of the human eye and its applications. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2002 **Hunter JJ, Campbell MCW, Priest D.** An optical model of the human eye and its applications. Photonics Research Ontario (PRO) industry-student retreat, Niagara-on-the-Lake, ON (paper).
- 2002 **Hunter JJ, Campbell MCW, Priest D.** Design and application of the waterloo eye model. Guelph-Waterloo Physics Institute Summer Poster Session, Waterloo, ON (poster).

- 2002 Ksilak ML, Campbell MCW, Irving EL, **Hunter JJ**. 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).
- 2003 **Hunter JJ**, Campbell MCW, Ksilak ML, Irving EL. 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).
- 2003 **Hunter JJ**, Leat SJ, Simpson T, Campbell MCW. Imaging eyes with age-related macular degeneration. Photonics Research Ontario (PRO) Industry-Student Retreat, Toronto, ON (poster).
- 2004 **Hunter JJ**, Ksilak ML, Campbell MCW, Huang L, Irving EL. Astigmatism in growing chicks. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2004 Ksilak ML, Campbell MCW, **Hunter JJ**, Huang L, Irving EL. Monochromatic aberrations emmetropize in chicks with and without goggles. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2004 Ksilak ML, **Hunter JJ**, Campbell MCW. Applications of the hartmann-shack wavefront sensor. Ontario Nano Symposium, McMaster University, Hamilton, ON (poster).
- 2005 **Hunter JJ**, Ksilak ML, Campbell MCW, Irving EL, Huang L. A chicken's view of the world. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2005 Ksilak ML, **Hunter JJ**, Campbell MCW, Irving EL, Huang L. Optical changes in chicken eyes. Graduate Student Research Conference, University of Waterloo, Waterloo, ON (paper).
- 2006 **Hunter JJ**, Campbell MCW, Ksilak ML and Irving EL. 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).
- 2006 **Hunter JJ**, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW. The impact of scattered light on imaging of the eye. Discovery 2006, Toronto, ON (poster).
- 2006 Ksilak ML, Campbell MCW, **Hunter JJ**, Irving EL and Huang L. 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).
- 2010 **Hunter JJ**, Masella B, Dubra A, Sharma R, Yin L, Merigan WH, Palczewska G, Palczewski K, Williams DR. Two-Photon Imaging of the Living Macaque Retina. CVS Symposium: Photons and Neurons, Rochester, NY (poster).

### National & International Conferences

- 1998 **Hunter JJ**. Vibrational spectroscopy of simple crystals under high pressure. Canadian Undergraduate Physics Conference, Kingston, ON (paper, received minor talk award).

- 2001 Campbell MCW, Priest D, **Hunter JJ**. The Importance of monochromatic aberrations to detecting defocus in retinal images. IOVS. 42, S98 (paper).
- 2001 **Hunter JJ**, Campbell MCW, Geraghty E. Accommodative power change with lens (IOL) movement. Optical Society of America (OSA) Annual Meeting, Optics and Photonics News (supp), 11, 100 (paper).
- 2001 **Hunter JJ**, Campbell MCW, Priest D. Possible explanations of changes seen following scleral expansion surgery for presbyopia. IOVS. 42, S394 (poster).
- 2001 King D, Campbell MCW, Bueno JM, **Hunter JJ**. Image quality as a function of defocus and monochromatic aberrations and implications to emmetropization. OSA 2001 Annual Meeting Program, 75 (paper).
- 2002 Campbell MCW, Bueno JM, **Hunter JJ**. Improvement of confocal scanning laser ophthalmoscope images using polarimetry. IOVS. 43, Abstract 953 (paper).
- 2002 Campbell MCW, Bueno JM, **Hunter JJ**, King D, Kisilak M. 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).
- 2002 Campbell MCW, Bueno JM, King D, **Hunter JJ**, Kisilak ML. Monochromatic aberrations, myopia and directional signals in the eye. Center for Visual Science Symposium: Engineering the Eye, Rochester, NY (poster).
- 2002 **Hunter JJ**, Campbell MCW, Kisilak ML. Photonics professionals and the new grade 8 optics curriculum. Opto-Canada: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging, SPIE TD01, 533-4 (paper).
- 2002 **Hunter JJ**, Campbell MCW, Priest AD. 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).
- 2002 **Hunter JJ**, Campbell MCW, Priest D. Design and application of the waterloo eye model. Center for Visual Science Symposium: Engineering the Eye, Rochester, NY (poster).
- 2002 Kisilak ML, Campbell MCW, Irving EL, **Hunter JJ**. 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).
- 2002 Kisilak ML, Campbell MCW, Irving EL, **Hunter JJ**. 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).
- 2002 Kisilak ML, Campbell MCW, Irving EL, **Hunter JJ**. Hartmann-Shack measurements of the monochromatic image quality in the chick eye during emmetropization. IOVS. 43, Abstract 2924 (paper).
- 2003 Campbell MCW, Bueno JM, **Hunter JJ**, Kisilak ML, Irving EL. Ophthalmic lens effects in hartmann-shack measurements. Journal of Vision. 3(12): Abstract 29 (paper).
- 2003 Campbell MCW, **Hunter JJ**, Kisilak ML, Irving, Huang L. Image quality on the retina of the chick eye during emmetropization: Goggled vs control eyes. IOVS. 44, Abstract 1993 (poster).



- 2003 Campbell MCW, **Hunter JJ**. 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).
- 2003 Campbell MCW, Kisilak ML, **Hunter JJ**, Irving EL, Bueno JM. Optical aberrations of the eye and ocular development. Mopane: Astigmatism, Aberrations and Vision. Mopani, South Africa (paper).
- 2003 **Hunter JJ**, Campbell MCW, Kisilak ML, Irving EL. Signals to the direction of defocus from monochromatic aberrations in chick eyes that develop lens induced myopia. IOVS. 44, Abstract 4341 (paper).
- 2003 Kisilak ML, Campbell MCW, **Hunter JJ**, Irving EL, Huang L. Monochromatic aberrations in the chick eye during emmetropization: Goggled vs control eyes. IOVS. 44, Abstract 4340 (paper).
- 2004 Campbell MCW, **Hunter JJ**, Kisilak ML, Irving EL. . Monochromatic aberrations and defocus: potential signals to growth in the chick eye. Myopia Down Under sponsored by ISER Conference Proceedings, 27, Australia (paper).
- 2004 Campbell MCW, Kisilak ML, **Hunter JJ**, Huang L, Irving EL. 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).
- 2004 Guthrie SI, Bueno JM, Kisilak ML, **Hunter JJ**, Campbell MCW. Polarimetry of the optic nerve head and lamina cribrosa. IOVS. 45: Abstract 2796 (poster).
- 2004 Huang L, Kisilak ML, Irving EL, **Hunter JJ**, Campbell MCW. Monochromatic aberrations and astigmatism in chicks recovering from lens induced myopia. IOVS. 45: Abstract 4300 (poster).
- 2004 **Hunter JJ**, Kisilak ML, Campbell MCW, Huang L, Irving EL. Astigmatism in chicks growing with and without goggles. IOVS 45: Abstract 4299 (poster).
- 2004 Kisilak ML, Campbell MCW, **Hunter JJ**, Huang L, Irving EL. Monochromatic aberrations emmetropize in chicks with and without goggles. IOVS 45: Abstract 1155 (paper).
- 2004 Kisilak ML, **Hunter JJ**, Campbell MCW, Irving EL, Huang L. Monochromatic aberrations and image quality in the chick eye during emmetropization. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (poster).
- 2005 Campbell MCW, Bueno JM, Cookson CJ, Liang Q, Kisilak ML, **Hunter JJ**. Enhanced confocal microscopy and ophthalmoscopy with polarization imaging. Photonics North: SPIE Regional Meeting on Optoelectronics, Photonics, and Imaging 5969, 611-6 (paper).
- 2005 Campbell MCW, Hunter JJ, Cookson CJ, Bueno JM, Kisilak ML. Spatially resolved mueller matrix analysis of properties of the optic nerve head. IOVS. 46:E-Abstract 2556 (poster).
- 2005 Cookson C, Campbell MCW, **Hunter JJ**, Kisilak MJ, Bueno JM, Liang Q. Polarization imaging of the fundus. Neuroimaging the Retina, Ft Lauderdale, Florida (poster).
- 2005 **Hunter JJ**, Kisilak ML, Campbell MCW, Irving EL, Huang L. The chick's view during normal growth and lens induction of myopia. IOVS 46: E-Abstract 2282 (paper).

- 2005 Ksilak ML, **Hunter JJ**, Campbell MCW, Irving EL, Huang L. Optical changes in normal chick eyes with age and in eyes with lens-induced myopia. IOVS 46: E-Abstract 1971 (poster).
- 2006 Bueno JM, Cookson CJ, Ksilak ML, **Hunter JJ**, Campbell MCW. Degree of polarization of light reflected from optic nerve head. IOVS 47: E-Abstract 4059 (poster).
- 2006 Campbell MCW, Bueno JM, Ksilak ML, **Hunter JJ**, Cookson CJ, Lee C, Damaskinos S 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).
- 2006 **Hunter JJ**, Campbell MCW, Cookson CJ, Ksilak ML, and Bueno JM. Quantifying the Impact of Scattered Light on Confocal Scanning Laser Ophthalmoscopy. Engineering the Eye II, 2006, Galway, Ireland (poster).
- 2006 **Hunter JJ**, Campbell MCW, Ksilak ML Behaviour of Image Quality Metrics in the Presence of Defocus and Aberrations. Journal of Vision. 6(13):52 (poster).
- 2006 **Hunter JJ**, Ksilak ML, Campbell MCW, Irving EL and Huang L. Predictions of blur sensitivity improvement in the growing chick eye. IOVS 47: E-Abstract 3337 (poster).
- 2006 Hutchings N, Cookson CJ, **Hunter JJ**, Ksilak ML, Liang Q, Bueno JM, Campbell MCW Subjective evaluation of polarisation images of the optic nerve head and retinal structures. IOVS 47: E-Abstract 4060 (poster).
- 2006 Ksilak ML, **Hunter JJ**, Campbell MCW, Huang L and Irving EL. Comparative optical effects of differing high-powered negative lenses in chicks. Engineering the Eye II, 2006, Galway, Ireland (poster).
- 2006 Ksilak ML, **Hunter JJ**, Campbell MCW, Irving EL and Huang L. Chicks track - 30D goggles and large amounts of astigmatism are induced. IOVS. 47:E-Abstract 1799 (paper).
- 2007 Cookson CJ, Bueno JM, Ksilak ML, **Hunter JJ**, Campbell MCW Enhancing Fundus Retinal Images through Polarization and Overall Image Quality Metrics. IOVS. 48: Abstract 4251 (poster).
- 2007 Epps LGL, **Hunter JJ**, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW Quantifying the Quality of Confocal Scanning Laser Ophthalmoscopic Images of Blood Vessels. IOVS 48: Abstract 2755 (poster).
- 2007 **Hunter JJ**, Campbell MCW, Ksilak ML, Irving EL 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).
- 2007 **Hunter JJ**, Cookson CJ, Ksilak ML, Bueno JM, Campbell MCW Metrics to Quantify the Global Quality of Confocal Scanning Laser Ophthalmoscopic Images of the Aging Eye. IOVS 48: Abstract 2768 (poster).
- 2007 **Hunter JJ**, Morgan JIW, Delori FC, Williams DR. Retinal Damage and the ANSI Standard for Light Exposures, Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).

- 2007 **Hunter JJ**, Morgan JIW, Wolfe R, Sparrow J, Williams DR Decrease and Recovery of *in vitro* Retinal Pigment Epithelium Autofluorescence Intensity in Response to Visible Light. *Journal of Vision* 7(15):67 (poster).
- 2007 Kisolak ML, **Hunter JJ**, Irving EL, Campbell MCW In Vivo Imaging of Photoreceptors in the Alert Chicken. IOVS 48: Abstract 1191 (poster).
- 2007 Masella B, Morgan JIW, Merigan W, Gray DC, **Hunter JJ**, Wolfe R, Geng Y, Williams DR. Retinal Damage Observed With Autofluorescence Imaging of Retinal Pigment Epithelium Cells *in Vivo*. IOVS 48: Abstract 2770 (poster).
- 2007 Morgan JIW, **Hunter JJ**, Masella B, Wolfe R, Merigan WH, Williams DR Light Exposures Cause In Vivo Changes in Retinal Autofluorescence. *Journal of Vision* 7(15):16 (paper).
- 2008 Bueno JM, Cookson CJ, **Hunter JJ**, Kisolak ML, Campbell MCW Imaging the Fundus of the Eye Through Polarization: Dependence With Age. IOVS 49: ARVO E-Abstract 3209 (poster).
- 2008 Campbell MCW, **Hunter JJ**, Kisolak ML, Irving EL Retinal Image Quality During Ocular Development in Chick, Monkey and Human. IOVS 49: ARVO E-Abstract 3715 (paper).
- 2008 Campbell MCW, **Hunter JJ**, Kisolak ML, Irving EL Wavefront-based eye models for the study of developmental changes. *Frontiers in Optics, OSA Annual Meeting, FThA4* (paper).
- 2008 Cookson CJ, Bueno JM, Kisolak ML, **Hunter JJ**, Campbell MCW Comparison of Polarization Techniques for Enhanced Fundus Imaging. IOVS 49: ARVO E-Abstract 4212 (poster).
- 2008 Geng Y, Porter J, Greenberg KP, Wolfe R, Gray DC, **Hunter JJ**, Dubra A, Masella BD, Flannery JG, Williams DR. . Adaptive optics imaging of microscopic structures in rat retina *in vivo* [Abstract]. *Journal of Vision*, 8(17):18 (paper).
- 2008 **Hunter JJ**, Morgan JIW, Merigan WH, Williams DR. Retinal Phototoxicity. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).
- 2008 **Hunter JJ**, Morgan JIW, Sentiff J, Merigan WH, Williams DR. . Photochemically induced autofluorescence decrease and retinal pigment epithelial damage [Abstract]. *Journal of Vision*, 8(17):59 (poster).
- 2008 **Hunter JJ**, Morgan JIW, Wolfe R, Sparrow JR, Williams DR Ex vivo Changes in Retinal Pigment Epithelial Autofluorescence With Light Exposure. IOVS 49: ARVO E-Abstract 1843 (poster).
- 2008 Merigan WH, Scoles D, **Hunter JJ**, Masella B, Greenberg KP, Flannery JG, Libby RT, Williams DR 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).
- 2008 Morgan JIW, **Hunter JJ**, Wolfe R, Masella B, Sparrow JR, Merigan WH, Williams DR Reciprocity of Light-Induced Reduction in Retinal Pigment Epithelial Autofluorescence. IOVS 49:ARVO E-Abstract 4516 (paper).
- 2009 **Hunter JJ**, Masella B, Palczewska G, Palczewski K, Williams DR. In vivo two-photon retinal imaging. Center for Adaptive Optics, Fall Retreat, Lake Arrowhead, California (paper).

- 2009 **Hunter JJ**, Morgan JIW, Norris JL, Williams DR. Multiple lipofuscin fluorophores are involved in photochemically-induced autofluorescence reduction. IOVS 50:ARVO E-Abstract 5168 (paper).
- 2009 Merigan WH, Morgan JIW, Wolfe R, **Hunter JJ**, Williams DR. Ex vivo Changes in Retinal Pigment Epithelial Autofluorescence With Light Exposure. IOVS 50:ARVO E-Abstract 345 (poster).
- 2010 **Hunter JJ**, Masella B, Dubra A, Sharma R, Palczewska G, Palczewski K, Williams DR. *In vivo* two-photon imaging of macaque retina. IOVS 51:ARVO E-Abstract 3451 (paper).
- 2010 **Hunter JJ**, Masella B, Dubra A, Sharma R, Yin L, Merigan WH, Palczewska G, Palczewski K, Williams DR. Towards Functional Measurements of Vision in the Living Macaque Retina using Two-Photon Fluorescence Imaging. OSA Fall Vision Meeting, Rochester, NY (paper).
- 2010 Sliney D, **Hunter JJ**, Delori FC, Williams DR, Mellerio J. Competing photochemical retinal damage mechanisms from visible light: Implications for human retinal exposure limits. IOVS 51:ARVO E-Abstract 3456 (paper).
- 2010 Yin L, Dalkara D, Greenberg K, **Hunter JJ**, Masella BD, Visel M, DiLoreto Jr. D, Flannery J, Williams DR, Merigan WH. AAV-mediated gene delivery to retinal ganglion cells in the macaque eye. Society for Neuroscience Annual Meeting, San Diego, CA (poster).
- 2011 Geng Y, Sharma R, Dubra A, Ahmad K, Twietmeyer T, Masella B, **Hunter JJ**, Libby RT, Williams DR. High Resolution In Vivo Imaging Of The Mouse Retina Using An Adaptive Optics Scanning Laser Ophthalmoscope. IOVS 52: ARVO E-Abstract 5871 (paper).
- 2011 Masella B, **Hunter JJ**, Yin L, Strazzeri J, Dubra A, Merigan WH, Williams DR. No Loss Of Photopigment Kinetics Or Contrast Sensitivity Seen After Photochemical Insult To The Retinal Pigment Epithelium. IOVS 52: ARVO E-Abstract 3199 (poster).
- 2011 Merigan WH, Strazzeri J, DiLoreto Jr. DA, Fischer W, **Hunter JJ**, Masella B, Williams DR. Visual Recovery After Outer Retinal Damage in the Macaque. IOVS 52: ARVO E-Abstract 3202 (poster).
- 2011 Schallek JB, Masella B, **Hunter JJ**, Williams DR. Stimulus-dependent Changes In Capillary Blood Velocity Revealed With Adaptive Optics Scanning Laser Ophthalmoscopy. IOVS 52: ARVO E-Abstract 6029 (poster).
- 2011 Zhou J, **Hunter JJ**, Masella B, Williams DR, Sparrow JR. Bleaching and Recovery of RPE Autofluorescence. IOVS 52: ARVO E-Abstract 3201 (poster).
- 2012 **Hunter JJ**, Rossi EA, Fischer W, Dubra A, Chung MM. 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).
- 2012 Masella BD, **Hunter JJ**, Williams DR. Quantitative Assessment of Photoreceptor Function using Adaptive Optics Photopigment Densitometry. IOVS 53: ARVO E-Abstract 5677 (poster).
- 2012 Sharma R\*, Geng Y, Yin L, Merigan WH, Williams DR, **Hunter JJ**. *In Vivo* Two-Photon Imaging Of Mouse Retina. IOVS 53: ARVO E-Abstract 5600 (paper).

- 2012 Sharma R\*, Sulai YN, Geng Y, **Hunter JJ**, Williams DR Tunable achromatizing lens for the mouse eye. *Frontiers in Optics, OSA Annual Meeting. FTu5G.2* (paper).
- 2013 **Hunter JJ**, Masella BD, Fischer W, Williams DR. Long term retinal changes from near IR light exposure well below current safety standards. *International Laser Safety Conference. Paper 901.*
- 2013 Song H, Pugliese A, Rossi EA, Latchney LR, Stone EM, Dubra A, **Hunter JJ**, Chung MM. Adaptive Optics Scanning Laser Ophthalmoscopy in Stargardt Disease Reveals Decreased Cone and Rod Densities. *IOVS 54: ARVO E-Abstract 1743* (paper).
- 2014 **Hunter JJ**, Masella BD, Fisher W, Rossi EA, Williams DR. Long-term reduction of infrared autofluorescence caused by infrared light below the maximum permissible exposure. *IOVS 55: ARVO E-Abstract 2172* (paper).
- 2014 Masella BD, **Hunter JJ**, Williams DR. Rod photopigment kinetics after disruption of the retinal pigment epithelium with visible light exposure. *IOVS 55: ARVO E-Abstract 1651* (paper).
- 2014 Saito K, Nozato K, Suzuki K, Roorda A, Dubra A, Song H, **Hunter JJ**, Williams DR, Rossi EA. Rods and cones imaged with a commercial adaptive optics scanning light ophthalmoscope (AOSLO) prototype. *IOVS 55: ARVO E-Abstract 1594* (poster).
- 2014 Sharma R\*, Williams DR, Palczewska G, Palczewski K, **Hunter J**. Two-photon imaging of inner and outer retina in the living primate eye. *ARVO/ISIE Imaging Conference. Orlando, FL. Program Number 23* (paper).
- 2014 Zhang J, Saito K, Yang Q, Nozato K, Suzuki K, **Hunter JJ**, Williams DR, Rossi EA. 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).
- 2015 **Hunter JJ**, Sharma R\*, Palczewska G, Palczewski K, Williams DR. In vivo two-photon fluorescence imaging of primate inner retina. *IOVS 56: ARVO E-Abstract 5970* (poster).
- 2015 Sharma R\*, Schwarz C\*, Palczewska G, Palczewski K, Williams DR, **Hunter JJ**. In vivo two-photon fluorescence kinetics of primate rods and cones during light and dark adaptation. *IOVS 56: ARVO E-Abstract 5968* (poster).
- 2015 Sharma R\*, Schwarz C\*, Williams DR, Palczewska G, Palczewski K, **Hunter JJ**. Two-photon Autofluorescence Imaging of Retinal Structure and Function in the Living Primate Eye. *Frontiers in Optics, OSA Annual Meeting. FTu5B3* (paper).
- 2016 Campbell MC, Emptage L, Schwarz C\*, Walters S\*, Kisilak ML, Brooks ML, **Hunter JJ**. *In vivo* and *ex vivo* multi-modal images in the canine model of Alzheimer's disease. *IOVS 57: ARVO E Abstract 2217* (poster).
- 2016 Emptage L, **Hunter JJ**, Kisilak ML, Brooks ML, Strazzeri JM, Fischer WS, DiVincenti L, Araujo J, Chongzhao R, Campbell MC. Retinal amyloid stained with CRANAD-28 is visible in vivo with fluorescence imaging but not OCT in a canine model of Alzheimer's disease. *IOVS 57: ARVO E Abstract 2218* (poster).
- 2016 Feeks J\*, Yang Q, **Hunter JJ**. Cellular-state fluorescence lifetime imaging of the retina in living mice. *IOVS 57: ARVO E Abstract 2208* (poster).

- 2016 Rossi E, Sharma R\*, Granger C, Schwarz C\*, Yang Q, **Hunter JJ**, Williams DR. Individual inner retinal neurons imaged in the living eye of monkey and human. IOVS 57: ARVO E Abstract 2805 (paper).
- 2016 Schwarz C\*, Sharma R\*, Fischer WS, Chung M, Palczewska G, Palczewski K, Williams DR, **Hunter JJ**. Can *in vivo* two-photon retinal imaging be safely applied in humans? IOVS 57: ARVO E Abstract 1716 (poster).
- 2016 Schwarz C\*, Sharma R\*, Keller M, Williams DR, **Hunter JJ**. Selective photoreceptor changes after ultrashort pulse laser exposure in the infrared. OSA Fall Vision Meeting, Rochester, NY (poster).
- 2016 Sharma R\*, Schwarz C\*, Palczewska G, Palczewski K, Williams DR, **Hunter JJ**. Quantification of retinol production and removal in photoreceptors in the living primate eye using two-photon ophthalmoscopy. IOVS 57: ARVO E Abstract 2213 (poster).
- 2016 Walters S\*, Schwarz C\*, Sharma R\*, Fischer WS, Diloreto D, Nelidova D, Drinnenberg A, Juettner J, Roska B, Williams DR, **Hunter JJ**, Merigan WH. In vivo imaging of photoreceptor structure and function in a non-human primate model of retinal degeneration. OSA Fall Vision Meeting, Rochester, NY (poster).
- 2016 Walters S\*, Schwarz C\*, Sharma R\*, Fischer WS, Diloreto D, Nelidova D, Juettner J, Roska B, Williams DR, **Hunter JJ**, Merigan WH. Evaluation of the damaged photoreceptors in a macaque model of viral vector induced retinal degeneration using an AOSLO. IOVS 57: ARVO E Abstract 2219 (poster)
- 2016 Zhang J, Sabarinathan R, Bubel T, Williams DR, **Hunter JJ**. Spectral dependence of light exposure on retinal pigment epithelium (RPE) disruption in living primate retina. IOVS 57: ARVO E Abstract 2220 (poster).
- 2017 Feeks J\*, Walters S\*, Schwarz C\*, **Hunter JJ**. Two-photon fluorescence lifetime ophthalmoscopy of intrinsic fluorophores on a cellular scale in the living macaque. IOVS 58: ARVO E Abstract 3431 (paper).
- 2017 McGregor J, Phillips MJ, Walters S\*, Zhang J, Strazzeri J, Diloreto D, Walker A, Fischer WS, Yang Q, DiVincenti L, Gamm DM, Williams DR, **Hunter JJ**, Merigan WH. Non-invasive retinal imaging of fluorescent hESC-derived photoreceptor precursors in the living primate. IOVS 58: ARVO E Abstract 4576 (poster).
- 2017 Schwarz C\*, Sharma R\*, Keller M, Williams DR, **Hunter JJ**. Intense ultrashort pulsed light in the infrared selectively damages putative S cones. IOVS 58: ARVO E Abstract 4301 (paper).
- 2017 Zhang J, Williams D, **Hunter JJ** Mechanisms of Photochemical Retinal Pigment Epithelium (RPE) Disruption in Living Primate Retina. International Laser Safety Conference 2017, LSS Session 2: Bioeffects II: 203 (paper).
- 2018 Walters S\*, Schwarz C\*, Walker A, DiVincenti L, **Hunter JJ**. Two-photon autofluorescence kinetics of macaque photoreceptors are slowed during systemic hypoxia. IOVS 59: ARVO E-Abstract 1155 (paper).
- 2018 Zhang J, Williams DR, **Hunter JJ**. RPE disruption with long duration visible light exposure is governed by a photochemical damage mechanism. IOVS 59: ARVO E-Abstract 666 (poster).
- 2019 Aboualizadeh E, Phillips MJ, Strazzeri J, Diloreto D, Dhakal K, Bateman B, **Hunter J**, Merigan W, Gamm D, Williams D. Survival and migration of

- photoreceptor precursors following transplantation into a macaque eye with host photoreceptors ablated. IOVS 60: ARVO E-Abstract 6397 (paper).
- 2019 Dhakal K, Walters S\*, Schwarz C\*, Strazzeri J, McGregor J, Aboualizadeh E, Bateman B, **Hunter J**, Williams D, Merigan W. Spatially localized photoreceptor ablation in macaque using a femtosecond laser and adaptive optics. IOVS 60: ARVO E-Abstract 4744 (paper).
- 2019 **Hunter JJ**, Dhakal K, Walters S\*, Schwarz C\*, Strazzeri J, Bateman B, Williams D, Merigan W. Femtosecond Pulses Delivered with Adaptive Optics Selectively Damage the Photoreceptor Layer in Macaque. International Laser Safety Conference. Paper 102 (paper).
- 2019 Huynh K\*, Walters S\*, Foley E\*, Parkins K, **Hunter JJ**. Putative S cones in macaque identified by phasor analysis of adaptive optics fluorescence lifetime ophthalmoscopy. IOVS 60: ARVO E-Abstract 1778 (paper).
- 2020 Kunala K, Xue Y, Huynh K\*, Yang Q, Parkins K, Steven S, Dubra A, Cepko CL, Hunter JJ. Adaptive optics fluorescence lifetime ophthalmoscopy of iGlucoSnFR-TS suggests increased glucose in RPE of rho<sup>-/-</sup> compared to healthy mice. Submitted to ARVO Annual Meeting.
- 2020 Tang J\*, Granger CE, Parkins K, Kunala K, Huynh K\*, Bowles-Johnson K\*, Yang Q, Hunter JJ. Adaptive optics fluorescence lifetime imaging ophthalmoscopy of the human RPE. Submitted to ARVO Annual Meeting.

#### **Invited Presentations: Local, Regional, & State**

- 2006 **Hunter JJ**. Life as a Graduate Student. PHYS 010, Physics Seminar Series, University of Waterloo, Waterloo, ON (invited paper).
- 2010 **Hunter JJ**. Seeing cellular mosaics in the living eye. State University of New York Optometry, New York City, New York (seminar).
- 2013 **Hunter JJ**. Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. OSA Rochester Section. Rochester, NY (seminar).
- 2013 **Hunter JJ**. Seeing cells in the living eye using two-photon fluorescence imaging. Biomedical Engineering, Cornell University. Ithaca, NY (seminar).
- 2014 **Hunter JJ**. Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. IEEE EMBS Rochester Chapter Seminar. Rochester, NY (invited paper).
- 2014 **Hunter JJ**. 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).
- 2016 **Hunter JJ**. Seeing cells in the living eye. Science and Technology Seminars at Laboratory for Laser Energetics. University of Rochester, Rochester, NY (seminar).
- 2017 **Hunter JJ**. Seeing cells in the living eye. International OSA Network of Students (IONS), Rochester, NY (invited plenary).
- 2018 **Hunter JJ**. Seeing the retina at work. 119th Topical Symposium of the American Physical Society New York State Section, Fredonia, NY (invited paper).
- 2019 **Hunter JJ**. Nonlinear imaging of the retina at work. Cornell NeuroNex Technology Conference, Cornell University, Ithaca, NY (invited paper).

2020 **Hunter JJ.** Seeing Cells in the Living Retina. University of Rochester Annual Neuroscience Retreat, Rochester, NY (invited speaker).

### **Invited Presentations: National & International**

- 2000 **Hunter JJ,** Campbell MCW. Accommodative power as a function of lens position. Bausch & Lomb University of Presbyopia, Fort Lauderdale, FL (invited paper).
- 2002 Campbell MCW, Kisilak ML, **Hunter JJ,** Bueno JM, King D, Irving EL. 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).
- 2003 Campbell MCW, **Hunter JJ.** 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).
- 2005 **Hunter JJ,** Kisilak ML, Campbell MCW, Irving EL. 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).
- 2005 **Hunter JJ,** Kisilak ML, Campbell MCW, Irving EL. Assessment of ocular image quality in chicks developing with and without goggles. German-Canadian Workshop: Young Scientists in Photonics, Munich, Germany (invited paper & poster).
- 2009 **Hunter JJ,** Morgan JIW, Merigan WH, Williams DR. Retinal phototoxicity observed using high-resolution autofluorescence imaging. International Laser Safety Conference. Paper 202 (invited paper).
- 2009 **Hunter JJ,** Morgan JIW, Williams DR. Unexpected retinal damage below the ANSI standard. *Frontiers in Optics*, OSA Annual Meeting (invited paper).
- 2009 **Hunter JJ.** Seeing cellular mosaics in the living eye. Medical College of Wisconsin, Milwaukee, Wisconsin (seminar).
- 2010 **Hunter J,** Morgan J, Masella B, Merigan W, Delori F, Sliney D, Williams D. Progress on New Thresholds for Photochemical Damage from Ophthalmic Exposures. American Society for Photobiology, Providence, RI. MN6-6 (invited paper).
- 2010 **Hunter JJ,** Masella B, Dubra A, Sharma R, Palczewska G, Palczewski K, Williams DR. Advances in *in vivo* two-photon retinal imaging. International Society for Eye Research, Montreal, QC, Canada. O220 (invited paper).
- 2011 **Hunter JJ.** Laser safety in Ophthalmology and Optometry. DOE Laser Safety Officer Workshop, Massachusetts Institute of Technology, Cambridge, MA (invited paper).
- 2011 **Hunter JJ.** Multiphoton imaging of the living retina. Engineering the Eye III, Benasque, Spain (invited paper).
- 2011 **Hunter JJ.** 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).



- 2012 **Hunter JJ.** 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).
- 2012 **Hunter JJ.** Two-photon imaging of the retina. European Topical Meeting on Visual & Physiological Optics (EMVPO), Dublin, Ireland, August 20-22, 2012 (invited paper).
- 2013 **Hunter JJ.** 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 (seminar).
- 2013 **Hunter JJ.** Seeing cells in the living eye: Pushing the limits of high-resolution retinal imaging. University of Waterloo Physics Colloquium. Waterloo, ON (seminar).
- 2013 **Hunter JJ.** Towards understanding thresholds & mechanisms of photochemical damage from Ophthalmic exposures. 1st International Symposium of the Blue Light Society, Tokyo, Japan (invited paper).
- 2014 **Hunter JJ.** Fluorophores as Optical Sensors. American Glaucoma Society. Washington, DC (invited paper).
- 2014 **Hunter JJ.** Seeing Cells in the Living Eye. Wavefront Presbyopic & Refractive Corrections. Dana Point, CA (invited paper).
- 2014 **Hunter JJ.** Seeing cells in the living retina using two-photon fluorescence imaging. ARVO SIG. Orlando, FL (invited paper).
- 2015 **Hunter JJ.** Changes in healthy primate retina due to light exposure. ARVO Multidisciplinary Ophthalmic Imaging Group - How high resolution retinal imaging is changing light safety. Denver, CO (invited paper).
- 2015 **Hunter JJ.** Seeing cells in the living eye using two-photon fluorescence imaging. UC Berkeley Vision Science, Oxyopia Seminar Series. Berkeley, CA (seminar).
- 2016 **Hunter JJ.** Advances in adaptive optics retinal imaging. SPIE Photonics West Biomedical Optics (BiOS) Hot Topics Plenary Session (invited paper)
- 2016 **Hunter JJ.** Monitoring Neural Activity in the Retina. Gordon Research Conferences: Lasers in Medicine and Biology. Functional Measurements in Ophthalmology session. Mount Snow, West Dover, VT. (invited paper)
- 2016 **Hunter JJ.** Multiphoton Retinal Imaging. Frontiers in Optics, OSA Annual Meeting. FTh4H.3 (invited paper).
- 2016 **Hunter JJ.** Prospects for Two-Photon Imaging in the Living Human Eye. ISER 2016: IMA6 - AO in vision sciences (invited paper).
- 2017 **Hunter JJ.** Advanced Retinal Imaging. SPIE Photonics West Biomedical Optics (BiOS). AO for Microscopy and Optical Coherence Tomography III session (invited paper).
- 2017 **Hunter JJ.** Principles of adaptive optics and imaging two-photon excited fluorescence in living retinas. IOVS 58: ARVO E Abstract 1629 (invited paper).
- 2017 **Hunter JJ.** *Two-Photon Excited Fluorescence Imaging in the Living Eye.* 14<sup>th</sup> Annual Advanced Imaging Methods Workshop. Adaptive Optics in Biological Specimens session. Berkeley, CA (invited paper).
- 2018 **Hunter JJ.** Cellular-Scale Fluorescence Lifetime Imaging of the Living Eye. 15th Annual Advanced Imaging Methods Workshop. FLIM IV – Clinical Imaging session. Berkeley, CA (invited paper).

- 2018 **Hunter JJ.** Cellular-scale fluorescence lifetime ophthalmoscopy of the living eye. 12th Annual Workshop on Advanced TCSPC Techniques in the Biomedical Sciences, Bethesda, MD (invited paper).
- 2018 **Hunter JJ.** Cellular-scale two-photon excited fluorescence imaging of retina in the living macaque. ISER 2018: RCB6 - Animal models of cone health and disorder (invited paper).
- 2018 **Hunter JJ.** Innovations in Adaptive Optics Imaging. Wavefront Presbyopic & Refractive Corrections. Denver, CO (invited paper).
- 2018 **Hunter JJ.** Looking into the eye: Cellular-scale imaging of retinal structure and function. Center for Vision Research Seminar, York University, Toronto, ON, Canada (seminar).
- 2018 **Hunter JJ.** Seeing the retina at work. Bioengineering Seminar Series, University of Pittsburgh, Pittsburgh, PA (seminar).
- 2018 **Hunter JJ.** Seeing the retina at work. Imaging Seminar, Institute of Ophthalmology, University College London, London, UK (seminar).
- 2019 **Hunter JJ.** Accelerating vision restoration with in vivo cellular imaging of retinal function. Workshop: Functional imaging technologies for regenerative medicine. ARVO (invited paper).
- 2019 **Hunter JJ.** Nonlinear imaging of the retina at work. Celebratory Waterloo-Rochester Photonics Symposium in Honour of Donna Strickland, University of Waterloo, Waterloo, ON, Canada (invited paper).
- 2019 **Hunter JJ.** Seeing the retina at work. Vision Science Research Seminar Series, School of Optometry, University of Waterloo, Waterloo, ON, Canada (seminar).
- 2019 **Hunter JJ.** Seeing Cells in the Living Retina. Vanderbilt Eye Institute Lecture, Vanderbilt University, Nashville, TN (seminar).
- 2019 **Hunter JJ.** Seeing the retina with two-photon excited fluorescence ophthalmoscopy. Hoy Family Lecture, Vanderbilt University, Nashville, TN (seminar).
- 2019 **Hunter JJ.** Two-photon excited fluorescence ophthalmoscopy: new forays into fluorescence lifetime imaging. SIG: Cellular and Molecular Imaging of the Retina in Health and Disease. ARVO (invited paper).

## PUBLICATIONS

\* denotes trainee / supervisee

### Peer-Reviewed Journal Articles

1. Anderson A, **Hunter J.** (2000) Raman spectra of molecular crystals at high pressure: V. Iodine cyanide. *Journal of Raman Spectroscopy*. 31:955-95.
2. **Hunter JJ**, Campbell MCW, Geraghty E. (2006) Optical analysis of an accommodating IOL. *J Cataract Refract Surg*. 32(2):269-278.
3. Kisilak 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.
4. **Hunter JJ**, Campbell MCW. (2006) Potential effect on the retinoscopic reflex of scleral expansion surgery for presbyopia. *Optom Vis Sci*. 83(9):649-656.
5. Bueno JM, **Hunter JJ**, Cookson CJ, Kisilak ML and Campbell MCW. (2006) Polarization and confocal ophthalmoscopy. *Opt Pura Apl*. 39(3):225-233.

6. Bueno JM, **Hunter JJ**, Campbell MCW. (2007) Miopia y aberraciones en adultos jóvenes. *Gaceta Optica* 413:20-26.
7. **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. *J Opt Soc Am A Opt Image Sci Vis.* 24(5):1284-95.
8. Bueno JM, **Hunter JJ**, Cookson CJ, Ksilak ML, Campbell MCW. (2007) Improved scanning laser fundus imaging using imaging polarimetry. *J Opt Soc Am A Opt Image Sci Vis.* 24(5):1337-48.
9. 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. *J Mod Opt.* 55(4):611-623.
10. 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. *Invest Ophthalmol Vis Sci.* 49(8):3715-3729.
11. Bueno JM, Cookson CJ, **Hunter JJ**, Ksilak ML, Campbell MCW. (2009) Depolarization properties of the optic nerve head: The effect of age. *Ophthalmic Physiol Opt.* 29(3):247-55.
12. 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 Ophthalmol.* 9:9 doi:10.1186/1471-2415-9-9.
13. **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.
14. 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. *Invest Ophthalmol Vis Sci.* 50(12):5872-5879.
15. Morgan JIW, **Hunter JJ**, Merigan WH, Williams DR. (2009) The reduction of retinal autofluorescence caused by light exposure. *Invest Ophthalmol Vis Sci.* 50(12):6015-22.
16. **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. *Biomed Opt Express.* 2(1):139-148.
17. 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. *Invest Ophthalmol Vis Sci.* 52(5):2775-2783.
18. **Hunter JJ**, Morgan JIW, Merigan WH, Sliney DH, Sparrow JR, Williams DR. (2012) The susceptibility of the retina to photochemical damage from visible light. *Prog Retin Eye Res.* 31(1):28-42.
19. Ksilak 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.
20. Yamamoto K, Zhou J, **Hunter JJ**, Williams DR, Sparrow JR. (2012) Toward an Understanding of Bisretinoid Autofluorescence Bleaching and Recovery. *Invest Ophthalmol Vis Sci.* 53(7):3536-44.
21. 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. *Biomed Opt Express.* 4(8):1285-1293.

22. 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.
23. 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. *Invest Ophthalmol Vis Sci.* 55(6):3929-3938.
24. Palczewska G, Golczak M, Williams DR, **Hunter JJ**, Palczewski K. (2014) Endogenous fluorophores enable two-photon imaging of the primate eye. *Invest Ophthalmol Vis Sci.* 55(7): 4438-4447.
25. 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. *Nat Med.* 20(7):785-789.
26. Masella BD, **Hunter JJ**, Williams DR. (2014) Rod photopigment kinetics after photodisruption of the retinal pigment epithelium. *Invest Ophthalmol Vis Sci.* 55(11):7535-44.
27. Masella BD, **Hunter JJ**, Williams DR. (2014) New wrinkles in retinal densitometry. *Invest Ophthalmol Vis Sci.* 55(11):7525-34.
28. Song H, Rossi EA, Latchney L, Bessette A, Stone E, **Hunter JJ**, Williams DR, Chung M. (2015) Cone and rod loss in Stargardt disease revealed by adaptive optics scanning light ophthalmoscopy. *JAMA Ophthalmol.* 133(10):1198-203
29. Sharma R\*, Schwarz C\*, Williams DR, Palczewska G, Palczewski K, **Hunter JJ**. (2016) In vivo two-photon fluorescence kinetics of primate rods and cones. *Invest Ophthalmol Vis Sci.* 57(2):647-657.
30. Sharma R\*, Williams DR, Palczewska G, Palczewski K, **Hunter JJ**. (2016) Two-photon autofluorescence imaging reveals cellular structures throughout the retina of the living primate eye. *Invest Ophthalmol Vis Sci.* 57(2):632-646.
31. Schwarz C\*, Sharma R\*, Fischer WS, Chung M, Palczewska G, Palczewski K, Williams DR, **Hunter JJ**. (2016) Safety assessment in macaques of light exposures for functional two-photon ophthalmoscopy in humans. *Biomed Opt Express.* 7(12):5148-5169.
32. Rossi EA, Granger CE, Sharma R\*, Yang Q, Saito K, Schwarz C\*, Walters S\*, Nozato K, Zhang J, Kawakami T, Fischer W, Latchney LR, **Hunter JJ**, Chung MM, Williams DR. (2017) Imaging individual neurons in the retinal ganglion cell layer of the living eye. *Proc Natl Acad Sci U S A.* 114(3): 586-591.
33. Sharma R\*, Schwarz C\*, **Hunter JJ**, Palczewska G, Palczewski K, Williams DR. (2017) Formation and clearance of all-trans-retinol in rods investigated in the living primate eye with two-photon ophthalmoscopy. *Invest Ophthalmol Vis Sci.* 58(1): 604-613.
34. Marcos S, Werner JS, Burns SA, Merigan WH, Artal P, Atchison DA, Hampson KM, Legras R, Lundstrom L, Yoon G, Carroll J, Choi SS, Doble N, Dubis AM, Dubra A, Elsner A, Jonnal R, Miller DT, Paques M, Smithson HE, Young LK, Zhang Y, Campbell M, **Hunter J**, Metha A, Palczewska G, Schallek J, Sincich LC. (2017) Vision science and adaptive optics, the state of the field. *Vision res.* 132:3-33.
35. Feeks JA\*, **Hunter JJ**. (2017) Adaptive optics two-photon excited fluorescence lifetime imaging ophthalmoscopy of exogenous fluorophores in mice. *Biomed Opt Express.* 8(5), 2483-2495.

36. Schwarz C\*, Sharma R\*, Cheong SK, Keller M, Williams DR, **Hunter JJ**. (2018) Selective S Cone Damage and Retinal Remodeling Following Intense Ultrashort Pulse Laser Exposures in the Near-Infrared. *Invest Ophthalmol Vis Sci*. 59(15):5973-5984.
37. Walters S\*, Schwarz C\*, Sharma R\*, Rossi E, Fischer W, DiLoreto D, Strazzeri J, Nelidova D, Roska B, Hunter J, Williams D, Merigan W. (2019) Cellular-scale evaluation of induced photoreceptor degeneration in the living primate eye. *Biomed Opt Express*. 10:66-82.
38. Dhakal KR, Walters S\*, McGregor JE, Schwarz C\*, Strazzeri JM, Aboualizadeh E, Bateman B, Huxlin KR, **Hunter JJ**, Williams DR, Merigan WH. (2020). Localized Photoreceptor Ablation Using Femtosecond Pulses Focused With Adaptive Optics. *Transl Vis Sci Technol*. 9(7):16.
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