

## **CURRICULUM VITAE**

**Alfredo (Alf) Dubra, PhD**

**OFFICE:** Byers Eye Institute  
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Palo Alto, CA 94303  
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### **EDUCATION**

03/1993 – 08/1998 BSc, Universidad de la República, Uruguay  
08/1998 – 12/2000 MSc, Universidad de la República, Uruguay  
09/2000 – 08/2004 PhD, Blackett Laboratory, Imperial College London, UK

### **POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS**

03/2004 – 12/2005 Post-doctoral fellow, Blackett Laboratory, Imperial College London, UK  
01/2006 – 12/2008 Research associate, Center for Visual Science, University of Rochester, USA

### **FACULTY APPOINTMENTS**

01/2009 – 06/2011 Assistant Professor of Ophthalmology, University of Rochester, USA  
01/2009 – 06/2011 Assistant Professor of Biomedical Engineering, University of Rochester, USA  
01/2009 – 06/2011 Assistant Professor of the Center for Visual Science, University of Rochester, USA  
07/2011 – 06/2015 Assistant Professor of Ophthalmology, Medical College of Wisconsin, USA  
07/2011 – 06/2015 Assistant Professor of Biophysics, Medical College of Wisconsin, USA  
07/2011 – present Adjunct Assistant Professor of Biomedical Engineering, Marquette University, USA  
10/2013 – present Honorary Lecturer of Ophthalmology, University College London, UK  
01/2015 – 06/2015 Assistant Professor of Cell Biology, Neurobiology & Anatomy, Medical College of Wisconsin, USA  
07/2015 – 09/2016 Associate Professor of Ophthalmology, Medical College of Wisconsin, USA  
07/2015 – 09/2016 Associate Professor of Biophysics, Medical College of Wisconsin, USA  
07/2015 – 09/2016 Associate Professor of Cell Biology, Neurobiology, & Anatomy, Medical College of Wisconsin, USA  
10/2016 – present Associate Professor of Ophthalmology, Stanford University, USA

### **RESEARCH LEADERSHIP/ADMINISTRATIVE APPOINTMENTS**

12/2011 – 09/2016 Co-Director, Advanced Ocular Imaging Program, Department of Ophthalmology, Medical College of Wisconsin, USA

### **MEMBERSHIPS IN HONORARY AND PROFESSIONAL SOCIETIES**

02/2001 – present Association for Research in Vision and Ophthalmology (ARVO)  
01/2008 – present Optical Society of America (OSA)  
09/2011 – present The International Society for Optics and Photonics (SPIE)  
06/2014 – present Associate Member, McPherson Eye Research Institute, University of Wisconsin, USA

## **EDITORSHIPS/EDITORIAL BOARDS/JOURNAL REVIEWS**

### **Editorships:**

11/2014 Visual Neuroscience (feature editor for “In Vivo Retinal Imaging” issue)  
08/2015 Editorial board member, Investigative Ophthalmology & Visual Science (1 manuscript)

### **Ad hoc Journal Reviewer:**

American Journal of Physics, Applied Optics, Biomedical Optics Express, Clinical & Experimental Optometry, IEEE Transactions on Biomedical Engineering, Investigative Ophthalmology & Visual Science, Journal of Biomedical Optics, Journal of Modern Optics, Journal of the European Optical Society - Rapid publications, Journal of the Optical Society of America A, Nature, Ophthalmic & Physiological Optics, Optica, Optical Engineering, Optics & Laser Technology, Optics Communications, Optics Express, Optics Letters, Optometry & Vision Science, Neuroscience & Biobehavioral Reviews, Journal of Biophotonics.

## **NATIONAL/INTERNATIONAL LEADERSHIP & COMMITTEE POSITIONS**

### **Grant reviewer**

The Wellcome Trust, UK (2010)  
North Carolina Biotechnology Center, USA (2010)  
Uitzicht, Holland (2012)  
US-Israel Binational Science Foundation, USA (2014)  
Medical Research Council, UK (2015)  
NIH, ETTN-12 Sensory Technologies Small Business, USA (2014 ×1, 2015 ×1, 2016×1)  
NIH, ZEY1 VSN (08) Special Emphasis Panel/Scientific Review Group, USA (2015 ×1)  
NIH, ZRG1 SBIB-Z55 Special Emphasis Panel/Scientific Review Group, USA (2015 ×1)  
NIH, NOIT / ETTN L53, USA (2016 ×1)  
NIH, ZNS1 SRB-G (06) Brain Initiative, USA (2016×1)

### **Committee positions**

2010 – 2012 Member, Vision and Color Division subcommittee, Optical Society of America, USA  
2013 – 2015 Member, Applications of Visual Science (VA), Technical Group Steering Committee, Optical Society of America, USA  
2013 Member, Program committee, Adaptive Optics: Methods, Analysis and Applications, Optical Society of America, USA  
2014 – 2016 Member Annual Meeting Program Committee, MOI Section, Association for Research in Vision and Ophthalmology, USA  
2016 – 2017 Chair, Annual Meeting Program Committee, MOI Section, Association for Research in Vision and Ophthalmology, USA  
2015 Scientific Committee Board, World Meeting on Visual and Physiological Optics, Mexico  
2016 TOM 8 - Adaptive Optics and Advanced Illumination Imaging European Optical Society, Bi-Annual Meeting scientific committee, Germany

## **RESEARCH GRANTS/AWARDS/CONTRACTS/PROJECTS**

### **Peer Reviewed: Active**

Title: Axially-resolved Spectroscopic Ophthalmic Imaging  
Source: National Eye Institute (NIH) R01 EY025231-01  
Role: Principal Investigator  
Dates: 04/01/2015 – 03/31/2020

Title: Platform Technologies for Microscopic Retinal Imaging: Development & Translation  
Source: National Eye Institute (NIH) U01 EY025477-01  
Role: co-Principal Investigator (contact)  
Dates: 04/01/2015 – 03/31/2020

Title: Career Development Award  
Source: Research to Prevent Blindness  
Role: Principal Investigator  
Dates: 01/2012 - 12/2015

Title: Assessing Photoreceptor Structure & Function in Normal and Diseased Retinae  
Source: National Eye Institute (NIH) R01EY017607-07  
Role: Co-Investigator  
PI: Joseph Carroll  
Dates: 8/1/2013 – 7/31/2017

Title: Retinal versus Cortical Contributions to Vision Loss in Albinism  
Source: National Eye Institute (NIH) R01EY024969-01  
Role: Co-Investigator  
PI: E. DeYoe and J. Carroll Co-PIs  
Dates: 12/1/2014 – 11/30/2018

#### **Non-Peer Reviewed: Active**

Title: Catalyst for a Cure: Biomarker Initiative  
Source: Glaucoma Research Foundation  
Role: Principal Investigator  
Dates: 2/1/2015 – 1/2018

Title: Assembly & Support for a Custom Adaptive Optics Scanning Light Ophthalmoscope  
Source: National Eye Institute (NIH) HHSN263201400011C  
Role: Principal Investigator  
Dates: 09/2014 – 09/2016

#### **Peer Reviewed: Completed**

Title: Career Award at the Scientific Interface  
Source: Burroughs Wellcome Fund  
Role: Principal Investigator  
Dates: 1/1/2008 – 6/30/2014

#### **Non-Peer Reviewed: Completed**

Title: Adaptive optics retinal imaging in a clinical setting  
Source: University of Pennsylvania  
Role: Principal Investigator  
Dates: 12/1/2012 – 6/30/2013

Title: High-resolution imaging of the living retina  
Source: New York Eye and Ear Infirmary  
Role: Principal Investigator  
Dates: 9/27/2011 – 9/26/2012

Title: High Resolution Retinal Imaging at Moorfields Eye Hospital and University College London  
Source: Wellcome Trust  
Role: co-Principal Investigator  
Dates: 10/1/2012 – 9/30/2017

Title: Catalyst for a Cure: Biomarker Initiative  
Source: Glaucoma Research Foundation  
Role: Principal Investigator  
Dates: 2/1/2012 – 1/2015

### **INVITED LECTURES/WORKSHOPS/PRESENTATIONS**

#### **International**

1. “Scanning laser ophthalmoscopy: reflectance, fluorescence, phase,” XVIII International Congress for Eye Research, Beijing, China (2008).
2. “MEMS in adaptive optics scanning laser ophthalmoscopy: achievements and challenges,” “SPIE Photonics West, San Jose, CA, USA (2008).
3. “Latest advances in retinal imaging,” Fourth 'Rio de la Plata' Workshop on Laser Dynamics and Nonlinear Photonics, Maldonado, Uruguay (2009).
4. “Adaptive optics in glaucoma,” World Glaucoma Congress, Boston, Massachusetts, USA (2009)

5. "Towards clinical adaptive optics ophthalmic imaging," International Society for Eye Research, Montreal, Canada (2010).
6. "Optical Design of Clinical Adaptive Optics Instruments for Retinal Imaging," OSA Frontiers in Optics, Rochester, NY, USA (2010).
7. "High resolution imaging of the inner retina," Engineering the Eye III, Benasque, Spain (2011)
8. "Adaptive optics scanning optics ophthalmoscopy: the state of the art," Australasian Ophthalmology and Vision Science meeting and the Royal Australian College of Ophthalmologists, Canberra, Australia (2011).
9. "Scanning Ophthalmic Adaptive Optics and Supercontinuum Light Sources," OSA Bio-Optics: Design and Application conference, Waikoloa Beach, HI, USA (2013).
10. Challenges of High-resolution Ophthalmic Imaging using Multiple Wavelengths, Optical Society of America, Frontiers in Optics, Orlando, FL, USA (2013).
11. "Adaptive optics scanning light ophthalmoscopy: retinal microvasculature," Association for Ocular Circulation Conference, Chicago, IL, USA (2014).
12. "Searching for Biomarkers of Glaucoma using Adaptive Optics Scanning Ophthalmoscopy," Optical Society of America CLEO, San Jose, CA, USA (2014).
13. "Adaptive optics scanning ophthalmoscopy," European Optical Society, Berlin, Germany (2014).
14. "Adaptive optics scanning light ophthalmoscopy: thinking outside the pinhole," Association for Research in Vision and Ophthalmology, Orlando, FL, USA (2014).
15. "In vivo photoreceptor imaging with AOSLO," EURetina Winter Meeting, Oxford, UK (2015).
16. "Non-confocal ophthalmic imaging of the photoreceptors, retinal vasculature and inner retina pathology," SPIE European Conferences on Biomedical Optics, Munich, Germany (2015).
17. "Adaptive optics for retinal imaging: a brief technical review," Optical Society of America, Adaptive Optics: Analysis, Methods & Systems, Virginia, USA (2015).
18. "Confocal and nonconfocal adaptive optics scanning laser ophthalmoscopy: imaging the function of retinal microstructures" IX International Meeting New Diagnostic and Therapeutic Frontiers in Ophthalmology, IRCCS - GB Bietti Foundation, Rome, Italy (2015).
19. "Structural and functional adaptive optics scanning light ophthalmoscopy," Gordon research conference, lasers in medicine & biology, West Dover, Vermont USA (2016).

### **National**

1. "Adaptive optics in glaucoma," American Glaucoma Society, San Diego, CA, USA (2009)
2. "In-vivo imaging of rod photoreceptors in humans using AOSLO," American Academy of Optometry annual meeting, Phoenix, AZ (2012).
3. "Adaptive Optics Targets Single Cells," American Glaucoma Society Annual Meeting, DC, USA (2014).

### **Local**

1. "A shearing interferometer for the study of human tear film topography," Nuffield Laboratory of Ophthalmology, Oxford University, UK (2004).
2. "Effects of tear film topography on the optical quality of the human eye," Department of Optometry and Visual Science, City University, UK (2004).
3. "Adaptive optics scanning laser ophthalmoscopy: present and future," Advances in Imaging of the Eye, Center for Vision Research, University of Florida, Gainesville, FL, USA (2008).
4. "Adaptive optics and imaging of retinal ganglion cells," Glaucoma Foundation's Annual Think Tank, NY, USA (2008).
5. "Adaptive optics scanning laser ophthalmoscopy: from proof of principle to eye disease." OSA Chapter Meeting, Rochester, NY, USA (2010).
6. "Ophthalmic adaptive optics: what it has to offer to vision science" Vision Science Forum, Medical College of Wisconsin, Milwaukee, WI, USA (2011).
7. "Imaging the human photoreceptor mosaic in vivo using adaptive optics: an update," Oxyopia Vision Science Seminars, School of Optometry, Indiana University, Bloomington, IN, USA (2011).
8. "Imaging the human living retina non-invasively at the microscopic level," Department of Biomedical Engineering, Marquette University, Milwaukee, WI, USA (2011).
9. "Adaptive optics scanning optics ophthalmoscopy: the state of the art," Department of Optometry and Vision Science, University of Melbourne, Melbourne, Australia (2011).
10. "Imaging the human living retina non-invasively at the microscopic level" Department of Electrical and Computer Engineering, Marquette University, Milwaukee, WI, USA (2012).

11. "Ophthalmic adaptive optics: photoreceptors, retinal pigment epithelium, capillaries, etc." University College London Ophthalmology seminar series, London, UK (2013).
12. "Non-confocal scanning ophthalmoscopy: seeing the transparent retina," Grand Rounds, University of California San Francisco, CA, USA (2014).
13. "Non-confocal scanning ophthalmoscopy: seeing the transparent retina Wallace-Evans 2015 Grand Rounds Speaker at Casey Eye Institute, Oregon Health & Science University, OR, USA (2015).
14. "Adaptive optics imaging of the living retina," Optical and Adaptational Limits of Vision Winter meeting, funded by the European Commission, Murcia, Spain (2015).
15. "Structural and functional imaging of the photoreceptor mosaic," 5th Annual Conference on Vision Restoration, Pittsburgh, USA (2015).
16. "Non-confocal Scanning Ophthalmoscopy: Seeing the Transparent Retina," Spring Vision Science Research Symposium, University of Wisconsin Madison, USA (2015).
17. "Non-confocal scanning ophthalmoscopy: Seeing the transparent retina," Periopsia Series, University of Houston School of Optometry (2016).

## PEER REVIEWED WORKSHOPS/PRESENTATIONS

### International

1. C. Paterson, **A. Dubra**, J.C. Dainty, "Hybrid curvature-gradient wavefront sensing for adaptive optics," 3rd international workshop on adaptive optics in industry and medicine, Albuquerque, NM, USA (2001).
2. **A. Dubra**, C. Paterson, and J.C. Dainty. "Measuring the Effect of the Tear Film on the Optical Quality of the Eye." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2002).
3. **A. Dubra**, C. Paterson, and J.C. Dainty. "Double Shear Interferometer for the Study of Tear Topography Dynamics." 2nd Aegean Summer School in Visual Optics, Santorini, Greece (2003).
4. **A. Dubra**, C. Paterson, and J.C. Dainty. "Tear film topography dynamics measurement with a shear interferometer." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2004).
5. G.T. Kennedy, **A. Dubra**, C. Paterson, A.D. Edwards, A.R. Fielder, and J.C. Dainty. "Adaptive-optics for high resolution imaging of the human retina *in vivo*." EOS Topical Meeting on Advanced Imaging Techniques, Imperial College London, London, UK (2005).
6. **A. Dubra**, J.S. Massa, and C. Paterson. "Hysteresis compensation in PZT bimorph mirrors: Preisach's classical and non-linear models." The 5th International Workshop on Adaptive Optics for Industry and Medicine, Beijing, China (2005).
7. R.C. Baraas, J. Carroll, K.L. Gunther, J.I. Wolfing, D. Gray, **A. Dubra**, D.R. Williams, M. Neitz and D.H. Foster, "A progressive form of Tritanopia revealed with adaptive optics retinal imaging," Engineering the Eye II: Imaging the Retina, Galway, Ireland (2006).
8. J.I. Wolfing, D.C. Gray, **A. Dubra**, R. Wolfe, B. Gee, W. Merigan, and D.R. Williams. "High resolution autofluorescence imaging of individual retinal pigment epithelial cells *in vivo*." Engineering the Eye II: Imaging the Retina, Galway, Ireland (2006).
9. **A. Dubra**, J.I. Wolfing, D.C. Gray, W. Merigan, and D.R. Williams, "Dual-wavelength imaging for registering high-resolution retinal images *in vivo*." Engineering the Eye II: Imaging the Retina, Galway, Ireland (2006).
10. J.I. Wolfing, **A. Dubra**, D.C. Gray and D.R. Williams. "Dual-wavelength focusing and simultaneous image registration for *in vivo* high-resolution retinal imaging." Optical Society of America Frontiers in Optics, Rochester, NY, USA (2006).
11. D.C. Gray, W. Merigan, B. Gee, J.I. Wolfing, J. Porter, **A. Dubra**, T.H. Twietmeyer, K. Ahmad, and D.R. Williams. "In vivo high-resolution fluorescence retinal imaging with adaptive optics." Optical Society of America Frontiers in Optics, Rochester, NY, USA (2006).
12. **A. Dubra** and D.R. Williams. "Dual wavefront corrector ophthalmic adaptive optics: design and alignment." The 6th International Workshop on Adaptive Optics for Industry and Medicine, Galway, Ireland (2007).
13. J.I.W. Morgan, D.C. Gray, R. Wolfe, B. Masella, **A. Dubra** and D.R. Williams. "Imaging individual human retinal pigment epithelium cells *in vivo*." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2007).
14. Y. Geng, J. Porter, D.C. Gray, K.P. Greenberg, R. Wolfe, **A. Dubra**, T. Twietmeyer, K. Ahmad, J. G. Flannery, and D.R. Williams. "In vivo Adaptive Optics Imaging of Rat Retinal Ganglion Cells." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2007).
15. **A. Dubra**, Gómez-Vieyra, D. Malacara-Hernández, and D.R. Williams. "First-Order Design of Off-Axis Reflective Ophthalmic Adaptive Optics Systems Using Afocal Telescopes." Optical Society of America Frontiers in Optics, San José, CA, USA (2009).

16. B. Schroeder, J. Rha, P. Godara, **A. Dubra** and J. Carroll. "Imaging a Moving Target: High-Speed Imaging of the Photoreceptor Mosaic in Patients with Nystagmus." The 7th International Workshop on Adaptive Optics for Industry and Medicine, Shatura, Moscow Region, Russia (2009).
17. D.R. Williams, J.J. Hunter, W.H. Merigan, B. Masella, **A. Dubra**, R. Sharma, L. Yin, G. Palczewska, and K. Palczewski. "In vivo two-photon imaging of macaque retina." EOS Topical Meeting: 5<sup>th</sup> European Meeting on Visual and Physiological Optics, Stockholm, Sweden (2010).
18. **A. Dubra** and Z. Harvey. "Registration of 2D Images from Fast Scanning Ophthalmic Instruments." The 4th International Workshop on Biomedical Image Registration, Lübeck, Germany (2010).
19. **A. Dubra**, Y. Sulai, and D.R. Williams. "Microscopic in vivo Imaging of Human Inner Retina with a Phase Adaptive Optics Scanning Laser Ophthalmoscope." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2010).
20. J. Carroll, E. Banin, D.M. Hunt, R. Martin, M. Michaelides, L. Mizrahi-Meissonnier, A.T. Moore, D. Sharon, D.R. Williams, and **A. Dubra**. "Evaluating the Photoreceptor Mosaic in Blue Cone Monochromacy (BCM)" ARVO Annual Meeting, Fort Lauderdale, FL, USA (2010).
21. J.J. Hunter, B. Masella, **A. Dubra**, R. Sharma, G. Palczewska, K. Palczewski, and D.R. Williams. "In vivo Two-Photon Imaging of Macaque Retina." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2010).
22. M.L. Wagner-Schuman, E. Weh, D.W. Odell, H. Chiao, A.M. Dubis, P. Summerfelt, W. Fischer, Y. Sulai, **A. Dubra** and J. Carroll. "The Role of Pigmentation in Foveal Pit Morphology: An SD-OCT Study." ARVO Annual Meeting, Fort Lauderdale, FL, USA (2010).
23. M.M. Chung, E.A. Rossi, H. Song, **A. Dubra**, M.O. Gonzalez, E.M. Stone, J. Riley and D.R. Williams, "In vivo adaptive optics imaging of the cone photoreceptor mosaic in autosomal dominant cone rod dystrophy (AD-CRD) in a three-generation family carrying the I143NT mutation in the guanylate cyclase activator A1A (GUCA1A) Gene," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
24. Y. Geng, R. Sharma, **A. Dubra**, K. Ahmad, T. Twietmeyer, B. Masella, J.J. Hunter, R.T. Libby and D.R. Williams, "High resolution in vivo imaging of the mouse retina using an adaptive optics scanning laser ophthalmoscope," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
25. **A. Dubra**, Y. Sulai, D.R. Williams and J. Carroll, "In vivo imaging of the rod photoreceptor mosaic," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
26. D.X. Hammer, R.D Ferguson, M. Mujat, D.P. Biss, N.V. Iftimia, A.H. Patel, E. Plumb, M. Campbell, J.L. Norris, **A. Dubra**, T.Y.P. Chui, J.D. Akula and A.B. Fulton, "Advanced Capabilities of the Multimodal Adaptive Optics Imager," SPIE Photonics West, San Francisco, CA, USA (2011).
27. J. Carroll, A.M. Dubis, M. Genead, R.F. Cooper, V. Williams, P. Sommer, K.E. Stepien, T. Connor, G.A. Fishman, **A. Dubra**, J. Neitz and M. Neitz, "A mutant opsin allele associated with cone-type specific degeneration," XXIth Symposium of the International Colour Vision Society, Kongsberg, Norway (2011).
28. R.F. Cooper, A. A. Dubis. Pavaskar, **A. Dubra** and J. Carroll, "Temporal variation of individual rod photoreceptor reflectance in the human retina," Engineering the Eye III, Benasque, Spain (2011).
29. Y. Geng, R. Sharma, **A. Dubra**, K. Ahmad, T. Twietmeyer, B. Masella, J.J. Hunter, R.T. Libby and D.R. Williams," *In vivo* microscopic imaging of the mouse retina using an adaptive optics scanning laser ophthalmoscope," Engineering the Eye III, Benasque, Spain (2011).
30. Z. Harvey and **A. Dubra**, "Low bandwidth eye tracking for adaptive optics scanning ophthalmoscopy," Engineering the Eye III, Benasque, Spain (2011).
31. E.A. Rossi, M. Chung, **A. Dubra** and D.R. Williams, "Tracking disease progression in geographic atrophy with adaptive optics imaging," Engineering the Eye III, Benasque, Spain (2011).
32. B. Schroeder, J. Rha, A.M. Dubis, R.F. Cooper, **A. Dubra**, K.E. Stepien and J. Carroll, "A comparison of AO-flood illumination and AOSLO imaging: same retina, different picture?," Engineering the Eye III, Benasque, Spain (2011).
33. R. Sharma, Y. Geng, **A. Dubra**, K. Ahmad, R.T. Libby and D.R. Williams, "Longitudinal chromatic aberration of the mouse eye," Engineering the Eye III, Benasque, Spain (2011).
34. Y. Sulai and **A. Dubra**, "Apodized pupils enhance photoreceptor contrast in adaptive optics scanning ophthalmoscope images" Engineering the Eye III, Benasque, Spain (2011).
35. A.M. Dubis, B.R. Hansen, R.F. Cooper, J. Beringer, Y. Sulai, **A. Dubra** and J. Carroll, "The relationship between the foveal avascular zone and foveal pit morphology," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
36. R.F. Cooper, J. Rha, **A. Dubra** and J. Carroll, "Examining FFT and direct counting estimates of photoreceptor density in adaptive optics retinal images," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
37. B. Masella, J.J. Hunter, L. Yin, J. Strazzeri, **A. Dubra**, W.H. Merigan and D.R. Williams, "No loss of photopigment kinetics or contrast sensitivity seen after photochemical insult to the retinal pigment epithelium," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).

38. E.W. Dees, J. Rha, **A. Dubra** and R.C. Baraas, "Variability in parafoveal cone density in normal trichromatic females," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
39. K.E. Stepien, W.M. Martinez, A.M. Dubis, R.F. Cooper, **A. Dubra** and J. Carroll, "Detection of photoreceptor disruption after commotio retinae using adaptive optics scanning laser ophthalmoscopy," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
40. J. Neitz, M. Wagner-Schuman, **A. Dubra**, S.A. Sjoberg, A.T. Moore, T.L. Young, M. Neitz, J. Carroll and M. Michaelides, "Cone mosaic disruption caused by L/M opsin mutations in Bornholm eye disease," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2011).
41. Z.G. Harvey, **A. Dubra**, N.D. Cahill and S. Lopez," Low bandwidth eye tracker for scanning laser ophthalmoscopy," SPIE Medical Imaging, San Diego, CA, USA (2012).
42. Cooper, J. Rha, A.M. A. Dubis. **A. Dubra** and J. Carroll, "The Repeatability of Photoreceptor Reflectance Changes in the Living Human Retina," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
43. Y.N. Sulai and **A. Dubra**, "Adaptive Optics Scanning Ophthalmoscopy with Amplitude Pupil Apodization, ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
44. E.A. Rossi, D.R. Williams, **A. Dubra**, H. Song, M.A. Folwell, L.R. Latchney and M.M. Chung, "Photoreceptor and RPE Disruptions Observed Outside Clinically Visible Geographic Atrophy Lesions in the Living Eye with Fluorescence Adaptive Optics Scanning Laser Ophthalmoscopy (FAOSLO), ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
45. A.L. Vincent, J. Carroll, G.A. Fishman, D. Sharp, P. Summerfelt, V. Williams, **A. Dubra**.M. Dubis and F. Wong, "Retinal Structure and Function in a Pedigree Cosegregating Achromatopsia and a Rhodopsin Mutation," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
46. J.J. Hunter, E.A. Rossi, W. Fischer, **A. Dubra** and M.M. Chung, "Disrupted RPE and intact photoreceptors observed in vivo with Fluorescence Adaptive Optics Scanning Laser Ophthalmoscopy years following accidental laser exposures in humans," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
47. H. Song, D.R. Williams, L. Latchney, **A. Dubra** and M.M. Chung, "Fluorescence Adaptive Optics Scanning Laser Ophthalmoscopy Demonstrates Intraretinal Spots and Low Cone Density in Fundus Albipunctatus," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
48. J. Carroll, R. Garrioch, C.S. Langlo, R.F. Cooper, V. Williams, J.A. Croskrey, **A. Dubra** and A.M. Dubis, "The Repeatability Of In Vivo Cone Density Measurements," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
49. M.M. Chung, H. Song, E.Y. Chew, M. Folwell, L. Latchney, D.R. Williams and **A. Dubra**, "Adaptive Optics Scanning Laser Ophthalmoscopy Demonstrates Reduced Foveal Cone Density in Early Idiopathic Macular Telangiectasia," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
50. J. Rha, M.A. Genead, P. Godara, V. Williams, B. Schroeder, P. Summerfelt, **A. Dubra**, K.E. Stepien, G.A. Fishman and J. Carroll, "High-resolution Imaging of Photoreceptor Structure in Choroideremia," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
51. M.E. Land, D. Kay, A.M. Dubis, R.F. Cooper, **A. Dubra**, J. Carroll and K.E. Stepien," Photoreceptor Structure in the Spectrum of Best Vitelliform Macular Dystrophy," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
52. D.H. Scoles, Y.N. Sulai, A.D. Manguikian, S. Shareef and **A. Dubra**, "Reflectance Adaptive Optics Nerve Fiber Layer Imaging in Primary Open Angle Glaucoma," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
53. A.M. Dubis, B.R. Hansen, R.F. Cooper, J. Beringer, **A. Dubra** and J. Carroll, "Relationship between the Foveal Avascular Zone and Foveal Pit Morphology," ARVO Annual Meeting, Fort Lauderdale, FL, USA (2012).
54. R. Rosen, R. Weitz, J. Carroll, **A. Dubra** and K.E. Stepien, "Clinical Applications of Single Cell Retinal Imaging Using Adaptive Optics Scanning Laser Ophthalmoscopy– An Update," Annual Macula Society Meeting, Jerusalem, Israel (2012).
55. Y. N. Sulai and **A. Dubra**, "Adaptive Optics Scanning Ophthalmoscopy with Annular Pupils," Optical Society of America Frontiers in Optics, Rochester, New York, USA (2012).
56. **A. Dubra**, D.H. Scoles and Y.N. Sulai, "Visualization of retinal capillary vasculature and blood flow using adaptive optics non-confocal scanning light ophthalmoscopy," ISIE/ARVO, Seattle, WA, USA (2013).
57. Y.N. Sulai, D.H. Scoles and **A. Dubra**, "Imaging the retina with a confocal red-green-blue AOSLO," ISIE/ARVO, Seattle, WA, USA (2013).
58. K. Stepien, Y. Sulai, C. Langlo, R. Cooper, J. Flatter, D. Kay, S. Robison, D. Weinberg, **A. Dubra** and J. Carroll, "Alterations in Cone Photoreceptor Reflectivity as a Biomarker of Photoreceptor Health," ISIE/ARVO, Seattle, WA, USA (2013).
59. D.H. Scoles, Y.N. Sulai and **A. Dubra** "In vivo imaging of the retinal pigment epithelium using dark-field AOSLO," ISIE/ARVO, Seattle, WA, USA (2013).

60. R. Rosen, R. Weitz, J. Carroll, M. Dubow, A. Pinhas, N. Shah, T. Chui, Y. Sulai, N. Sripsema and **A. Dubra**, “Fluoro Microangiography – First Clinical Studies of Fluorescein Angiography using Adaptive Optics Scanning Light Ophthalmoscopy,” ISIE/ARVO, Seattle, WA, USA (2013).
61. J.M. Skarie, D.H. Scoles, Y.N. Sulai, M. Goldberg, K. Stepien and **A. Dubra**, “In vivo Imaging of Microscopic Inner Retinal Structures in a Family with Autosomal Dominant Optic Atrophy,” ISIE/ARVO, Seattle, WA, USA (2013).
62. D. Scoles, R.S. Cooper, A.M Dubis, B. Higgins, J. Carroll and **A. Dubra**, ”In vivo microscopic inner retinal phenotypes of retinal and neurologic disease,” ARVO Annual Meeting, Seattle, WA, USA (2013).
63. H. Song, A. Pugliese, E. Rossi, L. Latchney, E. Stone, **A. Dubra**, J. Hunter and M. Chung, “Adaptive Optics Scanning Laser Ophthalmoscopy in Stargardt Disease Reveals Decreased Cone and Rod Densities,” ARVO Annual Meeting, Seattle, WA, USA (2013).
64. R.S. Cooper, Z. Harvey, M. Dubow, Y. Sulai, A. Pinhas, D. Scoles, N. Shah, R. Rosen, **A. Dubra** and J. Carroll, “The Effect of AOSLO Image Distortion on Metrics of Mosaic Geometry,” ARVO Annual Meeting, Seattle, WA, USA (2013).
65. N. Shah, M. Dubow, A. Pinhas, N. Sripsema, **A. Dubra**, Y. Sulai, D. Scoles and R. Rosen, “Normal retinal vasculature imaged using fluorescence adaptive optics scanning light ophthalmoscopy (FAOSLO) ,” ARVO Annual Meeting, Seattle, WA, USA (2013).
66. C. Langlo, D. Denney, R. Cooper, D. D. Han. Weinberg, J. Kim, **A. Dubra**, K. Stepien, T. Connor and J. Carroll, “High-resolution Imaging of Retinal Structure in Retinitis Pigmentosa and Usher Syndrome,” ARVO Annual Meeting, Seattle, WA, USA (2013).
67. A. Pinhas, N. Shah, M. Dubow, M. Mehta, P. Garcia, N. Sripsema, J. Carroll, Y. Sulai, **A. Dubra** and R. Rosen,” Microangiopathic Features of Central Retinal Vein Occlusion Imaged Using Fluorescence Adaptive Optics Scanning Light Ophthalmoscopy,” ARVO Annual Meeting, Seattle, WA, USA (2013).
68. M. Dubow, A. Pinhas, N. Shah, Y. Sulai, P. Garcia, N. Sripsema, J. Carroll, **A. Dubra** and R. Rosen, ”In vivo imaging of Hypertensive Retinopathy using Fluorescence Adaptive Optics Scanning Light Ophthalmoscopy,” ARVO Annual Meeting, Seattle, WA, USA (2013).
69. J. Flatter, M. Dubow, R. Singh, N. Shah, S. Robison, D. Weinberg, K. Stepien, **A. Dubra**, R. Rosen, J. Carroll and Carroll lab, ”Outer Retinal Structure Following Closed Globe Blunt Ocular Trauma,” ARVO Annual Meeting, Seattle, WA, USA (2013).
70. R. Rosen, **A. Dubra**, R. Weitz, J. Carroll, M. Dubow, A. Pinhas, N. Shah, Y. Sulai, N. Sripsema and J. Walsh,” Histopathologic Features of Diabetic Microangiopathy Imaged Using an Adaptive Optics Scanning Laser Fluorescein Angiography,” ARVO Annual Meeting, Seattle, WA, USA (2013).
71. E. Rossi, D.R. Williams, **A. Dubra**, L. Latchney, M. Folwell, W. Fischer, H. Song and M. Chung, “Individual Retinal Pigment Epithelium Cells can be Imaged In Vivo in Age Related Macular Degeneration,” ARVO Annual Meeting, Seattle, WA, USA (2013).
72. V. Williams, P. Summerfelt, T. Kaczanowski, K. Packard, D. Bishop, M. Goldberg, **A. Dubra**, J. Carroll and A. Suneja, “Applying Lean Principles to Clinical and Translational Research in Ophthalmology,” ARVO Annual Meeting, Seattle, WA, USA (2013).
73. S. Chiu, A. A. Dubis, **A. Dubra**, J. J. Carroll. Izatt and Sina Farsiu,” Automatic Segmentation of Photoreceptors in AOSLO Images Using Graph Theory and Dynamic Programming,” ARVO Annual Meeting, Seattle, WA, USA (2013).
74. **A. Dubra**, D. Scoles and Y. Sulai, “In vivo Imaging of the Human Retinal Pigment Epithelium Cell Mosaic using Short-wavelength Autofluorescence and achromatizing lenses,” ARVO Annual Meeting, Seattle, WA, USA (2013).
75. M. Gupta, M. Dubow, A. Pinhas, N. Shah, P. Garcia, G. Landa, Y. Sulai, **A. Dubra** and R. Rosen, “Adaptive Optics Imaging of Photoreceptors following Repair of Rhegmatogenous Retinal Detachments,” ARVO Annual Meeting, Seattle, WA, USA (2013).
76. S. Batson, S. Hansen, P. Karth, R. Cooper, D. D. Scoles. Weinberg, **A. Dubra**, J. Kim, J. Carroll, and W. Wirostko, “Assessing Photoreceptor Structure Following Macular Hole Closure,” ARVO Annual Meeting, Seattle, WA, USA (2013).
77. D. Kay, R. Cooper, D. Scoles, F. Zakka, V. Williams, **A. Dubra**, J. Carroll and K. Stepien, “Photoreceptor structure in presumed non-neoplastic autoimmune retinopathy,” ARVO Annual Meeting, Seattle, WA, USA (2013).
78. J. Carroll, V. Sundaram, C. Langlo, **A. Dubra**, M. Michaelides, “Assessing cone photoreceptor structure in achromatopsia,” 22<sup>nd</sup> Symposium of the International Colour Vision Society, Winchester, UK (2013).
79. M.M. Razeen, A. Gan, N. Shah, A. Pinhas, R. Bavier, C.L. Liu, E. Cheang, **A. Dubra**, T.Y. Chui, R.B. Rosen, “In vivo microscopic spatial characterization of foveal microvasculature in healthy human subjects,” ARVO Annual Meeting, Orlando, FL, USA (2014).



80. S.D. Esposti, R. Ba-Abbad, A. Pack, J. Aboshiha, Y.N. Sulai, **A. Dubra** Webster, A.M. Dubis, J. Carroll, M. Michaelides, "High-resolution imaging to probe retinal integrity in RPGR associated rod-cone dystrophy," ARVO Annual Meeting, Orlando, FL, USA (2014).
81. S.E. Liyanage, R.F. R.F. Cooper. Ba-Abbad, Y.N. Sulai, **A. A. Dubra**M. Dubis, J. Carroll, M. Michaelides, "Imaging photoreceptor structure in subjects with R9AP- and RGS9-associated retinal dysfunction bradyopsia," ARVO Annual Meeting, Orlando, FL, USA (2014).
82. G. Ramsamy, J. Aboshiha, R. Rajendram, Y.N. Sulai, J. Carroll, **A. Dubra**, M. Michaelides, A.M. Dubis, "Persistent and reversible structural retinal disruption associated with selected outer retinopathies," ARVO Annual Meeting, Orlando, FL, USA (2014).
83. R. Ba-Abbad, A. Pack, J. Aboshiha, Y.N. Sulai, **A. Dubra** Webster, A.T. Moore, A.M. Dubis, J. Carroll, M. Michaelides, "Outer retinal changes associated with the RPGR carrier phenotype: insights from high-resolution imaging," ARVO Annual Meeting, Orlando, FL, USA (2014).
84. M. Wilk, B. Higgins, R.F. Cooper, D. Scoles, K. Stepien, C.G. Summers, **A. Dubra**, D. Costakos, J. Carroll, "Contrasting foveal specialization in disorders associated with foveal hypoplasia," ARVO Annual Meeting, Orlando, FL, USA (2014).
85. J. Flatter, D. Scoles, R.F. Cooper, Y.N. Sulai, M. Goldberg, W. Wirostko, K. Stepien, T. Connor, **A. Dubra**, J. Carroll, "Changes in outer retinal structure following closed globe blunt ocular trauma," ARVO Annual Meeting, Orlando, FL, USA (2014).
86. C. Langlo, D. Scoles, G. Fishman, D. Gamm, M. Struck, J. Chiang, **A. Dubra**, J. Carroll, "Residual cone structure in achromatopsia: implications for gene therapy," ARVO Annual Meeting, Orlando, FL, USA (2014).
87. C. Warren, D. Scoles, A. Dubis, J. Aboshiha, A. Webster, M. Michaelides, D. Han, J. Carroll, **A. Dubra**, "Imaging cone structure in autosomal dominant cone rod dystrophy caused by GUCY2D mutations," ARVO Annual Meeting, Orlando, FL, USA (2014).
88. E.S. Smith, C. Chen, T.Y. Chui, S.H. Tsang, J. Carroll, **A. Dubra**, D.C. Hood, R.B. Rosen, V.C. Greenstein, "Comparison of adaptive optics scanning light ophthalmoscopic images to structure and function within and on the borders of hyperautofluorescent rings in retinitis pigmentosa," ARVO Annual Meeting, Orlando, FL, USA (2014).
89. K. Stepien, D. Scoles, Y.N. Sulai, R.F. Cooper, B. Higgins, J. Carroll, **A. Dubra**, "Variability in photoreceptor inner segment morphology in best vitelliform macular dystrophy," ARVO Annual Meeting, Orlando, FL, USA (2014).
90. F. Zakka, D. Scoles, C. Langlo, B. Liu, D. Han, K. Stepien, T. Connor, **A. Dubra**, J. Carroll, "Disambiguation of photoreceptor structure in transition zones of retinal degenerative diseases," ARVO Annual Meeting, Orlando, FL, USA (2014).
91. K. Saito, K. Nozato, K. Suzuki, A. Roorda, **A. Dubra**, H. Song, J.J. Hunter, D.R. Williams, E.A. Rossi, "Rods and cones imaged with a commercial adaptive optics scanning light ophthalmoscope (AOSLO) prototype," ARVO Annual Meeting, Orlando, FL, USA (2014).
92. J. Martin, B. Kim, R. Joshi, G. Han, **A. Dubra**, J.I. Morgan, "Longitudinal adaptive optics imaging of active and resolved central serous retinopathy," ARVO Annual Meeting, Orlando, FL, USA (2014).
93. Y.N. Sulai, D. Scoles, **A. Dubra**. "Visualizing retinal vasculature using non-confocal adaptive optics scanning light ophthalmoscopy," ARVO Annual Meeting, Orlando, FL, USA (2014).
94. R.B. Rosen, A. Gan, M.M. Razeen, A. Pinhas, E. Cheang, C.L. Liu, L. Rostomian, R. Weitz, **A. Dubra**, T.Y. Chui, "Monitoring retinal vasculopathic changes over time using in vivo offset pinhole adaptive optics scanning light ophthalmoscopy," ARVO Annual Meeting, Orlando, FL, USA (2014).
95. R. Bavier.D, M.M. Razeen, A. Gan, A. Pinhas, N. Shah, E. Cheang, C.L. Liu, T.Y. Chui, **A. Dubra**, R.B. Rosen, "In vivo microscopic assessment of perfused foveal capillary lumen diameters in diabetic retinopathy versus healthy controls," ARVO Annual Meeting, Orlando, FL, USA (2014).
96. T.Y. Chui, A. Gan, M. Razeen, N. Shah, A. Pinhas, L. Rostomian, E. Cheang, C.L. Liu, **A. Dubra**, R.B. Rosen. "Imaging retinal microaneurysms in diabetes using offset pinhole adaptive optics scanning light ophthalmoscopy: a quantitative and qualitative analysis," ARVO Annual Meeting, Orlando, FL, USA (2014).
97. G. Han, Y.N. Sulai, A.M. Maguire, J. Bennett, **A. Dubra**, J.I. Morgan, "Adaptive optics imaging of ABCA4 retinal degeneration," ARVO Annual Meeting, Orlando, FL, USA (2014).
98. R.F. Cooper, C. Langlo, D. Scoles, K. Stepien, T. Connor, **A. Dubra**, J. Carroll, "Assessing photoreceptor reflectance changes in retinitis pigmentosa," ARVO Annual Meeting, Orlando, FL, USA (2014).
99. A. Pinhas, A. Gan, M. Razeen, N. Shah, E. Cheang, C.L. Liu, **A. Dubra**, T.Y. Chui, R.B. Rosen, "Fellow eye in retinal vein occlusion: in vivo microscopic analysis of foveal microvasculature," ARVO Annual Meeting, Orlando, FL, USA (2014).
100. A. Gan, N. Shah, M. Razeen, A. Pinhas, E. Cheang, R. Weitz, R. Gentile, **A. Dubra**, T.Y. Chui, R.B. Rosen, "In vivo microscopy using adaptive optics scanning light ophthalmoscope fluorescein angiography and analysis of the

- foveal microvasculature in sickle cell retinopathy and comparison with SD-OCT,” ARVO Annual Meeting, Orlando, FL, USA (2014).
101. M. Chen, T.Y. Chui, P. Alhadeff, R. Ritch, R.B. Rosen, D.C. Hood, **A. Dubra**, “Imaging retinal nerve fiber bundles in glaucoma patients with deep local visual field damage of the macular region,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  102. Z. Harvey, **A. Dubra**. “Motion distortion correction in scanning ophthalmoscopy by iterative image registration,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  103. N. Shah, A. Pinhas, A. Gan, M. Razeen, E. Cheang, C.L. Liu, **A. Dubra**, T.Y. Chui, R.B. Rosen, “In vivo microscopy of the foveal avascular zone in normal and vasculopathic eyes,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  104. J. Carroll, D. Scoles, H. C. Langlo, J. Neitz, M.E. Pennesi, M. Neitz, **A. Dubra**, “Imaging cone structure in patients with OPN1LW and OPN1MW mutations,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  105. A.M. Dubis, R.F. Cooper, J. Carroll, **A. Dubra**, M. Michaelides, “Quantifying photoreceptor reflectance: when density is not enough,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  106. M. Michaelides, F.R. Zakka, J. Aboshiha, Y.N. Sulai, T. Connor, D. Han, **A. Dubra**, J. Carroll, A.M. Dubis, “High-resolution imaging in Stargardt Disease: preliminary observations in preparation for intervention,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  107. D. Scoles, M. Goldberg, C. Langlo, Y.N. Sulai, K. Stepien, D. Weinberg, J. Kim, **A. Dubra**, J. Carroll, B. Blodi, “Non-invasive evaluation of microscopic retinal pathology in macular telangiectasia type 2,” ARVO Annual Meeting, Orlando, FL, USA (2014).
  108. C.S. Langlo, F. Collison, P. Summerfelt, C. White, **A. Dubra**, W. Hauswirth, G. Fishman and J. Carroll, “Longitudinal Measurement of Cone Density in Congenital Achromatopsia,” 23rd Symposium of the International Colour Vision Society, Sendai, Japan (2015).
  109. E.J. Patterson, J. Tee, J. Neitz, C.S. Langlo, **A. Dubra**, M. Neitz, A.M. Dubis, A.J. Hardcastle, M. Michaelides and J. Carroll, “Assessing cone mosaic disruption in patients with X-linked cone dysfunction,” ARVO Annual Meeting, Denver, CO, USA (2015).
  110. M. M. Razeen, M.R. Goldberg, C.S. Langlo, R.F. Cooper, M.A. Wilk, K.E. Stepien, D.P. Han, T.B. Connor, **A. Dubra** and J. Carroll “Correlating photoreceptor abnormalities on adaptive optics scanning light ophthalmoscopy to conventional clinical findings in patients with Stargardt disease,” ARVO Annual Meeting, Denver, CO, USA (2015).
  111. C.S. Langlo, F.T. Collison, P. Summerfelt, C. White, **A. Dubra**, W.W. Hauswirth, G.A. Fishman and J. Carroll “Longitudinal imaging of foveal cone structure in congenital achromatopsia,” ARVO Annual Meeting, Denver, CO, USA (2015).
  112. R.B. Rosen, N. Choudury, N. Menon, A. Pinhas, R. Weitz, J. Carroll, **A. Dubra** and T. Chui, “Visualization of multiple retinal capillary beds using offset pinhole adaptive optics scanning light ophthalmoscopy,” ARVO Annual Meeting, Denver, CO, USA (2015).
  113. B.S. Sajdak, C.S. Langlo, Y.N. Sulai, R.F. Cooper, D.K. Merriman, J. Carroll and **A. Dubra** “Non-invasive adaptive optics imaging of the ground squirrel retina,” ARVO Annual Meeting, Denver, CO, USA (2015).
  114. A.M. Dubis, C.S. Langlo, **A. Dubra**, A. Webster, J. Aboshiha, A.T. Moore, R.R. Ali, J.W. Bainbridge, J. Carroll and M. Michaelides, “Residual foveal cone structure in CNGB3 achromatopsia: factors for gene therapy candidate selection,” ARVO Annual Meeting, Denver, CO, USA (2015).
  115. M.A. Mavrommatis, B. Fortune, J. Reynaud, M. Chen, R. Ramachandran, R. Ritch, R.B. Rosen, **A. Dubra**, T.Y. Chui and D. Hood, “Glaucomatous damage of the retinal nerve fiber layer can be better visualized with en-face OCT imaging than with typical OCT thickness maps,” ARVO Annual Meeting, Denver, CO, USA (2015).
  116. D. Lee, M. Chen, T.Y. Chui, B. Epstein, R. Ritch, R.B. Rosen, **A. Dubra** and D. Hood, “Adaptive optics imaging of peripapillary nerve fiber bundles: implications for glaucomatous damage seen on circumpapillary oct scans,” ARVO Annual Meeting, Denver, CO, USA (2015).
  117. E.S. Smith, T.Y. Chui, C.L. Chen, J. Carroll, **A. Dubra**, R.F. Cooper, R.B. Rosen, D. Hood, V.C. and Greenstein, “Analysis of the photoreceptor mosaic within, on and outside the borders of hyperautofluorescent rings in retinitis pigmentosa using adaptive optics scanning light ophthalmoscopy,” ARVO Annual Meeting, Denver, CO, USA (2015).
  118. M. Kasilian, M.G. Ring, R.W. Strauss, M.M. Razeen, **A. Dubra**, T. Peto, C. Bunce, J. Carroll, A.M. Dubis and M. Michaelides, “Reliability of cone density measurements on adaptive optics images in Stargardt disease,” ARVO Annual Meeting, Denver, CO, USA (2015).
  119. M.G. Ring, M. Kasilian, J. Tee, **A. Dubra**, T. Peto, C. Bunce, A. Quartilho, J. Carroll, M. Michaelides and A.M. Dubis, “Factors affecting cone photoreceptor identification in RPGR-associated retinopathy,” ARVO Annual Meeting, Denver, CO, USA (2015).

120. R.F. Cooper, M.A. Wilk, **A. Dubra** and J. Carroll “Evaluating descriptive metrics of the human photoreceptor mosaic,” ARVO Annual Meeting, Denver, CO, USA (2015).
121. K.M., McKay, Z. Harvey, G.K. Han, **A. Dubra** and J.I. Morgan, “Stimulus-evoked optical response of individual cone photoreceptors observed with adaptive optics scanning light ophthalmoscopy,” ARVO Annual Meeting, Denver, CO, USA (2015).
122. T.Y. Chui, N. Menon, N. Choudhury, A. Pinhas, M. Dubow, N. Shah, **A. Dubra** and R.B. Rosen, “Imaging of periarteriolar capillary free zone using offset pinhole adaptive optics scanning light ophthalmoscopy,” ARVO Annual Meeting, Denver, CO, USA (2015).
123. N. Menon, N. Choudhury, T.Y. Chui, A. Pinhas, Y.N. Sulai, **A. Dubra** and R.B. Rosen “In vivo retinal vascular wall imaging in patients with diabetic retinopathy using non-confocal split detection adaptive optics scanning light ophthalmoscopy,” ARVO Annual Meeting, Denver, CO, USA (2015).
124. N. Choudhury, N. Menon, A. Gan, M.M. Razeen, A. Pinhas, N. Shah, R.C. Gentile, T.Y. Chui, **A. Dubra** and R.B. Rosen “In vivo imaging of human retinal microvasculature in sickle cell retinopathy using adaptive optics scanning light ophthalmoscope fluorescein angiography and offset pinhole imaging,” ARVO Annual Meeting, Denver, CO, USA (2015).
125. Y.N. Sulai and **A. Dubra**, “Design of a refractive lens system with ocular spherical and chromatic aberration correction,” ARVO Imaging in the eye conference, Denver, CO, USA (2015).
126. N. Menon, N. Choudhury, T.Y. Chui, **A. Dubra** and R.B. Rosen, Characterizing the Perifoveal Intercapillary Region: Towards a Better Understanding of Foveal Vasculature Development in Healthy Human Subjects,” ARVO Imaging in the eye conference, Denver, CO, USA (2015).
127. N. Choudhury, N. Menon, E. Cheang, A. Pinhas, T. Chui, **A. Dubra** and R.B. Rosen, “Quantitative Analysis of Foveal Capillary Tortuosity in Patients with Retinopathy using Adaptive Optics Scanning Light Ophthalmoscope Fluorescein Angiography,” ARVO Imaging in the eye conference, Denver, CO, USA (2015).
128. D.C. Hood, B. Fortune M. Mavrommatis, R. Ramachandran, H. Muhammad, R. Ritch, R.B. Rosen, T. Chui and **A. Dubra**, “Details of local glaucomatous damage seen on AO-SLO images can be detected in en-face images derived from swept-source OCT scans,” ARVO Imaging in the eye conference, Denver, CO, USA (2015).
129. J. Liu, **A. Dubra** and J. Tam, “Computer-aided detection of human cone photoreceptor inner segments using multi-scale circular voting,” SPIE Medical Imaging, San Diego, CA , United States (2016).
130. J. Liu, **A. Dubra** and J. Tam, “A fully automatic framework for cell segmentation on non-confocal adaptive optics images,” SPIE Medical Imaging, San Diego, CA, United States (2016).
131. D. Cunefare, R. Cooper, B. Higgins, **A. Dubra**, J. Carroll and S. Farsiu, “Fully-automated Segmentation of Cone Photoreceptors in Split Detector Adaptive Optics Scanning Light Ophthalmoscope Images,” SPIE Photonics West, Ophthalmic Imaging Technologies XXVI, San Francisco, CA, United States (2016).
132. R.B. Rosen, S. Mo, B. Krawitz, L. Geyman, E. Efstathiadis, R. Weitz, J. Carroll, **A. Dubra** and T.Y. Chui, “Optical coherence tomography angiography (octa) and adaptive optics scanning light ophthalmoscope fluorescein angiography (AOSLO FA): a quantitative and qualitative comparison,” ARVO Annual Meeting, Seattle, WA, USA (2016).
133. M.M. Razeen, T.B. Jr. Connor and **A. Dubra**, “Longitudinal retinal changes following macular grid photocoagulation,” ARVO Annual Meeting, Seattle, WA, USA (2016).
134. B. Sajdak and A. Dubra, “Corneal and mydriasis changes in the hibernating 13-lined ground squirrel,” ISIE/ARVO Annual Meeting, Seattle, WA, USA (2016).
135. D. Cunefare, R.F. Cooper, B.P. Higgins, **A. Dubra**, J. Carroll and S. Farsiu, “Automated detection of cone photoreceptors in split detector adaptive optics scanning light ophthalmoscope images,” ARVO Annual Meeting, Seattle, WA, USA (2016).
136. N. Sredar, M.M. Razeen, Y.N. Sulai, B.S. Sajdak and **A. Dubra**, “Non-confocal split-detection adaptive optics scanning light ophthalmoscope with small pupil for vascular imaging,” ARVO Annual Meeting, Seattle, WA, USA (2016).
137. S. Mo, B. Krawitz, E. Efstathiadis, L. Geyman, T.Y. Chui, J. Carroll, **A. Dubra** and Rosen, R.B. “Foveal microvascular imaging: optical coherence tomography angiography (OCTA) vs. adaptive optics scanning light ophthalmoscope fluorescein angiography (AOSLO FA),” ARVO Annual Meeting, Seattle, WA, USA (2016).
138. D. Lee, T.Y. Chui, R. Jarukasetphon, R. B. Rosen, R. Ritch, **A. Dubra** and D.C. Hood, “Local glaucoma progression detected by adaptive optics-scanning light ophthalmoscopy,” ARVO Annual Meeting, Seattle, WA, USA (2016).
139. A.M. Dubis, A. Nandoskar, A. Kalitzeos, P.J. Patel, J. Carroll, **A. Dubra**, J. Chataway, R. Nicholas, M. Michaelides and J. Greenwood, “Retinal vessel architecture and blood flow in multiple sclerosis,” ARVO Annual Meeting, Seattle, WA, USA (2016).

140. J. Tam, J. Liu, **A. Dubra** and R.N. Fariss, "Visualization of retinal pigment epithelial cells using adaptive optics enhanced indocyanine green imaging," ARVO Annual Meeting, Seattle, WA, USA (2016).
141. B.J. Kim, G.K. Han, A.J. Brucker, **A. Dubra** and J.I. Morgan, "Longitudinal imaging of cone inner and outer segment mosaics in central serous chorioretinopathy," ARVO Annual Meeting, Seattle, WA, USA (2016).
142. J.I. Morgan, G.K. Han, R.F. Cooper, D. Pearson, L. Serrano, J. Bennett, A.M. Maguire, A. Dubra and T.S. Aleman "Cone photoreceptor inner and outer segment mosaic abnormalities in choroideremia," ARVO Annual Meeting, Seattle, WA, USA (2016).
143. E. Phillips, C.S. Langlo, R.F. Cooper, M.A. Wilk, R. Linderman, J. Khan, M. Russillo, R.B. Rosen and J. Carroll, "Development and application of a normative database for OCTA retinal vasculature measurements," ARVO Annual Meeting, Seattle, WA, USA (2016).
144. A.E. Salmon, R.F. Cooper, C.S. Langlo, B.S. Sajdak, M.M. Razeen, A. Dubra and J. Carroll, "Automated reference frame selection (ARFS) for registration of scanning ophthalmoscope image sequences," ARVO Annual Meeting, Seattle, WA, USA (2016).

### National

1. **A. Dubra**, C. Paterson, and J.C. Dainty. "Effect of the Tear Film on the Optical Quality of the Eye." PPARC KITE Club Launch, London, UK (2003).
2. **A. Dubra**, C. Paterson, and J.C. Dainty. "Tear topography dynamics and its effect on the optical quality of the eye." Imaging in the eye II: Technologies and clinical applications at the Institute of Physics, London, UK (2004).
3. **A. Dubra**, C. Paterson, and J.C. Dainty. "Study of tear film topography dynamics: impact on vision correction and diffraction-limited retinal imaging." EOS Topical Meeting on Advanced Imaging Techniques, Imperial College London, London, UK (2005).
1. J.I.W. Morgan, D.C. Gray, **A. Dubra**, R. Wolfe, B.P. Gee, W. Merigan, C. Sheehy, B. Masella, and D.R. Williams. "High-resolution autofluorescence imaging of individual retinal pigment epithelial cells in vivo." OSA Vision Meeting, Rochester, NY, USA (2006).
2. E. Odlund, M. Navarro, E. Lavergne, F. Martins, X. Levecq, and **A. Dubra**. "Optimization of the temporal performance of a deformable mirror for use in ophthalmic applications." The 1st Canterbury Workshop on Optical Coherence Tomography and Adaptive Optics, Canterbury, UK (2008).
3. A.M. Dubis, B.R. Hansen, R.F. Cooper, J. Beringer, Y. Sulai, **A. Dubra**, J. Carroll. "Understanding Foveal Development: The Relationship between the Avascular Zone and Pit Morphology." Fourth Annual Conference on Translational Research, Berkeley, CA, USA (2010).
4. J.J. Hunter, B. Masella, **A. Dubra**, R. Sharma, L. Yin, W.H. Merigan, G. Palczewska, K. Palczewski, D.R. Williams. "Towards Functional Measurements of Vision in the Living Macaque Retina using Two-Photon Fluorescence Imaging." Optical Society of America Vision Meeting, Rochester, NY, USA (2010).
5. A.M. Dubis, B. Liu, R.F. Cooper, C.S. Langlo, J. Aboshiha, **A. Dubra**, J. Carroll and M. Michaelides, "Predicting Gene Therapy Success: Developing Criteria from AOSLO Imaging," Optical Society of America Vision Meeting, Houston, TX, USA (2013).

### **INSTITUTIONAL COMMITTEE SERVICE**

05/2013 – present	Member, Faculty IT Committee of the Faculty Council, Medical College of Wisconsin
2015	College of Engineering and applied sciences (CEAS) Biomedical and Health Screening Committee, University of Wisconsin Milwaukee
2015 - 2016	Member, Medical College of Wisconsin Chair Orthopaedic Surgery Search Committee
2015 - 2016	Member, Marquette University Biomedical Engineering Faculty Recruitment Committee
2014 - 2016	Member, Medical College of Wisconsin Ophthalmology Basic Research Faculty Recruitment Committee

### **TEACHING**

#### Medical Student Education

2012 – present Summer lectures for students rotating in Ophthalmology, Medical College of Wisconsin

#### Graduate Student Education

2011 Guest lecturer, Biomedical Engineering Seminar Series, Marquette University  
 2011 Guest lecturer, Biomedical Engineering Seminar Series, UW Milwaukee  
 2012 – present Guest lecturer, The Biology of Vision, Medical College of Wisconsin

## STUDENTS, FACULTY, RESIDENTS AND CLINICAL/RESEARCH FELLOWS MENTORED

### Undergraduate Students

Nate Lindsey, Anthony O'Donnell	10/2007 – 05/2008 05/2010 – 08/2010	Independent study, University of Rochester Center for Visual Science's Undergraduate Fellowship Program, University of Rochester
Kieran Loft	05/2010 – 08/2010	Center for Visual Science's Undergraduate Fellowship Program, University of Rochester
Kathleen Burke	11/2010 – 05/2011	Biomedical Engineering Undergraduate Project, University of Rochester
Gwen Musial	05/2013 – 08/2013	SPUR program, Medical College of Wisconsin

### Medical Students

Evan Cumpston	05/2013 – 08/2013	MSSRP, Medical College of Wisconsin
Nicolas Cates	05/2014 – 08/2014	MSSRP, Medical College of Wisconsin
Oladipo Fagbemi	05/2014 – 08/2014	MSSRP, Medical College of Wisconsin
	08/2014 – present	Physician Scientist Pathway, Medical College of Wisconsin

### Graduate Students

#### Students co-Advised

Armando Gomez-Vieyra	2009	PhD, University of Rochester
Kainat Akhter	2014 – 2015	MS, Harvard University

#### Students Advised

Yusufu Sulai	2009 – 2014	PhD, University of Rochester
Drew Scoles	2009 – 2015	MD-PhD, University of Rochester
Samuel Steven	2015- present	University of Rochester (PhD candidate)
Juan Liu	2015- present	Marquette University (PhD candidate)

#### Ph.D. / M.S. Committees

Ying (Melissa) Geng	2009 – 2011	PhD, University of Rochester
Robert Cooper	2012 – present	PhD, Marquette University
Armando Gomez-Vieyra	2010	PhD, Centro de Investigaciones en Óptica, México

### Research Fellows

Adam Dubis, PhD	2013	Medical College of Wisconsin
Yusufu Sulai, PhD	2014 – present	Medical College of Wisconsin
Moataz Razeen, MD	2014 – present	Medical College of Wisconsin
Nripun Sredar, PhD	2015 – present	Medical College of Wisconsin

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### Refereed journal publications/original papers

*Notes about collaborative publications:* My research has two major foci. First, we develop novel ophthalmic imaging techniques, instrumentation and software; and second, we disseminate these advances to research institutions worldwide to accelerate both the pace of discovery and the translation to clinical utilization. Our collaborative approach has produced numerous publications in which my students, staff and I are middle authors (\*).

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### **Books, chapters & reviews**

1. J. Carroll, A.M. Dubis, P. Godara, **A. Dubra** and K.E. Stepien, "Clinical applications of retinal imaging with adaptive optics," *US Ophthalmic Review* 4 (2): 78-83 (2011)
2. E.A Rossi, M. Chung, **A. Dubra**, J.J. Hunter, W.H. Merigan and D.R. Williams, "Imaging retinal mosaics in the living eye," *Eye* 25, 301–308 (2011)

3. J. Carroll, D.B. Kay, D. Scoles, **A. Dubra** and M. Lombardo,” Adaptive Optics Retinal Imaging – Clinical Opportunities and Challenges,” Curr. Eye Res. 38 (7), 709-721 (2013)

### **Software**

- 2007    **TsunamiWave**    Adaptive optics control software for high-resolution ophthalmoscopy  
Currently in use at: University of Houston, University of Rochester, New York Eye and Ear Infirmary, University of California San Diego, National Institutes of Health Research Campus, University of Pennsylvania, Medical College of Wisconsin, Buskerud University College (Norway) and University College London (UK)
- 2010    **DeMotion**        Image registration software for point or line-scanning ophthalmoscopy  
Currently in use at: University of Houston, University of Rochester, New York Eye and Ear Infirmary, University of California San Diego, National Institutes of Health Research Campus, University of Pennsylvania, Medical College of Wisconsin, Buskerud University College (Norway) and University College London (UK)
- 2010    **Desinusoid**        Image unwarping software for scanning ophthalmoscopy with resonant scanners  
Currently in use at: University of Rochester, New York Eye and Ear Infirmary, University of California San Diego, National Institutes of Health Research Campus, University of Pennsylvania, Medical College of Wisconsin and University College London (UK)
- 2010    **Savior**                Image acquisition software for point scanning ophthalmoscopy  
Currently in use at: University of Rochester, New York Eye and Ear Infirmary, University of California San Diego, National Institutes of Health Research Campus, University of Pennsylvania, Medical College of Wisconsin and University College London (UK)