



March 15-16, 2019

La Fonda Hotel, Santa Fe, New Mexico, USA

PROGRAM AGENDA

FRIDAY, MARCH 15, 2019	
SESSION I	OPTICAL AND NEURAL CONTRIBUTION TO VISION I Moderator, Raymond Applegate, OD, PhD
8:30 – 8:45 AM	From wavefronts to vision: Can optical measurements predict the perceived appearance of single points of light? <i>Larry Thibos, PhD</i>
8:45 - 9:00 AM	Probing spatial and color vision at the resolution of single cones <i>Ramkumar Sabesan, PhD</i>
9:00 – 9:15 AM	The visual interaction of individual 2nd-5th order Zernike aberration terms with vertical coma <i>Chuan Hu, OD, MD</i>
9:15 – 9:30 AM	Impact of aberrometry and refractive correction axes on achieved image quality <i>Ray Applegate, OD, PhD</i>
9:30 – 9:45 AM	Open Discussion
9:45 – 10:05 AM	Coffee Break
SESSION II	BINOCULAR VISION AND APPLICATIONS Moderator: Geunyoung Yoon, PhD
10:05 – 10:20 AM	Unexpected study results: Can we learn something from them? <i>Eli Peli, MSc, OD</i>
10:20 – 10:35 AM	Leveraging visual system binocularity to enhance presbyopic and pseudophakic vision <i>Arthur Bradley, PhD</i>
10:35 – 10:50 AM	Binocular accommodative response to convergence with extended depth of focus <i>Jiakai Kyu, MS</i>
10:50 – 11:05 AM	Open Discussion
SESSION III	EVOLUTION OF WAVEFRONT TECHNOLOGY: PAST, PRESENT AND FUTURE Moderator: Ron Krueger, MD
11:05 – 11:20 AM	New developments in ocular wavefront sensing <i>Dan Neal, PhD</i>
11:20 – 11:35 AM	Ophthalmic laser technology & refractive surgery <i>Ronald Krueger, MD</i>
11:35 – 11:50 AM	Corneal biomechanics <i>William Dupps, MD, PhD</i>
11:50 - 12:05 PM	Ophthalmic Wavefront Sensing: From Science to Hype to Reality. An Industry Perspective <i>George Pettit, MD, PhD</i>
12:05 – 12:20 PM	Panel Discussion

12:20 – 1:30 PM	Luncheon
SESSION IV	ADVANCES IN EXTENDED DEPTH OF TECHNOLOGY Moderator: Susana Marcos, PhD
1:30 – 1:45 PM	Phase and amplitude manipulations to expand the depth of field in fixed focus eyes <i>Arthur Bradley, PhD, Renfeng Xu, MD, PhD, Pete Kollbaum, OD, PhD</i>
1:45 – 2:00 PM	Pseudophakic dysphotopsia <i>Scott MacRae, MD</i>
2:00 – 2:15 PM	Subjective quality of a multifocal IOL in the eye of a scientist <i>James Schwiegerling, PhD</i>
2:15 – 2:30 PM	Visual simulation of presbyopic correction <i>Susana Marcos, PhD</i>
2:30 – 2:45 PM	Solving presbyopia through Innovated wavefront designs? <i>Junzhong Liang, PhD</i>
2:45 – 3:00 PM	Open Discussion
3:00 – 3:15 PM	Coffee Break
SESSION V	CORNEAL BIOMECHANICS Moderator: William Dupps, PhD
3:15 – 3:30 PM	Non-contact biomechanical characterization of the cornea with phase decorrelation OCT <i>Brecken Blackburn</i>
3:30 – 3:45 PM	Imaging ultrastructure of cornea <i>James Jester, PhD</i>
3:45 – 4:00 PM	Anisotropic biomechanical properties of the cornea <i>Mengchen Xu, PhD</i>
4:00 – 4:15 PM	Nonlinear corneal crosslinking <i>James Jester, PhD</i>
4:15 – 4:30 PM	Open Discussion
SESSION VI	FREE PAPERS Moderator: Ronald Krueger, MD
4:30 – 4:40 PM	Vision behavior monitoring: Why do patients questionnaires fail for presbyopia patient evaluations? <i>Michael Mrochen, PhD</i>
4:40 – 4:50 PM	Optical and neural contributions to vision <i>Larry Thibos, PhD</i>
4:50 – 5:00 PM	Customizing corneal laser surgery for therapeutic applications <i>Samuel Arba Mosquera, PhD</i>
5:00 – 5:10 PM	Centration of corneal laser surgery <i>Samuel Arba Mosquera, PhD</i>
5:10 – 5:20 PM	Time-sequenced wavefront and corneal topography measurement methods <i>Thomas Raymond, PhD</i>
7:00 PM	Wavefront Congress Reception and Dinner

SATURDAY, MARCH 16, 2019	
SESSION VII	ADAPTIVE OPTICS IN VISION AND OPHTHALMOLOGY Moderator: Ramkumar Sabesan, PhD
8:15 – 8:30 AM	Functional imaging of single cells in the living eye <i>David Williams, PhD</i>
8:30 – 8:45 AM	Adaptive optics simulation to improve presbyopic corrections <i>Pablo Artal, PhD</i>
8:45 – 9:00 AM	Imaging stimulus-induced retinal function using an optoretinogram <i>Ramkumar Sabesan, PhD</i>
9:00- 9:15 AM	Shack-Hartmann wavefront sensor: Measurement bias at the pupil boundary <i>Vyas Akondi, PhD</i>
9:15 – 9:30 AM	Open Discussion
9:30 – 9:45 AM	Coffee Break
SESSION VIII	OPTICAL AND NEURAL CONTRIBUTION TO VISION II Moderator: Geunyoung Yoon, PhD
9:45 – 10:00 AM	Optical and neural contribution to visual performance <i>Susana Marcos, PhD</i>
10:00 – 10:15 AM	Optical and neural contribution to binocular vision <i>Geunyoung Yoon, PhD</i>
10:15 – 10:30 AM	Towards individualizing the neural weighting function for visual image quality metrics <i>Gareth Hastings, Mphil, B. Optom</i>
10:30 – 10:45 AM	Retinal Image Quality Across Retinal Eccentricity <i>Yifei Wu, PhD</i>
10:45 – 11:00 AM	Open Discussion
SESSION IX	NOVEL APPLICATIONS OF CONTACT LENSES Moderator: Jason Marsack, PhD
11:00 – 11:15 AM	New findings in myopia development / control <i>David Berntsen, OD, PhD</i>
11:15 – 11:30 AM	Wavefront-guided contact lenses <i>Jason Marsack, PhD</i>
11:30 – 11:45 AM	Myopia control: MiSight clinical trial <i>Baskar Arumugam, PhD</i>
11:45 – 12:00 PM	An easily accessible tool for modeling polychromatic retinal images in eyes fit with monofocal and multifocal optics <i>Matt Jaskulski, PhD, Larry Thibos, PhD, Pete Kollbaum, OD, PhD, Norberto Lopez-Gil, PhD, Arthur Bradley, PhD</i>
12:00 – 12:15 PM	Novel silicone hydrogel materials for next generation contact lenses <i>Jonathan Goff, PhD</i>
12:15 – 12:30PM	Open Discussion
12:30 – 1:30 PM	Luncheon

SESSION X	NEW WAVES FOR ADVANCED VISION CORRECTION Moderator: Ronald Krueger, MD
1:30 – 1:45 PM	fs Laser induced Refractive index change <i>Len Zheleznyak, PhD</i>
1:45 – 2:00 PM	Accommodative IOLs <i>Adrian Glasser, PhD</i>
2:00 – 2:15 PM	Human tissue onlays and inlays <i>Michael Mrochen, PhD</i>
2:15 – 2:30 PM	Light adjustable IOLs <i>Pablo Artal, PhD</i>
2:30 – 2:45 PM	Next wave of SMILE in the U.S.: Myopic astigmatism correction <i>David Rex Hamilton, MD</i>
2:45 – 3:00 PM	Open Discussion
SESSION X	BIG DATA AND ARTIFICIAL INTELLIGENCE FOR OPHTHALMOLOGY Moderator: Ray Applegate, OD PhD
3:00 – 3:15 PM	Machine learning and big data in ophthalmology <i>Jos Rozema, PhD</i>
3:15 – 3:30 PM	Clinical and research applications of statistical eye modelling <i>Jos Rozema, PhD</i>
3:30 – 3:45 PM	Using neural networks and big data to calculate IOL power and postoperative refraction <i>Tom Padrick, PhD</i>
3:45 – 4:00 PM	Open Discussion
4:00 – 4:15 PM	Voting & Awards END