

Advances in Optics for Biotechnology, Medicine and Surgery XV

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Editors:

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Sunday, July 23, 2017

16:00 – 18:00	Conference Check-in (First floor registration area)
17:00 – 18:00	Poster Session 1
18:00 – 19:30	Dinner
19:30 – 21:30	<u>Session 1: Multi-scale optical imaging and monitoring</u> Chair: Arjun Yodh, University of Pennsylvania, USA
19:30 – 20:00	Highest resolution whole body molecular imaging: Cherenkov excited luminescence scanned imaging1 Brian Pogue, Dartmouth College, USA
20:00 – 20:30	Optical imaging of brain functions and networks: From mouse to man2 Joe Culver, Washington University in St. Louis, USA
20:30 – 21:00	Bedside measurement of hemodynamic biomarkers with fast diffuse correlation spectroscopy3 Ashwin Parthasarathy, University of South Florida, USA
21:00 – 21:30	Towards integrated multi-scale imaging of complex biological systems4 Kwanghun Chung, Massachusetts Institute of Technology, USA

Notes and room locations

- *Technical sessions will be in Salon A.*
- *Poster Sessions will be in Salons C and D.*
- *Breakfasts will be in the Monte Room. Vouchers will be distributed at registration.*
- *Lunches and dinners will be in the Alpine Springs room.*
- *Audiotaping, videotaping and photography of presentations are prohibited.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3-5 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *Please write your name on your program so that it can be returned to you if lost or misplaced.*
- *After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.*

Monday, July 24, 2017

- 07:30 – 08:30 Breakfast
- 08:30 – 10:30 **Session 2: Orphan / rare disease**
Chair: Brian Wong, Beckman Laser Institute - University of California-Irvine, USA
- 08:30 – 09:00 **Cystic fibrosisN/A**
Gary Tearney, Massachusetts General Hospital, USA
- 09:00 – 09:30 **ARF-OCE for mapping mechanical properties of ocular and vascular tissues5**
Jiang Zhu, University of California-Irvine, USA
- 09:30 – 10:00 **Disease of vocal cordsN/A**
Brian Wong, Beckman Laser Institute - University of California-Irvine, USA
- 10:00 – 10:30 **Near infrared spectroscopy in the pediatric brainN/A**
Erin Buckley, Emory University/Georgia Institute of Technology, USA
- 10:30 – 11:00 Coffee Break / Poster Session 1
- 11:00 – 13:00 **Session 3: Next-gen fiber endoscopy**
Chair: Christophe Moser, EPFL, Switzerland
- 11:00 – 11:30 **30 years in the making: Direct imaging through a fiber, from concept to live functional imagingN/A**
Rafael Piestun, University of Colorado, Boulder, USA
- 11:30 – 12:00 **Endoscopic light delivery for ablation and 3D printing6**
Christophe Moser, EPFL, Switzerland
- 12:00 – 12:30 **Non linear endoscopesN/A**
Hervé Rigneault, Institute Fresnel, France
- 12:30 – 13:00 **What is hiding in the Transmission Matrix?N/A**
Tomas Cizmar, Institute of Scientific Instruments of the Czech Academy of Sciences, Brno, Czech Republic
- 13:00 – 14:00 Lunch
- 14:00 – 17:30 Free Time
Optional Rafting Trip
- 17:30 – 18:30 Poster Session 1
- 18:30 – 20:00 Dinner
- 19:00 – 20:30 **Panel 1: Development & Commercialization in Biophotonics**
Panel Chair: Kate Bechtel, Triple Ring Technology, USA

Tuesday, July 25, 2017

- 07:30 – 08:30 Breakfast
- 08:30 – 10:30 **Session 4: Optics and biomechanics**
Chair: David Sampson, University of Western Australia, Australia
- 08:30 – 09:00 **Imaging cancer cell morphodynamics and interactions with the micro-environment using light sheet microscopN/A**
Reto Fiolka, University of Texas Southwestern, USA
- 09:00 – 09:30 **OCE and ocular biomechanics7**
Salavat Aglyamov, University of Houston, USA
- 09:30 – 10:00 **Brillouin microscopy8**
Giuliano Scarcelli, University of Maryland, USA
- 10:00 – 10:30 **OCE in cancerN/A**
David Sampson, University of Western Australia, Australia
- 10:30 – 11:00 Coffee Break / Poster Session 2
- 11:00 – 13:00 **Session 5: Consumer Biophotonics**
Chair: Jen Keating, Triple Ring Technologies, USA
- 11:00 – 11:30 **How consumer wearable technology is driving innovation in healthcare and medical devices10**
Steven LeBoeuf, Valencell, USA
- 11:30 – 12:00 **Noninvasive optical sensors for increased safety in law enforcement, industrial, and medical applications11**
Ben Ver Steeg, TruTouch, USA
- 12:00 – 12:30 **Remote monitoring of patient vital signs for personalized healthcare12**
Vahram Mouradian, Sensogram Tech, USA
- 12:30 – 13:00 **Scalable and cost-effective optical components for biosensing applications13**
Wei-Chuan Shih, University of Houston, USA
- 13:00 – 14:00 Lunch
- 14:00 – 17:30 Free Time
Optional Group Hike
- 17:30 – 18:30 Poster Session 2
- 18:30 – 21:30 Banquet
Announce next ECI committee
Student Poster Awardee Presentations

Wednesday, July 26, 2017

- 07:30 – 08:30 Breakfast
- 08:30 – 10:30 **Session 6: Biophotonics in scattering tissue**
Chair: Jerome Mertz, Boston University, USA
- 08:30 – 09:00 **Smart optical coherence tomography for ultra-deep imaging through highly scattering mediaN/A**
Alexandre Aubry, Institut Langevin - ESPCI ParisTech, CNRS, France
- 09:00 – 09:30 **3D computational microscopy of dynamic samples14**
Laura Waller, University of California, Berkeley, USA
- 09:30 – 10:00 **Fast time reversal optical focusing for deep brain optogenetic activation15**
Changhui Yang, California Institute of Technology, USA
- 10:00 – 10:30 **Optical memory effects in two-photon microscopyN/A**
Ivo Vellekoop, University of Twente, the Netherlands
- 10:30 – 11:00 Coffee Break / Poster Session 2
- 11:00 – 13:00 **Session 7: Aging-related, degenerative, and chronic disease**
Chair: Xueding Wang, University of Michigan, USA
- 11:00 – 11:30 **Photoacoustic imaging as a potential tool for clinical evaluation of Inflammatory arthritis16**
Xueding Wang, University of Michigan, USA
- 11:30 – 12:00 **Imaging demyelination in models of neurodegenerative disordersN/A**
Daniel Côté, Centre de recherche de l'Institut universitaire en santé mentale de Québec, Canada
- 12:00 – 12:30 **Imaging the role of lymphatics in chronic inflammatory diseases17**
Eva Sevick-Muraca, University of Texas Health Science Center at Houston, USA
- 12:30 – 13:00 **Biophysical markers of sickle erythrocyte subpopulationsN/A**
Zahid Yaqoob, Laser Biomedical Research Center – MIT, USA
- 13:00 – 14:00 Lunch
- 14:00 – 15:00 **Panel 2: Precision medicine in cancer**
Panel Chair: Michael Choma, Radiology & Biomedical Imaging, Yale University, USA
- Optical imaging, personalization, and precisionN/A
Brian Pogue, Engineering Science, Dartmouth College, USA
- Monitoring emerging therapies in oncologyN/A
Darren Roblyer, Biomedical Engineering, Boston University, USA
- 15:00 – 15:15 Q&A
- 15:15 – 15:30 Poster awards and Tongue-in-cheek awards

Poster Presentations

1. **Rollerball microendoscope for mosaicking in high-resolution oral imaging18**
Nicole Sevilla, Florida International University, USA
2. **Compressed full-field Fourier transform spectrometry19**
Dushan N. Wadduwage, Massachusetts Institute of Technology, USA
3. **A biophysical Raman spectroscopic model for noninvasive screening of skin cancer20**
Xu Feng, The University of Texas at Austin, USA
4. **In vivo multiphoton microscopy beyond 1 mm in the brain21**
David R. Miller, The University of Texas at Austin, USA
5. **Development of a single-board computer high-resolution microendoscope (PiHRME) to increase access to cervical cancer screening in underserved areas22**
Sonia G. Parra, Rice University, USA
6. **Improving light delivery for optogenetics using wavefront shaping23**
Joshua Brake, California Institute of Technology, USA
7. **Assessing tracheal health using optical metabolic imaging and optical coherence tomography24**
Daniel A. Gil, University of Wisconsin–Madison & Morgridge Institute for Research, USA
8. **Multiphoton tissue imaging by using moxifloxacin25**
Ki Hean Kim, Pohang University of Science and Technology, South Korea
9. **Fluctuations in single-cell organelle size estimates from angular scattering measurements26**
Robert L. Draham, University of Rochester, USA
10. **Spatiotemporal propagation of cerebral hemodynamics during and after resuscitation from cardiac arrest27**
Christian Crouzet, Beckman Laser Institute, USA
11. **Imaging moving targets through scattering media28**
Michelle Cua, California Institute of Technology, USA
12. **2D and 3D structured illumination microscopy with unknown patterns and a statistical prior29**
Li-Hao Yeh, University of California, Berkeley, USA
13. **Single-shot Interferometric Polarization Microscopy30**
Baoliang Ge, Massachusetts Institute of Technology, USA
14. **Optimizing field-of-view of deep-tissue scanning microscopy31**
Gerwin Osnabrugge, University of Twente, Netherlands
15. **Tumor detection and treatment by means of thermography and laser irradiation32**
Euiheon Chung, Gwangju Institute of Science and Technology, South Korea
16. **Frequency domain diffuse optical tomography with a single source and detector via high-speed hypocycloid scanning34**
Matthew B. Applegate, Boston University, USA

17. **Compact cell culture imaging system using Fourier ptychographic microscopy48**
Daniel Martin, California Institute of Technology, USA
18. **Exploiting diffuse reflectance measurement uncertainty estimates in spatial frequency domain imaging50**
Vivian Pera, Boston University, USA
19. **3D computational microscopy of dynamic samples51**
Laura Waller, University of California, Berkeley, USA
20. **Noninvasive monitoring of tumor oxygenation response to anti-hypoxia drug using near-infrared spectroscopy52**
Xiangqian Hong, Marquette University, USA
21. **Multi-mode fiber imaging with selective mode control53**
Sakshi Singh, University of Colorado, Boulder, USA
22. **Lightweight high-density diffuse optical tomography using sCMOS detection54**
Karla M. Bergonzi, Washington University in St. Louis, USA
23. **In-vitro validation and quantitative measurements of graded burn wounds on a porcine model using handheld laser speckle imaging55**
Ben Lertsakdadet, University of California, Irvine, USA
24. **Multimodal optical imaging platform for the early diagnosis for oral neoplasia56**
Eric Yang, Rice University, USA
25. **WITHDRAWN**