UCR SPIE Student Chapter Annual Report 2016-2017

1) Names and email addresses of elected officers

President: Joshua Burns (joshua.burns@email.ucr.edu)
Vice President: Thompson Lu (tlu011@ucr.edu)
Secretary: Jack Tang (jtang014@ucr.edu)
Treasurer: Razn Abu Qamar (rabuq001@ucr.edu)

2) List of current student chapter members and membership expiration dates

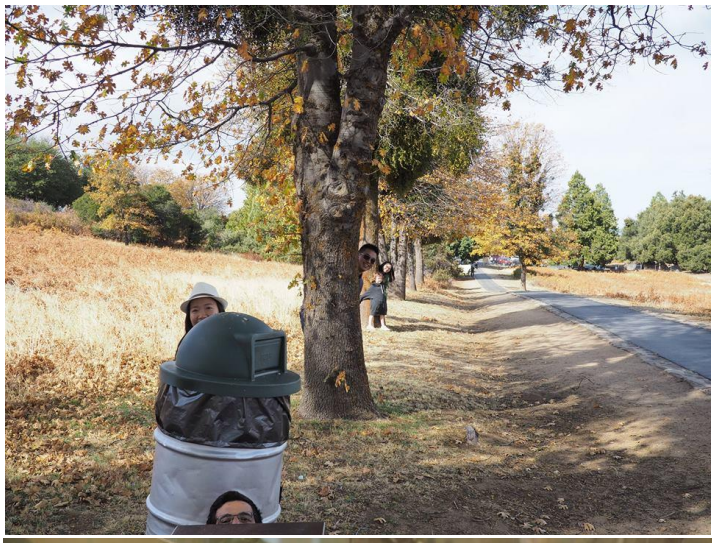
Members	
Razn Abu Qamar	27 April 2018
Bassim Arkook	18 April 2018
Ece Aytan	29 August 2018
Joshua Burns	7 June 2017
Taylor Hanley	3 May 2017
Nicholas Koskelo	14 February 2018
Junze Liu	28 November 2017
Jenny Mac	18 October 2017
Kendrick Mensink	12 January 2018
Dante O'Hara	15 June 2017
Danielle Ornelas	19 October 2017
Samuel Patton	1 May 2017
Jack Tang	16 December 2017

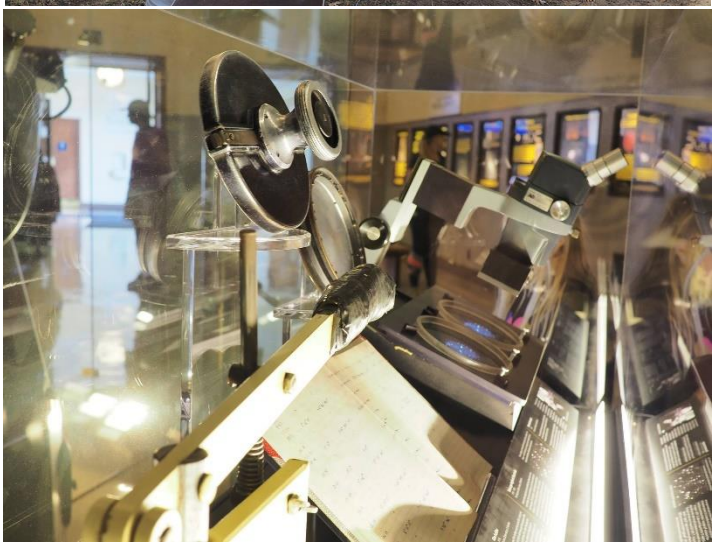
3) Details of Chapter Activities (June 2016 - May 2017)

Outreach: Research Networking Q&A Dinner (November 2016)

We hosted a networking dinner where undergraduates had the opportunity to speak with graduate student researchers and to get tips on how to get into research labs at UC Riverside.

Field Trip: Palomar Observatory (November 2016)
Our chapter took a day to visit the Palomar Observatory near San Diego. We got to see some interesting exhibits about optics in space, observe the inner workings of a research grade telescope and take in the scenery.





Guest Lecture (April 2017):

We invited Dr. Kirill V. Larin to give a talk about his lab's development in optical coherence tomography. Afterwards we met with Dr. Hyle Park's lab group to get lunch with Dr. Larin. Dr. Park's students are also engaged in OCT research and we thought this was a valuable opportunity for their lab.

The UCR Department of Bioengineering and SPIE Student Chapter Presents

Kirill V. Larin

Professor
Department of Biomedical Engineering
University of Houston

Department of Physiology and Biophysics
Baylor College of Medicine

Structural and Functional Imaging of Tissues with Optical Coherence Tomography/Elastography

Development of novel methods for structural and functional imaging, monitoring and quantification of different biological processes in tissues and small organs has gained tremendous interest in view of the varied applications of Biomedical Optics. In this talk I will overview several research projects in the Biomedical Optics Lab on development and applications of Optical Coherence Tomography technique for structural and functional imaging of different tissues, including noninvasive monitoring of molecular diffusion and optical clearing, assessing embryonic development, and quantifying biomechanical properties of different tissues.

Biography

Kirill V. Larin is Professor of Biomedical Engineering at the University of Houston. He also holds joint appointments at the Department of Physiology and Biophysics at Baylor College of Medicine and Department of Optics and Biophysics at the Saratov State University (SSU) in Russia. Larin received his first M.S. in Laser Physics and Mathematics from the SSU (1995), his second M.S. in Cellular Physiology and Molecular Biophysics (2001) and Ph.D. in Biomedical Engineering (2002) from the University of Texas Medical Branch in Galveston. His research contributions are in Biomedical Optics and Biophotonics and development and application of various optical methods for noninvasive and nondestructive imaging and diagnostics of tissues and cells. Larin has authored more than 120 peer-reviewed publications and chapters in ten textbooks on Biomedical Optics. He is the recipient of prestigious Presidential Award from Russian President Boris Yeltsin. He has also received Wallace Coulter Young Investigator Translation Award, Office of Naval Research Young Investigator Award, Outstanding Young Investigator Award from the Houston Society for Engineers in Medicine and Biology, and Herbert Allen Award from American Society for Mechanical Engineers. Larin currently serves as an Instructor for short courses on Tissue Optics at SPIE, OSA, and IEEE conferences. He was inducted as Fellow of SPIE in 2015 and Fellow of OSA in 2016.

Wednesday April 19, 2017, at 11:10 AM
Winston Chung Hall 205-206

5) Expenses 2016-2017

Expenses for Research Networking Dinner: $80.00
Transportation for Palomar Observatory: $40.00

The Palomar Observatory trip was described in the funding request. Instead of the laser cutter project we plan on assembling a weather balloon and instead of the OptiSigmaCorp field trip we had a research networking dinner with the intention of connecting graduate and undergraduate students interested in research.

6) Projected Costs for 2017-2018

Transportation for Jet Propulsion Laboratory Field Trip: $60.00
Transportation for Griffith Observatory: $60.00
Transportation and supplies for outreach at King High School: $100.00
Parts for assembling weather balloon camera and spectrometer: $300.00

7) Planned Activities for 2017

Field Trip: Jet Propulsion Laboratory (November 2017)
Field Trip: Griffith Observatory (2018)
Guest speaker: TBD
Project: Weather balloon camera and spectrometer (June 2017)
Outreach: King High School (May 2017)

8) List of photonics-related publications by chapter members

Joshua M. Burns, Rolf Saager, Boris Majaron, Wangcun Jia and Bahman Anvari "Optical properties of biomimetic probes engineered from erythrocytes." *Nanotechnology* 28.3 (2017) 035101.

Mingguang Chen, Guanghui Li, Wangxiang Li, Dejan Stekovic, Bassim Arkook, Mikhail E. Itkis, Aron Pekker, Elena Bekyarova, Robert C. Haddon, “Large-scale cellulose-assisted transfer of graphene toward industrial applications.” *Carbon*, 110, 286-291 2016.

Choong Hee Lee, Sriram Krishnamoorthy, Dante J. O'Hara, Mark R. Brenner, Jared M. Johnson, “Molecular beam epitaxy of 2D-layered gallium selenide on GaN substrates.” *Journal of Applied Physics* 121:9 2017.

M. M. Lacerda, F. Kargar, E. Aytan, R. Samnakay, B. Debnath, J. X. Li, A. Khitun, R. K. Lake, J. Shi, A. A. Balandin "Inelastic Light Scattering Spectroscopy of Magnons and Phonons in Nickel Oxide: Effects of Temperature." *arXiv preprint arXiv:1702.04366* (2017).

9) Conference proceedings

T. Hanley, J. T. Mac, W. Tan, and B. Anvari, "Functionalized Erythrocyte-derived Optical Nanoparticles to Target Endothelial Cells of Port Wine Stains," in *Optics in the Life Sciences Congress*, OSA Technical Digest (online) (Optical Society of America, 2017), paper OmW3D.6.

T. Lu, B. Corliss, S. Lee, and B. Anvari, "Combined Optical Tweezers and Quantitative Phase Imaging for Mechanical Characterization of Ovarian Cells," in *Optics in the Life Sciences Congress*, OSA Technical Digest (online) (Optical Society of America, 2017), paper OtTu2E.2.

M. Stolyarov, Ece Aytan, M. Bloodgood, T. T. Salguero and A. A. Balandin, “Quasi-1D van der Waals materials as high current-density local interconnects.” *Proc. SPIE 9927, Nanoengineering: Fabrication, Properties, Optics, and Devices XIII*, 99270U (2016)

J. C. Tang, J. T. Mac, R. Vankayala, A. Partono, W. Jia, and B. Anvari, "Effects of Freezing on Erythrocyte-derived Optical Nanoprobes," in *Optics in the Life Sciences Congress*, OSA Technical Digest (online) (Optical Society of America, 2017), paper OmTu2D.4.