Outline

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Introduction

• Founded in August 2009

• Leadership
  ■ 2009 to 2010 (Leilei Zhang as the president)
  ■ 2010 to 2011 (Jiwei Huang as the president)
  ■ 2013 to 2015 (Kang Wei as the president)

• Membership
  Biomedical Engineering
  Mechanical Engineering
  Industrial and Manufacturing Engineering,
  College of Optometry
  Department of Radiology
Member roster

• Officers (6)
  President: Kang Wei
  Vice-President: Vincent Ferlita
  Secretary: Xiaoli Liu
  Treasurer: Hanyang Huang
  Advisor: Ronald Xu
  Co-Advisor: Richard Pogge

• Current Members (12)
  Tarek Abdelrahman       Jing Li
  Elizabeth Bushong       Peng Liu
  Lingqian Chang          A.T.M Sarwar
  Sheng Dong              Justin Scheidler
  Jung-feng Hu            Caleb Trevithick
  Lin Qi                  Xu Zhang
Activities

• Invited lecture
• Department Seminar
• Photonics West 2015
Invited Lecture 1

Dr. Thomas Raasch from the Department of Optometry in the Ohio State University gave a talk about “freedom optics and the eye”.

Dr. Thomas Raasch received the Doctor of Optometry and PhD in Physiological Optics from the University of California at Berkeley. He was a research fellow at the Johns Hopkins University Wilmer Eye Institute (1989-91), and then an Assistant Professor in the Department of Ophthalmology at JHU (91-94). He served as the director of the Wilmer Low Vision Rehabilitation Service. Since 1995 he has been a member of the faculty at The Ohio State University College of Optometry.

Dr. Raasch's professional and academic background include extensive clinical experience in low vision rehabilitation, research in visual performance, and in the relationships between the optical state of the eye and visual performance. Dr. Raasch is a fellow of the American Academy of Optometry, a Silver Fellow of the Association for Research in Vision and Ophthalmology, and a Senior Member of the Optical Society of America. He has served on NIH/CSR review boards on several occasions, on the FDA Ophthalmic Devices Advisory Panel, and on the External Advisory Committee of the NSF-funded Center for Adaptive Optics. He is the former vice-chair of the OSU Cancer Institutional Review Board, and is currently a vice-chair of the Biomedical Sciences IRB.

About the Speaker:

This talk is co-sponsored by SPIE Student Chapter at Ohio State University.

Attendance: 30+
Invited Lecture 2

Dr. Shin-Tson Wu from University of Central Florida was invited to present a talk about “adaptive liquid lens and liquid crystal lens”.

Adaptive liquid and liquid crystal lenses

Shin-Tson Wu
Professor of Optics, University of Central Florida

Tunable-focus liquid and liquid crystal lenses offer attractive advantages for compact optical imaging systems and 3D displays. In this seminar, some new adaptive liquid lenses based on membrane, electro-wetting, mechanical-wetting, and dielectrophoresis effects will be presented. The operation principles, performance characteristics, and potential applications of these tunable photonic devices will be discussed.

About the Speaker:

Shin-Tson Wu is a Pegasus professor at College of Optics and Photonics, University of Central Florida. He is a Charter Fellow of the National Academy of Inventors and the first six inductees of the Florida Inventors Hall of Fame. Dr. Wu is a Fellow of IEEE, OSA, SID and SPIE, and a recipient of 2014 OSA Esther Hoffman Beller medal, 2011 SID Slottow-Owaki prize, 2010 OSA Joseph Fraunhofer award, 2008 SPIE G. G. Stokes award, and 2008 SID Jan Rajchman prize. He was the founding Editor-In-Chief for the IEEE/OSA Journal of Display Technology.

This talk is generously sponsored by SPIE, the international professional society for optics and photonics technology, through OSU SPIE Student Chapter.
Dr. Tony Huang from the Penn State University was invited to give a talk about innovative acoustofluidic technologies and their applications in BME seminar.

**Acoustic tweezers: manipulating particles, cells, and fluids using sound waves**

Tony Huang, Ph.D.
Department of Engineering Science and Mechanics
The Pennsylvania State University

The ability to manipulate cells, micro/nano particles, and fluids in a biocompatible and dexterous manner is critical for many biomedical studies and applications such as cell-cell communication, biosensing, tissue engineering, regenerative medicine, and lab on a chip. Here we summarize our recent progress on an “acoustic tweezers” technology that utilizes acoustic waves to manipulate particles, cells, organisms, and fluids. The acoustic tweezers technology is capable of delivering high-precision, high-throughput, high-efficiency cell/particle/fluid manipulation in a simple, inexpensive, cell-phone-sized device. More importantly, the acoustic power intensity and frequency used in the acoustic tweezers technology are in a similar range as those used in ultrasonic imaging, which has proven to be extremely safe for health monitoring, even during various stages of pregnancy. As a result, the acoustic tweezers technology is extremely biocompatible; i.e., cells can maintain their natural states and highest integrity during the acoustic cell-manipulation process. With its unprecedented biocompatibility, the acoustic tweezers technology enables more accurate disease diagnosis (e.g., early cancer detection) and more effective therapy (e.g., transfusion and cancer immunotherapy).

**About the Speaker:**

Tony Jun Huang is Professor of Engineering Science and Mechanics in the College of Engineering at The Pennsylvania State University. He received his Ph.D. degree in Mechanical and Aerospace Engineering from the University of California, Los Angeles (UCLA) in 2005, and his B.S. and M.S. degrees in Energy and Power Engineering from Xi’an Jiaotong University, Xi’an, China, in 1996 and 1999.
Hanyang Huang and Kang Wei attended the Photonics West 2014 supported by SPIE Officer Travel grant.

Kang Wei was granted the SPIE 2015 scholarship for his outstanding contributions.

Chapter Member Peng Liu gave a talk in optics. A.T.M Sarwar presented his poster in poster exhibition.
Photo with Nobel Prize winners
Future plan

1) Lecture communication

2) Department seminar

3) Involvement fair to recruit new members

4) Professional development workshops/activities for members

5) Team building activities

6) Photonics West 2016
Financial summary

• **Beginning balance:** 900 USD
  OSU student chapter advertising: 100 USD
  Lecture series: 650 USD
  Other activities: 100 USD

• **Ending balance:** 50 USD