

Department of Physics & Electro-Optics Program

University of Dayton, Dayton, OH 45469

Office: SC 009B, 300 College Park, Dayton, Ohio 45469

Tel: [\(937\) 229-2221](tel:(937)229-2221) Email: czhao1@udayton.edu Group: <http://chenglongresearch.weebly.com>

Professional Experiences

Professor (Assistant) 08/2015 - present

Department of Physics and Electro-Optics Graduate Program

University of Dayton, Dayton, OH

Research Scientist 07/2012 - 06/2015

Nanoscale Metrology Group

National Institute of Standards and Technology, Gaithersburg, MD

Postdoctoral Research Fellow 09/2011 - 06/2012

Department of Engineering Science and Mechanics

Pennsylvania State University, State College, PA

Education

Ph.D., School of Physics, major in Optics 09/2006 - 07/2011

Peking University, Beijing, P. R. China

B.S., School of Physics, major in Optics 09/2002 - 07/2006

Jilin University, Jilin, P. R. China

Teaching

PHY206: General Physics I - Mechanics

Research Interest

Nanophotonics, Plasmonics, Metamaterials, Graphene, Plasmo-fluidics, Single Bio-molecule Detection, Optical Trapping, Imaging and Sensing.

Representative Publications

- Chenglong Zhao*, Y. Liu*, Y. Zhao, N. Fang and T. J. Huang, "A reconfigurable plasmo-fluidic lens", *Nature Communications*, 4, 2305 (2013). *This work has been highlighted as a News Report on Science Daily, Physics News, National Science Foundation, Nano Werk, et al.*
- Chenglong Zhao and J. Zhang, "Plasmonic Demultiplexer and Guiding", *ACS Nano*, 4, 6433 (2010).
- Chenglong Zhao*, Y. Xie*, Y. Zhao, S. Li, J. Rufo, S. Yang, F. Guo and T. J. Huang, "Optoacoustic tweezers: ... surface bubbles", *Lab on a Chip*, 13, 1772 (2013). *Featured as the front cover image.*
- Chenglong Zhao*, Y. Xie*, Z. Mao, Y. Zhao, J. Rufo, S. Yang, F. Guo, J. D. Mai, and T. J. Huang. "Theory and experiment on particle trapping ... generated bubbles", *Lab on a Chip*, 14, 384 (2014).
- Chenglong Zhao, J. Zhang and Y. Liu, "Light Manipulation with Encoded Plasmonic

Nanostructures”, *EPJ Applied Metamaterials* 1, 6 (2014) **Invited Review**

Full List of Publications

1. Mingsong Wang, Chenglong Zhao, Xiaoyu Miao, Yanhui Zhao, Joseph Rufo, Yanjun Liu, Tony Jun Huang, Yuebing Zheng. “Plasmofluidics: Merging Light and Fluid at the Micro-/nano-Scale”, *Small* (2015) DOI: 10.1002/sml.201500970. **Invited Review**
2. Jing Yang, Chuang Hu, Qiulin Wen, Chenglong Zhao and Jiasen Zhang, “Coupling between surface plasmon polaritons and transverse electric polarized light via L-shaped nano-apertures”, *Optics Letters*, 40, 978 (2015).
3. Chenglong Zhao, Jiasen Zhang and Yongmin Liu, “Light Manipulation with Encoded Plasmonic Nanostructures”, *EPJ Applied Metamaterials* 1, 6 (2014) **Invited Review**
4. Chenglong Zhao, Yongmin. Liu, Jing. Yang and Jiasen. Zhang, “Single-molecule Detection and Radiation Control in Solutions at High Concentrations via a Heterogeneous Optical Slot Antenna”, *Nanoscale*, 6, 9103 (2014).
5. Chenglong Zhao, Yuliang Xie, Zhangming Mao, Yanhui Zhao, Joseph Rufo, Shikuan Yang, Feng Guo, John D. Mai, and Tony Jun Huang. “Theory and experiment on particle trapping and manipulation via optothermally generated bubbles”, *Lab on a Chip*, 14, 384 (2014).
6. Y. Xie, S. Yang, Z. Mao, P. Li, Chenglong Zhao, Zane Cohick, Po-Hsun Huang, and Tony Jun Huang, “In-Situ Fabrication of 3D Ag@ZnO Nanostructures for Microfluidic/Surface-Enhanced Raman Scattering (SERS) Systems”. *ACS Nano* 8, 12175 (2014).
7. Yanhui Zhao, Danqi Chen, Hongjun Yue, Michelle M. Spiering, Chenglong Zhao, Stephen J. Benkovic, and Tony Jun Huang. “Dark-Field Illumination on Zero-Mode Waveguide/Microfluidic Hybrid Chip Reveals T4 Protein Interactions”, *Nano Letters* 14, 1952 (2014)
8. J. Yang, C. Hu, Q. Wen, Chenglong Zhao, and J. Zhang. “Coupling between surface plasmon polaritons and transverse electric polarized light via L-shaped nanoapertures”, *Optics Letters*, accepted (2014)
9. Chenglong Zhao*, Yongmin Liu*, Yanhui Zhao, Nicholas Fang and Tony Jun Huang. “A reconfigurable plasmofluidic lens”, *Nature Communications*, 4, 2305 (2013)
10. Chenglong Zhao*, Yuliang Xie*, Yanhui Zhao, Sixing Li, Joseph Rufo, Shikuan Yang, Feng Guo and Tony Jun Huang. “Optoacoustic tweezers: a programmable, localized cell concentrator based on opto-thermally generated, acoustically activated, surface bubbles”, *Lab on a Chip*, 13, 1772 (2013).
11. Shikuan Yang, Michael Ian Lapsley, Bingqiang Cao, Chenglong Zhao, Yanhui Zhao, *etc.* “Large-Scale Fabrication of Three-Dimensional Surface Patterns Using Template-Defined Electrochemical Deposition”, *Advanced Functional Materials*, 23, 720 (2013)
12. Chenglong Zhao and Jiasen Zhang. “Flexible wavefront manipulation of surface plasmon polaritons without mechanical motion components”, *Applied Physics Letters*, 98, 211108 (2011).
13. Jiayuan Wang, Chenglong Zhao and Jiasen Zhang. “Does the leakage radiation profile mirror the intensity profile of surface plasmon polaritons? : reply to comment?”, *Optics Letters*, 36, 2517 (2011).
14. Chenglong Zhao and Jiasen Zhang. “Plasmonic Demultiplexer and Guiding”, *ACS Nano*, 4, 6433 (2010).
15. Jiayuan Wang, Chenglong Zhao and Jiasen Zhang. “Does the leakage radiation profile mirror the

- intensity profile of surface plasmon polaritons?", *Optics Letters*, 35, 1944 (2010).
16. *Chenglong Zhao* and Jiasen Zhang. "Binary plasmonics: launching surface plasmon to a desired pattern", *Optics Letters*, 34, 2417 (2009).
 17. *Chenglong Zhao*, Jiayuan Wang, Xiaofei Wu, and Jiasen Zhang. "Focusing surface plasmons to multiple focal spots with a launching diffraction grating", *Applied Physics Letters*, 94, 111105 (2009).
 18. Zhang weiwei, *Chenglong Zhao*, Jiayuan Wang, and Jiasen Zhang. "An experimental study of the plasmonic Talbot effect", *Optics Express*, 17, 19757 (2009).
 19. Xiaofei Wu, Jiasen Zhang, Jianjun Chen, *Chenglong Zhao*, and Qihuang Gong. "Refractive index sensor based on surface-plasmon interference", *Optics Letters* 34, 392 (2009).

* Co-authors with equal contributions

Professional Society Membership and Activities

- **Committee member** of the Novel Optical Materials and Applications (NOMA) Topical Meeting
- Membership of Optical Society of America (OSA)
- Membership of Sigma Xi
- 30 Reviews for over 16 professional journals: *Scientific Reports*, *Nanoscale*, *Optics Letters*, *Energy & Environmental Science*, *The Journal of Physical Chemistry Letters*, *IEEE Photonics Journal*, *Photonic Research*, *RSC Advances*, *Materials Letters*, etc.

Selected Honors and Awards

- Corning scholarship in 2009. (*three prize winners in department of physics this year*)
- Robin Li Scholarship in 2010. (*six prize winners in department of physics this year*)

Invited Talks

- "Nanoscale Light Manipulation with Plasmonic Nanostructures on Thin Films", University of Dayton China Institute, Suzhou, China. July 4th, 2015
- "Nanoscale Light Engineer with Plasmonic Nanostructures and Micro/Nano-particle Manipulation", MIT, Boston, USA. Dec. 4th, 2014.
- "Nanoscale Light Engineer with Plasmonic Nanostructures and Micro/Nano-particle Manipulation", Northeastern University, Boston, USA. Dec. 4th, 2014.
- "Single-Molecule Detection in Solutions at High Concentrations with a Heterogeneous Optical Slot Antenna", Oral presentation at the MRS Fall meeting in Boston, USA. Dec. 1st, 2014.
- "Nanoscale Light Engineer with Plasmonic Nanostructures and Micro/Nano-particle Manipulation", Department of Physics in the Texas Tech University, USA. Sep. 25, 2014.

Summer School and Conference Participation

- International Workshop on Thin-films for Electronics, Electro-Optics, Energy and Sensors, Suzhou, China, July 2015
- The MRS fall meeting, Boston, Massachusetts, Dec. 2014.
- The Fifth International Conference on Surface Plasmon Photonics, Busan, Korea, May 2011.
- Summer School on Plasmonics, COST Action MP0702: Towards Functional Sub-Wavelength Photonic Structures and CNRS, Porquerolles, France, Sept. 2009.