Ji-Xin Cheng

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(**updated on 2022.07.24**)

Part I. General Information

Education

Postdoc	Aug 2000 – Jun 2003 Department of Chemistry and Chemical Biology, Harvard University, Supervisor: Professor X. Sunney Xie.
Postdoc	Jan 1999 – Aug 2000 , Department of Chemistry, University of Science and Technology of Hong Kong, Supervisor: Professor Yijing Yan.
Ph. D.	December 1998, University of Science and Technology of China, Hefei, China. Thesis Title: Bond-selective Chemistry: from Local Mode Vibration to Optimal Control of Molecular Dynamics by Laser, Advisor: Qingshi Zhu.
B.S.	July 1994, Department of Chemical Physics, University of Science and Technology of China, Hefei, China.

Professional Experience

Sept 2021-present	Director, Boston University Photonics Center Graduate Student Initiative
July 2017 – Present	Moustakas Chair Professor in Optoelectronics and Photonic, Departments of Electrical and Computer Engineering, Biomedical Engineering, Boston University
Oct 2015 – June 2017	Leader, College of Engineering Preeminent Team of Label-free Imaging
Sept 2015 – June 2017	Leader of Imaging and Diagnosis Group, Purdue Institute for Immunology, Inflammation and Infectious Disease
Oct 2014 – June 2017	Scientific Director of Label-free Imaging, Purdue University Discovery Park
June 2013 – May 2014	Visiting scientist at HHMI's Janelia Farm Research Campus
Aug 2013 – June 2017	Professor, Weldon School of Biomedical Engineering and Department of Chemistry, Purdue University.
Aug 2009 – July 2013	Associate Professor, Weldon School of Biomedical Engineering and Department of Chemistry, Purdue University.
Aug 2003 – July 2009	Assistant Professor, Weldon School of Biomedical Engineering and Department of Chemistry, Purdue University.
Nov 1997 – Mar 1998	Research Assistant, Department of Chemistry, University of Science and Technology of Hong Kong, Supervisor: Prof. Yijing Yan.
Sep 1996 – Mar 1997	Research Assistant, Laboratoire de Physique et Moleculaire Applications, Université Paris-sud, Orsay, France, Supervisor: Prof. George Graner.

Peer-reviewed publications: over 290 publications, h-index 87 (google scholar)
Research fund received: ~$40,000,000
Issued/licensed US patents: 27
Invited talks: >300, including >25 plenary/keynote speeches
PhD and MS mentored: 32 PhDs and 4 Masters
Current group: 19 PhD students, 3 MS students, 8 postdoc fellows

National & International Recognitions

2020: Microscopy Today Innovation Award
2020: Associate Editor, Science Advances
2020: Pittsburgh Spectroscopy Award from Spectroscopy Society of Pittsburgh
2019: Ellis R. Lippincott Award from OSA, Society for Applied Spectroscopy, Coblentz Society
2019: Fellow, Optical Society of America

2018: Translational research award from International Society for Optics and Photonics (SPIE)
2017: Inaugural Moustakas Chair Professor in Optoelectronics and Photonics, Boston University
2016: Purdue University College of Engineering Research Excellence Award
2016: Translational research award from International Society for Optics and Photonics (SPIE)
2015: Craver Award from Coblentz Society
2015 to 2017: Chang-Jiang Scholar, Minister of Education, China.
2014-2015: Purdue University Discovery Park Research Fellow
2014: Fellow of AIMBE (American Institute of Medicine and Biological Engineering)
2014: Translational research award from International Society for Optics and Photonics (SPIE)
2012 Editor of the first book on *Coherent Raman Microscopy* (Taylor & Francis)
2012 – 2017: Purdue University Faculty Scholar
2011 Purdue University Cancer Center Research Excellence Award
2011 Purdue University College of Engineering Early Career Research Excellence Award
2010 Wallace H. Coulter Foundation Translational Research Award
2009 Young Scientist Award from Chinese National Academy of Sciences
2005 Seed of Success, Purdue University
1993 Guo Moruo Scholarship, USTC (highest honour for undergraduates in USTC)

Professional Society Association:

Optical Society of America (life-time member); American Chemical Society (member); SPIE (Life-time member); BMES (member # 4022335)

Part II. Research Activities

Personal Statement:

My research harnesses and manipulates photons to enable precision medicine. My career is devoted to transforming molecular spectroscopy from an in vitro analytical tool to an in vivo label-free imaging platform for discovery of hidden signatures inside living cells (for a review, Science, 2015, 350:aaa8870). As a PhD student, I studied local-mode vibration in gas phase molecules using infrared spectroscopy. As a postdoc in Sunney Xie's lab at Harvard (2000 to 2003), I spearheaded the development of CARS microscopy. Since beginning my independent career at Purdue in 2003, I established a highly interdisciplinary and collaborative research team that crosses the boundaries of chemistry, physics, biology, engineering, medicine, and entrepreneurship. In 2017, I joined Boston University as the inaugural Theodore Moustakas Chair Professor of Photonics and Optoelectronics. As PI, I have supervised a total of 30 PhDs and 4 masters. My team has been constantly breaking the fundamental limits of label-free chemical microscopy, making scientific discoveries from observation of subtleties, and diving into new fields via cross-disciplinary collaborations. As examples, we have pushed the speed limit of coherent Raman microscopy from milliseconds to 5 microseconds per Raman spectrum (Light: Sci&Appl 2015). We broke the diffraction limit in infrared microscopy through sensing the photothermal effect (Science Advances 2016). We increased the penetration depth of vibrational imaging from 0.1 millimeter to centimeter scale through photoacoustic detection (Phys Rev Lett 2011). Among the various applications, my group discovered metabolic markers for aggressive prostate cancer (Cell Metabolism 2014), human ovarian cancer stems cells (Cell Stem Cell 2017) and melanoma (BME Frontiers 2022). Towards clinical translation, we have developed an intravascular photoacoustic catheter for in vivo sensing lipid-laden plaques at video rate (Sci Rep 2018) and a fiber optoacoustic guide with augmented reality for precision lumpectomy (Light: Sci&Appl 2018). More recently, my group initiated two new directions. One is genetics-free optoacoustic stimulation of single neurons, supported by a NIH Brain Initiative Grant, another is photosensitizer-free treatment of pathogens via photo-inactivation of intrinsic chromophores. To grow the chemical imaging community, I served as the lead editor of the first book on coherent Raman scattering microscopy, published by CRC Press in 2012. From 2011 to 2016, I organized an annual international summer school for hands-on training of advanced spectroscopic imaging platforms. In 2011, I initiated a biennial Telluride Summer Symposium on frontiers of laser-based microscopy. In 2019, I initiated a 3-day advanced chemical microscopy symposium at SPIE Photonics West. In 2020, I initiated the first Gordon Research Conference on Chemical Imaging. Towards bench-to-bedside translation, I co-founded Vibronix INC in 2014 and Pulsethera CORP in 2019, with the mission of saving lives through discoveries made in my lab.

A. Research Grants Received

National Institutes of Health (NIH)

Active:

R35GM136223 (2020 to 2025, PI) MIRA award, pushing physical limits of chemical imaging
R01HL125385-05A1 (2020 to 2024, PI) intravascular photoacoustic imaging

R01CA224275 (2018 to 2023, multi-PI), ovarian cancer metabolism
R01AI141439 (2018 to 2022, PI), rapid antimicrobial susceptibility test
R01NS109794 (2018 to 2013, multi-PI, contact PI), ultrasound neurostimulation mechanism
R01EB032391 (April 2022 to Dec 2015), Cheng PI, computational SRS
R21EY034275 (8/1/2022 to 7/31/2025), Cheng PI, microwave neuromodulation
R33CA261726 (2021 to 8/31/2024, PI), cancer metabolism by IR
R42CA244844 (2019 to 2021, PI), STTR phase 2, Photothermal Spec Corp
R44EB027018 (2020 to March 2022), SBIR phase 2, Photothermal Spec Corp
R43GM142346 (2022 to 2024), SBIR phase 2, Photothermal Spec Corp

Finished:

R43GM142346 (2021), SBIR phase 1, Photothermal Spec Corp
R33CA223581 (2018 to 2021, PI), cancer metabolism by SRS
R01GM126049 (2018 to 2020, PI), IR chemical microscopy
R01GM118471 (2016 to 2020, PI) SRS flow cytometry
R01HL125385 (2015 to 2019, PI) intravascular photoacoustic imaging
R43EB027018 (2018 to 2019), phase I SBIR, iRaman, subcontract from Photothermal
R41CA244844 (2017 to 2018, PI), subcontract from Photothermal
R01HL117990 (2013 to 2016, co-investigator)
R21GM114853 (2014 to 2016, extended to 2017, PI)
R21CA182608 (2013 to 2016, extended to 2017, PI)
R21GM104681 (2012 to 2015, extended to 2016, PI)
R41CA912645 (2015 to 2016, PI for Vibronix Inc)
R41CA200006 (2016 to 2017, PI for Vibronix Inc)
R21EB015901 (2011 to 2014, PI)
R21EB009459 (2009 to 2011, co-PI)
R01EB7243 (2007-2010, PI)
R01CA129287 (2009-2014, co-I)
R01HL078715 (2005 – 2008, co-I)
R21EB004966 (2005 to 2007, PI)
R03CA128111 (co-PI)
F32HL089074 (PI as mentor)
STTR R43 GM099441-01A1 (co-PI)

National Science Foundation (NSF)

Active:

Finished:

NSF 1807106-CHE (single PI), 2018 ~ 2021, Volumetric Chemical Imaging, NCE to 2022
NSF SBIR, 2019-2020, subcontract from Vibronix Inc. 4/15/2019 to 3/31/2020.
0416785-MCB (single PI)
0828832-Photonics (single PI)
I/UCRC for Biophotonic Sensors and Systems, New Site Planning Grant (2015-2016, PI)

Department of Defence (DOD)

Active:

ARO (2022 to 2024), co-I, “Understanding the Mechanism of Microwave Neuron Inhibition”

Finished:

Prostate Cancer Program (2014-2017)
Spinal Cord Injury Program (2012-2015)
Breast Cancer Program (2010-2013)

Department of Energy (DoE)

Active:

Co-PI, “High-throughput Chemical Imaging for Optimizing Biofuel Synthesis using Synthetic Biology”, 2018 ~ 2021, NCE to 2022

Foundations:
Active: NA
Finished:

Keck Foundation Science & Engineering Grant (Jan 2015 to Dec 2018), PI, extended to Dec 2019
Walther Cancer Foundation (2015 to 2018), PI
American Heart Association National Innovation Award (Jan 2014 to Dec 2016), PI
Showalter Foundation, PI
Coulter Foundation Translational Research Award (2010-2014), PI

Industrial:
Active:

Hologic (2021 to 2023)
Daylight Solutions (2019 ~ 2021)

Finished:

L'Oreal, Roche

B. Peer-reviewed Publications

Books:

Stimulated Raman Scattering Microscopy: Techniques and Applications. Elsevier, 2022.
Editors: Ji-Xin Cheng (editor-in-chief), Wei Min, Yasuyuki Ozeki, Dario Polli

Coherent Raman Scattering Microscopy. CRC Press, Taylor & Francis Group, 2012. Editors: Ji-Xin Cheng and Xiaoliang Sunney Xie, Series in Cellular and Clinical Imaging, Editor: Ammasi Periasamy

Mathematical Competition of Modelling, Editors: Shanzi Li, Ji-Xin Cheng, 1996, Jiang Shu Education Press.

Peer-reviewed Journal Publications. *Corresponding author, h-index 88 (Google Scholar)

Year 2022

300. Nathan Tague†, Haonan Lin†, Jean-Baptiste Lugagne, Owen M. O'Connor, Deeya Burman, Wilson W. Wong, Ji-Xin Cheng*, Mary Dunlop*, Longitudinal single-cell chemical imaging of engineered strains reveals heterogeneity in fatty acid production" (NCHEMB-A210713521), Nature Chemical Biology, revision
299. Yi Zhang, Erik Taylor, Nasi Huang, James Hamilton*, Ji-Xin Cheng*, Longitudinal intravascular photoacoustic imaging of inflammatory atherosclerotic plaque in cholesterol fed rabbits, Translational Biophotonics, revision
298. Jian Zhao, Alex Matlock, Ziqi Song, Jiabei Zhu, Fukai Chen, Yuewei Zhan, Zhicong Chen, Yihong Xu, Biao Wang, Xingchen Lin, Hongbo Zhu, Lei Tian and Ji-Xin Cheng, Bond-selective Intensity Diffraction Tomography, Nature Communications, 2022, in revision.
297. Yuying Tan, Junjie Li, Guangyuan Zhao, Kai-Chih Huang, Horacio Cardenas, Yinu Wang, Daniela Matei. Metabolic Reprogramming from Glycolysis to Fatty Acid Uptake and beta-Oxidation in Platinum-Resistant Cancer Cells, Nature Communications, 2022, in press.
296. Xiaowei Ge, Fatima C. Pereira, Matthias Mitteregger, David Berry, Meng Zhang, Michael Wagner, and Ji-Xin Cheng, SRS-FISH: high-throughput platform linking function to identity at single cell level", PNAS, 2022, 119, 26, e2203519119
295. Pu-Ting Dong, Sebastian Jusuf, Jie Hui, Yuewei Zhan, Yifan Zhu, George Y. Liu, and Ji-Xin Cheng*, Photoinactivation of Catalase Sensitizes Wide-Ranging Bacteria to ROS-Producing Agents and Immune Cells, JCI Insights, online
294. Linli Shi, Ying Jiang, Nan Zheng, Ji-Xin Cheng*, Chen Yang*, High-precision neural stimulation through optoacoustic emitters, Neurophotonics, Primer, 2022, 9: 032207.
293. Cheng Zong, Ran Cheng, Fukai Chen, Peng Lin, Meng Zhang, Zhicong Chen, Chen Yang, Ji-Xin Cheng, Wide-field surface enhanced CARS (WISE CARS) microscopy, ACS Photonics, 2022, 3, 1042-49, **https://doi.org/10.1021/acsphotonics.1c02015**
292. Pu-Ting Dong, Yuewei Zhan, Sebastian Jusuf, Jie Hui, Zeina Dagher, Michael K. Mansour*, Ji-Xin Cheng*, Photoinactivation of catalase sensitizes *Candida albicans* and *Candida auris* to ROS-producing agents and immune cells, Advanced Science, 2022, 2104384

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291. Jiaze Yin, Lan Lu, Yi Zhang, Hongli Ni, Yuying Tan, Meng Zhang, Yeran Bai, **Ji-Xin Cheng**, Nanosecond-resolution photothermal dynamic imaging via MHZ digitization and match filtering, Nature Communications, 2021, 12: 7097.
290. Lee, K. S.; Landry, Z.; Pereira, F. C.; Wagner, M.; Berry, D.; Huang, W. E.; Taylor, G. T.; Kneipp, J.; Popp, J.; Zhang, M.; **Cheng, J.-X.**; Stocker, R., Raman microspectroscopy for microbiology. Nature Reviews Methods Primers 2021, 1 :80.
289. Ni, H.; Lin, P.; Zhu, Y.; Zhang, M.; Tan, Y.; Zhan, Y.; Wang, Z.; **Cheng, J. X.**, Multiwindow SRS Imaging Using a Rapid Widely Tunable Fiber Laser. Analytical Chemistry, **2021, 93, 47, 15703−15711**
288. Haonan Zong, Celalettin Yurdakul, M. Selim Ünlü*, **Ji-Xin Cheng***, Contrast-enhanced high-throughput mid-infrared photothermal imaging through pupil engineering, ACS Photonics, **2021, 8, 11, 3323−3336**
287. H.J. Lee, Z. Chen, M. Collard, F. Chen, J. G. Chen, M. Wu, R. M. Alani, J.-X. Cheng, Multimodal Metabolic Imaging Reveals Pigment Reduction and Lipid Accumulation in Metastatic Melanoma, BME Frontiers, 2021 article ID 9860123.
286. Lulu Jiang, Weiwei Lin, Cheng Zhang, Peter E.A. Ash, Mamta Verma, Julian Kwan, Emily van Vliet, Zhuo Yang, Anna Lourdes Cruz, Samantha Boudeau, Brandon F. Maziuk, Shuwen Lei, Jaehyup Song, Victor E. Alvarez, Stacy Hovde, Jose F. Abisambra, Min-Hao Kuo, Nicholas Kanaan, Melissa E. Murray, John F. Crary, Jian Zhao, Ji-Xin Cheng, Leonard Petrucelli, Hu Li, Andrew Emili, Benjamin Wolozin, Interaction of tau with HNRNPA2B1 and N6-methyladenosine RNA mediates the progression of tauopathy, Molecular Cell, 2021, 81, 1-19.
285. Peng Lin, Wei-Ting Chen, Kerolos M.A. Yousef, Justin Marchioni, Alexander Zhu, Federico Capasso, Ji-Xin Cheng, Coherent Raman scattering imaging with a near-infrared achromatic metalens, APL Photonics. 2021, 6: 096107.
284. Linli Shi, Ying Jiang, Fernando R. Fernandez, Guo Chen, Lu Lan, Heng-ye Man, John A. White, Ji-Xin Cheng*, Chen Yang*. Non-genetic photoacoustic stimulation of single neurons by a tapered fiber optoacoustic emitter, Light S&A, 2021, 10:143.
283 Yi Zhang, Haonan Zong, Cheng Zong, Yuying Tan, Meng Zhang, Yuewei Zhan, Ji-Xin Cheng*, Fluorescence-detected mid-infrared photothermal microscopy, Journal of American Chemical Society, 2021, 143:11490-9.
282. Celalettin Yurdakul, Haonan Zong, Yeran Bai, Ji-Xin Cheng*, and M Selim Ünlü*, Bond-selective interferometric scattering microscopy, Journal of Physics D: Applied Physics, 2021, 54: 364002
281. Zhang, M., Seleem, M.N., Cheng, J.X*, Rapid Antimicrobial Susceptibility Testing by Stimulated Raman Scattering Imaging of Deuterium Incorporation in a Single Bacterium, JoVE, 2021, e62398, doi:10.3791/62398(2021)
280. Yeran Bai, Jiaze Yin, Ji-Xin Cheng*, "Bond-Selective Imaging by Optically Sensing the Mid-Infrared Photothermal Effect", Science Advances, review, 2021, 7: eabg1559
279. Haonan Lin, Hyeon Jeong Lee, Nathan Tague, Jean-Baptiste Lugagne, Cheng Zong, Fengyuan Deng, Tian Lei, Wilson Wong, Mary Dunlop and Ji-Xin Cheng*. "Fingerprint Spectroscopic SRS Imaging of Single Living Cells and Whole Brain by Ultrafast Tuning and Spatial-Spectral Learning", Nature Communications, 2021, 12:3052.
278. Jiabao Xu, Tong Yu, Christos E Zois, Ji-Xin Cheng, Yuguo Tang, Adrian L. Harris, Wei Huang, Unveiling cancer metabolism through spontaneous and coherent Raman spectroscopy and stable isotope probing. Cancers, 2021, 13, 1718.
277. Yi Zhang, Celalettin Yurdakul, Alexander J. Devaux, Le Wang, Xiaoji G. Xu, John H. Connor*, M. Selim Ünlü*, and Ji-Xin Cheng*, Vibrational Spectroscopic Detection of a Single Virus by Mid-Infrared Photothermal Microscopy, Analytical Chemistry, 2021, 93: 4100-07.
276. Sebastian Juruf, Pu-Ting Dong, Jie Hui, Erlinda R. Ulloa, George Y. Liu, Ji-Xin Cheng, "Granadaene Photobleaching Reduces *Streptococcus agalactiae* Virulence and Increases Its Susceptibility to Antimicrobials", Photobiology and Photochemistry, 2021, **DOI: 10.1111/php.13389**
275. Jiayingzi Wu, Liyan You, Saadia T. Chaudhry, Jiazhi He, Ji-Xin Cheng, and Jianguo Mei, Ambient Oxygen-Doped Conjugated Polymer for pH-Activatable Aggregation-Enhanced Photoacoustic Imaging in the Second Near-Infrared Window, Analytical Chemistry, 2021, 6: 3189-95.
274. Minghua Zhuge, Kai-Chih Huang, Hyeon Jeong Lee, Ying Jiang, Yuying Tan, Haonan Lin, Pu-Ting Dong, Guangyuan Zhao, Daniela Matei, Qing Yang, Ji-Xin Cheng, "Ultra-Sensitive Vibrational Imaging of Retinoids by Visible Pre-resonance Stimulated Raman Scattering Microscopy", Advanced Science, 2021, 8:2003136.
273. Cheng Zong, Yurun Xie, Yimin Huang, Chen Yang, Ji-Xin Cheng*, "PECARS versus PESRS, comparison of line shapes and signal to noise ratio", Journal of Chemical Physics. 2021 Special issue, 154, 034201.
272. Yinu Wang, Guangyuan Zhao, Salvatore Condello, Hao Huang, Horacio Cardenas, Edward Tanner, Jian-Jun Wei, Yanrong Ji, Junji Li, Ji-Xin Cheng, Daniela Matei, "Frizzled-7 Identifies Platinum Tolerant Ovarian Cancer Cells Susceptible to Ferroptosis", Cancer Research, 2021, 81: 384-399. **doi: 10.1158/0008-5472.CAN-20-1488**

271. Zhaoyi Li, Peng Lin, Yao-Wei Huang, Joon-Suh Park, Wei-Ting Chen, Zhujun Shi, Cheng-Wei Qiu, Ji-Xin Cheng, Federico Capasso*, "Meta-optics for a virtual reality and augmented reality system", Science Advances, 2021, 7: eabv4458.
270. Pu-Ting Dong, Cheng Zong, Zeina Dagher, Jie Hui, Junjie Li, Yuewei Zhan, Meng Zhang, Michael K. Mansour, Ji-Xin Cheng*, "Polarization-sensitive stimulated Raman scattering imaging resolves amphotericin B orientation in *Candida* membrane", Science Advances, 2021, 7: eabd5230.
269. Ying Jiang, Yimin Huang, Xuyi Luo, Jiayingzi Wu, Haonan Zong, Linli Shi, Ran Cheng, Yifan Zhu, Shan Jiang, Xiaoting Jia, Jianguo Mei, Heng-Ye Man, Ji-Xin Cheng, Chen Yang*, "High Precision Neural Stimulation in vitro and in vivo by Photoacoustic Nanotransducers", (Cell Press) Matter, 2021, 4: 1-21.
268. Cheng Zong, Chi Zhang, Peng Lin, Jiaze Yin, Yeran Bai, Haonan Lin, Bin Ren, and Ji-Xin Cheng*, "Real-time imaging of Surface Chemical Reactions by Electrochemical Photothermal Reflectance Microscopy", Chemical Science, 2021, 12, 1930-1936.

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267. Bi, Hai; Huo, Chanyuan; Tang, Haoning; Griesse-Nascimento, Sarah; Jian, Jiahuang; Kang, Hongjun; Li, Yang; Wu, Xiaohong; Huang, Kai-Chih; Cheng, Ji-Xin; Nienhaus, Lea; Bawendi, Moungi; Lin, Hao-Yu ; Saikin, Semion, "Room-Temperature Phosphorescence and Low-Energy Induced Direct Triplet Excitation of Alq3 Engineered Crystals", JPC Letters, 2020, 11(21):9364-9370
266. Ryan M. Hekman et al., Actionable Cytopathogenic Host Responses of Human Alveolar Type 2 Cells to SARS-CoV-2, Molecular Cell, 2020, 80, 1-19
265. Linli Shi, Ying Jiang, Yi Zhang, Lu Lan, Yimin Huang, Ji-Xin Cheng, Chen Yang, A fiber optoacoustic emitter with controlled ultrasound frequency for cell membrane sonoporation at submillimeter spatial resolution, Photoacoustics, 2020, 20, 100208.
264. Jiabao Xu, Xiaojie Li, Zhongyue Guo, Wei E. Huang, Ji-Xin Cheng, Fingerprinting Bacterial Metabolic Response to Erythromycin by Raman-Integrated Mid-Infrared Photothermal Microscopy, Analytical Chemistry, 2020, 91, 14459-14465.
263. Lulu Jiang, Jian Zhao, Ji-Xin Cheng, Bejamin Wolozin, Tau Oligomers and Fibrils Exhibit Differential Patterns of Seeding and Association with RNA Binding Proteins, Frontiers in Neurology, 2020, 11, article 579434.
262. Xueli Chen, Shouping Zhu, Huiyuan Wang, Cuiping Bao, Defu Yang, Chi Zhang, Peng Lin, Ji-Xin Cheng, Yonghua Zhan, Jimin Liang, Jie Tian, Accelerated Stimulated Raman Projection Tomography by Sparse Reconstruction From Sparse-View Data, IEEE Trans Biomed Eng, 2020, 67(5):1293-1302.
261. Jing Zhang, Haonan Lin, Jian Zhao, Yuying Tan, Ji-Xin Cheng*, High-Speed Chemical Imaging by Dense-Net Learning of Femtosecond Stimulated Raman Scattering, JPC Letters, 2020, 11, 8573-78.
260. Jiayingzi Wu, Yifan Zhu, Liyan You, Pu-Ting Dong, Jianguo Mei,* and Ji-Xin Cheng*, Polymer Electrochromism Driven by Metabolic Activity Facilitates Rapid and Facile Bacterial Detection and Susceptibility Evaluation, Advanced Functional Materials, 2020, 2005192.
259. Peng Lin, Hongli Ni, Huate Li, Nicholas A. Vickers, Yuying Tan, Ruyi Gong, Thomas Bifano, Ji-Xin Cheng, Volumetric chemical imaging in vivo through a remote-focusing SRS microscope, Optics Express, 2020, 28: 30210
258. Zong, C., Cheng, J.X., Origin of dispersive line shapes in plasmon-enhanced stimulated Raman scattering microscopy, Nanophotonics (published online ahead of print), 2020, 20200313.
257. Zhang, M., Hong, W., Abutaleb, N. S., Li, J., Dong, P.-T., Zong, C., Wang, P., Seleem, M. N., Cheng, J.-X., Rapid Determination of Antimicrobial Susceptibility by Stimulated Raman Scattering Imaging of D_2O Metabolic Incorporation in a Single Bacterium. Advanced Science. 2020, 2001452
256. Lars Rishøj, Fengyuan Deng, Boyin Tai, Ji-Xin Cheng, and Siddharth Ramachandran, "Jitter-free, dual-wavelength, ultrashort-pulse, energetic fiber sources using soliton self-mode conversion," Opt. Express 28, 4333-4339 (2020).
255. Leanse, L. G., Goh, X. S., Cheng, J.-X., Hooper, D. C. & Dai, T. "Dual-wavelength photo-killing of methicillin-resistant Staphylococcus aureus". JCI Insight 2020, 5(11):e134343
254. Lu Lan, Yueming Li, Tiffany Yang-Tran, Ying Jiang, Yingchun Cao, Ji-Xin Cheng, "Ultraefficient thermoacoustic conversion through a split ring resonator," Advanced Photonics 2(3) 036006 (2020) [SPIE news]
253. Cao, Y, Alloosh, M, Sturek, M, Cheng, J-X. Highly sensitive lipid detection and localization in atherosclerotic plaque with a dual-frequency intravascular photoacoustic/ultrasound catheter. Translational Biophotonics, 2020, e202000004.
252. Xueli Chen*, Xinyu Wang, Lin Wang, Peng Lin, Chi Zhang, Ji-Xin Cheng, "Stimulated Raman scattering signal generation in scattering medium using self-reconstructing Bessel beams", Photonics Research, 2020, 8:929.
251. Jiayingzi Wu, Hyeon Jeong Lee, Liyan You, Xuyi Luo, Tsukasa Hasegawa, Kai-Chih Huang, Peng Lin, Timothy Ratliff, Minoru Ashizawa, Jianguo Mei*, Ji-Xin Cheng*, Functionalized NIR-II semiconducting polymer nanoparticle for single-cell to whole-organ imaging of PSMA-positive prostate tumor, Small, 2020, DOI: 10.1002/smll.202001215.

250. Haozheng Li, Yong Cheng, Huajun Tang, Yali Bi, Yage Chen, Guang Yang, Shoujing Guo, Sidan Tian, Jiangshan Liao, Xiaohua Lv, Shaoqun Zeng, Mingqiang Zhu, Chenjie Xu, Ji-Xin Cheng, Ping Wang*, Imaging chemical kinetics of radical polymerization with an ultrafast coherent Raman microscope, Advanced Science, 2020, 7: 1903644
249. Sebastian Jusuf, Jie Hui, Pu-Ting Dong, Ji-Xin Cheng, Synergistic Eradication of Methicillin-resistant *Staphylococcus aureus* by Staphyloxanthin Photolysis and Low Concentration Silver Nanoparticles, Journal of Physical Chemistry C, 2020, 9: 5321-5330.
248. Kai-Chih Huang, Junjie Li, Yuying Tan, Ji-Xin Cheng, "Multiplex stimulated Raman scattering imaging cytometry reveals cancer metabolic signatures in a spatially, temporally, and spectrally resolved manner", (Cell Press) iScience, 2020, 23: 100953. https://doi.org/10.1016/j.isci.2020.100953
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246. Yifan Zhu, Ji-Xin Cheng*, "Transient absorption microscopy: Technological Innovations and Applications in Materials Science and Life Science", J Chem. Phys., Perspective, 2020, 152: 020901.
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242. Delong Zhang, Lu Lan, Yeran Bai, Hassaan Majeed, Mikhail E. Kandel, Gabriel Popescu, Ji-Xin Cheng, "Bond-selective transient phase microscopy via sensing the infrared photothermal effect", Light Sci & Appl, 2019, 8:116. PMC6904752 Microscopy Today 2020 methods of the year
241. Andy J. Chen, Kai-Chih Huang, Selina Bopp, Robert Summers, Pu-ting Dong, Yimin Huang, Cheng Zong, Dyann Wirth, Ji-Xin Cheng, "Quantitative imaging of intraerythrocytic hemozoin by transient absorption microscopy", Journal of Biomedical Photonics, 2019, 25, 014507. doi: 10.1117/1.JBO.25.1.014507
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238. Junjie Li, Peng Lin, Yuying Tan, Ji-Xin Cheng, Volumetric Stimulated Raman Scattering Imaging of Cleared Tissues towards Three-dimensional Chemical Histopathology, Biomedical Optics Express, 2019, 10, 4329-4339.
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C. Book Chapters and Feature Articles

1. Chen Li, Ji-Xin Cheng, "Absorption-based far-field label-free super-resolution microscopy", in Springer book on Label-Free Super-Resolution Microscopy, Ed. Vasily Astratov

2. Jie Hui, Ji-Xin Cheng, “Intravascular photoacoustic imaging of lipid laden plaques”, in Multimodality Imaging, Ed. Qifa Zhou and Zhongping Chen
3. Yingchun Cao, Ji-Xin Cheng, “Chemical and molecular imaging of deep tissue through photoacoustic detection of chemical bond vibrations”, in Deep Tissue Imaging with Linear and Non-linear Optics, Ed. Lingyan Shi and Robert R. Alfano, Pan Stanford. 2017
4. Chunrui Hu, Bing Hu, Ji-Xin Cheng, “Study of myelin sheath by CARS microscopy”, in *Cellular Imaging Techniques for Neuroscience and Beyond*, Ed. Floris G. Wouterlood, Elsevier Inc. 2012
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7. Wei He, Haifeng Wang, Ji-Xin Cheng, “Multiparametric analysis of single circulating cells by intravital flow cytometry,” *American Biotechnology Laboratory*, April 2008, Vol. 26, 24.
8. Yan Fu, Haifeng Wang, Riyi Shi, Ji-Xin Cheng, “Noninvasive molecular imaging of intact myelin sheath by coherent anti-Stokes Raman scattering microscopy,” *American Laboratory,* feature article, April 2007, 39(8):12-14.
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10. X. Xie, J.X. Cheng, and E.O. Potma, “Coherent Anti-Stokes Raman Scattering Microscopy”, in *Handbook of Biological Confocal Microscopy*, 3rd edition, J.B. Pawley (ed.), Springer, New York, 2006.
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Full List of Grants Received

Funding Agency & Grant #	**Title of Grant & PI information**	**Amount to Cheng**	**Start and end date**
Year 2022			
NIH R01EB032391	**“**High-content High-speed Chemical Imaging of Metabolic Reprogramming by Integration of Advanced Instrumentation and Data Science”, Cheng, PI	$1,750,000	4/1/2022 to 12/31/2025
Year 2021		**$1,580,000**	
NIH R33CA261726	“Mapping Cancer Metabolism by Mid-infrared Photothermal Microscopy”, Cheng PI	$1,200,000	09/20/2021~08/31/2024
Daylight solutions	“Chemical IDT”, Cheng, PI	$216,000	10/01/2021~9/30/2022
Hologic	“Breast cancer detection by SRS microscopy”, Cheng, PI	$300,000	11/01/2021~5/31/2023
Photothermal spectroscopy corp	R43GM142346, SBIR phase 1, Cheng: subcontractor	$80,000	March to Sept 2021
Year 2020		**$5,500,000**	
NIH/NIGMS R35 GM36223	“Vibrational Spectroscopic Imaging to Unveil Hidden Signatures in Living Systems”, Cheng, PI	$2,845,971	07/01/2020 – 06/30/2025
NIH R01 HL125385-05A1	“Sensing Vulnerable Plaque in vivo by an All-optical Intravascular Ultrasound and Photoacoustic Catheter”, Cheng, PI	$2,416,922	09/01/2020 – 08/31/2024
R44 EB027018	“IRaman”, subcontract from Photothermal Spec Corp	$300,000	04/15/2020 – 03/31/2022
Year 2019		**~$760,000**	

Boston University	Ignition award	$75,000	6/1/2019~5/31/2020
Daylight solutions	Bond-selective transient phase microscope	$195,299	10/01/2009-9/30/2020
NSF SBIR phase 2	Locating a breast tumor with submillimetre accuracy	$89,666	4/15/2019~3/31/2020
R42CA224844 NIH STTR Phase 2	Optical photothermal microscopy	$350,000	09/12/2019 to 08/31/2021
Year 2018		**~$10,000,000**	
Department of Energy	"High-throughput Chemical Imaging for Optimizing Biofuel Synthesis using Synthetic Biology: PI: Mary Dunlop; co-PI: Cheng, Wilson	~one third of $1,464,754	9/1/2018 ~ 8/31/2021
NIH R01 AI141439	"Metabolic Assessment of Anti-Microbial Susceptibility within One Cell Cycle", PI: Ji-Xin Cheng	$2,496,881	12/01/2018 – 11/30/2022
NIH R01 NS109794	"Unveiling mechanisms of ultrasound neuromodulation via spatially confined stimulation and temporally resolved recording". PIs: Ji-Xin Cheng, Xue Han	$1,655,990 (Cheng part)	09/01/2018 ~ 08/31/2023
NIH R01 CA224275	"Targeting Lipid Unsaturation in Ovarian Cancer Stem Cells", PIs: Matei, Cheng	$194,350 (year 1)	08/01/2018 – 07/31/2023
NIH R33 CA223581	"Quantitative SRS Imaging of Cancer Metabolism at Single Cell Level" PI: Ji-Xin Cheng	$1,398,179	8/1/2018 ~ 7/31/2021
NIH R01 GM126409	**"**Highly Sensitive Chemical Microscopy by Probing the Thermal Effect of Infrared Light**"** PI: Ji-Xin Cheng	$2,356,852	8/1/2018 ~ 7/31/2022
NSF CMI CHE-1807106	"Volumetric Chemical Imaging" PI: Ji-Xin Cheng	$420,000	7/1/2018 ~ 6/30/2021
NIH R43 EB027018	IRaman, subcontract from Photothermal Spec Corp	$66,000	10/01/2018- 03/31/2019
Year 2017	**Note: transition from Purdue University to Boston University**	**Total: $100,000**	
NIH R41 CA244844	Confocal photothermal IR micro-spectroscopy (CPIR), PI: Ji-Xin Cheng	$100,000	10/1/2017 to 3/31/2018
Year 2016		**Total: $1,754,708**	
NIH R41 CA200006	"High-speed intraoperative assessment of breast tumor margin using Margin PAT" PI: Ji-Xin Cheng, funded	$102,000	09/01/2016 – 8/31/2017
NIHR01 GM118471	"High-throughput high-content single cell analysis by multichannel stimulated Raman flow cytometry" PI: Ji-Xin Cheng, funded	$1,657,708	08/01/2016 – 4/30/2020
Venture Well	"Vibronix: Margin PAT (stage I and II)" PI: Ji-Xin Cheng	$25,000	
Walther Foundation	Prostate cancer imaging embedding team PI: Ji-Xin Cheng	$35,000	1/1/2017~12/31/2017
Year 2015		**Total: $2,497,646**	
NIH R01 HL125385-01A1	"In vivo photoacoustic sensing of lipid laden plaque", PI: Ji-Xin Cheng, co-I: Michael Sturek	$2,173,187	07/01/2015 - 06/30/2019

AHA	"High-speed optical-resolution intravascular vibrational photoacoustic imaging of atherosclerotic plaque" PI: Ji-Xin Cheng (mentor for Yingchun Cao)	$102,676	01/01/2016 – 12/31/2018
National Science Foundation	"Planning grant: I/UCRC for Biophotonic Sensors and Systems, New Site" PI: Ji-Xin Cheng (Site Director)	$10,000	
NIH/NCI STTR phase 1 R41 CA192645	"Diagnosing aggressive prostate cancer by spectroscopic photoacoustic tomography" PI: Ji-Xin Cheng (co-founder of Vibronix)	$211,783	07/01/2015 - 06/30/2016
Year 2014		**$3,469,626**	
Keck Foundation	"Microsecond Time Scale Vibrational Spectral Imaging of Living Systems" PI: Ji-Xin Cheng Co-I: Andrew Weiner & Mingji Dai	$1,000,000 from Keck Total fund: $2,003,000	Jan 2015 to Dec 2017, extended to Dec 2018
Walther Cancer Foundation	"Label-free imaging of human prostate tumor by vibrational photoacoustic tomography" PI: Ji-Xin Cheng	$150,000 (direct cost)	Jan 2015 to Dec 2016
NIH/NIGMS R21GM114853	"Microsecond Raman spectroscopy: Assessing single cell metabolism in a vital organism" PI: Ji-Xin Cheng	$447,126	Sep 2014 to Aug 2016
Indiana CTSI CTR award	"Active delivery of methylprednisolone to injured spinal cord" PI: Ji-Xin Cheng	$120,000	2014-2016
Ntnl Clgte Inventors & Innovators Alliance	"Vibronix: Intravascular Photoacoustic catheter for atherosclerosis diagnosis (stage I and II)" PI: Ji-Xin Cheng	$25,000	12/01/2013 - 07/31/2014
AHA National Innovation Award	"Assessing Plaque Vulnerability by Spectral Analysis of Optically Induced Sound" PI: Ji-Xin Cheng	$150,000	01/01/2014 - 12/31/2015
DoD CDMRP Prostate Cancer Program	"Making Aggressive Prostate Cancer Quiescent by Abrogating Cholesterol Esterification" PI: Ji-Xin Cheng; program officer: Asif Rizwan	$577,500	10/01/2014 - 09/30/2017
NIH/NCI R01 CA129287 Year 5	"Adaptable polymer micelles for tumor targeting" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$78,913	12/01/2013 - 11/30/2014
Year 2013		**Total: $1,425,000**	
NIH/NIDDK T32DK101001	Bioengineering Interdisciplinary Training for Diabetes Research PI: Alyssa Panitch. Cheng: co-investigator	$45,411	09/04/2013 - 09/03/2014
NIH R21 CA182608	Quantitative Spectroscopic Imaging of Cancer Metabolites in Live Cells and Intact Tissues PI: Cheng	$759,767	12/01/2013- 11/30/2016
NIH R01 HL117990	Micro-Mechanical Role of Hypertension in Intimal Hyperplasia PI: Kassab, co-PI: Cheng	$360,000	09/01/2013 – 8/31/2017
HHMI Janelia Farm visiting scientist	Label-free imaging of membrane potential PI: Cheng	$50,000 (direct cost)	06/01/2013- 05/31/2014
Purdue Research Foundation	TRASK: fast spectroscopic imaging by parallel detection of stimulated Raman scattering PI: Cheng	$50,000 (direct cost)	07/01/2013- 12/31/2013
CTSI CTR award	Prevention of Pancreatic Cancer Metastasis by Targeting Altered Cholesterol Metabolism PI: Cheng	$75,000 (direct cost)	08/01/2013- 07/31/2015

Purdue Incentive Grant	Dissecting stem cell fate by novel imaging microscopy and single cell RNA sequencing PI: Kuang, co-PI: Cheng	$150,882 (direct cost to Cheng)	08/01/2013-05/31/2016
NIH/NCI R01 CA129287 Year 4	"Adaptable polymer micelles for tumor targeting" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$78,913	12/01/2012 - 11/30/2013
Year 2012		**Total: $1,306k**	
Coulter translational research award phase II	Nanomedicine for repair of spinal cord injury PI: Ji-Xin Cheng	$320,000	09/01/2012 – 08/31/2014
DoD Spinal Cord Injury Program	Targeting acute spinal cord injury using polymer micelles releasing bisperoxovanadium (bpV), PI: Xiao-Ming Xu, co-PI: Ji-Xin Cheng	$180,000	09/30/2012 - 09/29/2015
NIH/NIHMS R21 GM	Label-free multichannel spectral cytometry based on stimulated Raman scattering PI: Ji-Xin Cheng, co-investigator: Paul Robinson	$577,500	07/01/2012 – 6/30/2015
Purdue University	University Faculty Scholar	$50,000	2012-2017
L'Oreal USA	Multimodal nonlinear optical imaging of human skin as a function of treatment, PI: Ji-Xin Cheng	$50,000	012/01/2011 – 05/31/2012
L'Oreal USA	Multimodal nonlinear optical imaging of human hair as a function of treatment, PI: Ji-Xin Cheng	$50,000	012/01/2011 – 05/31/2012
NIH/NCI R01 CA129287 Year 3	"Adaptable polymer micelles for tumor targeting" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$78,913	12/01/2011 - 11/30/2012
Year 2011		**Total: $650k**	
NIH R21 EB015901	Vibrational photoacousic microscopy for bond-selective tissue analysis, PI: Ji-Xin Cheng	$531,600	08/01/2011 – 07/31/2012
L'Oreal USA	Multimodal nonlinear optical imaging of skin reconstruct as a function of treatment, PI: Ji-Xin Cheng	$25,000	08/01/2011 – 01/31/2012
NIH/NCI R01 CA129287 Year 2	"Adaptable polymer micelles for tumor targeting" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$82,421	12/01/2010 - 11/30/2011
Walther Foundation	"Development of Prostate Cancer Progression Markers", PI: Timothy Ratliff, Ji-Xin Cheng: co-PI	$90,000	01/01/2011 – 12/31/2011
IU-Purdue Prostate SPORE	"Detecting circulating tumor cells in prostate cancer" PI: Timothy Ratliff	$15,000	05/16/2011 - 05/15/2012
IU-Purdue Prostate SPORE	Repair of cavernous nerve by multifunctional micelles PI: Timothy Ratliff	$15,000	05/16/2011 - 05/15/2012
Showalter Trust	"Role of Glycated Dietary Proteins in Lipid Dysfunction of Adipose Tissue and Muscle in Aging", PI: Kee Hong Kim	$7,000	07/01/2011 – 06/30/2012
CTSI translational research	Dual functional nanoparticles targeting cancer stem cells for improved treatment of breast cancers	$25,000	05/01/2011 – 04/30/2012

CTSI translational research	Perivascular adipose-derived leptin & metabolic syndrome induced coronary disease	$30,000	05/01/2011 – 04/30/2012
Indiana State Department of Health	"A Synergistic Therapy for Early Repair of Traumatically Injured Spinal Cord" PI: Ji-Xin Cheng, co-PI: Xiao-Ming Xu	$120,000	09/01/2011 – 08/31/2013
CPPR	"Vibrational imaging of cocrystals" PI: Rodolfo Pinal, co-PI: JI-Xin Cheng	$17,500	03/10/2005 – 12/31/2075
American Heart Association Predoctoral Fellowship	Vibrational Photoacoustic Imaging and Spectroscopy for Characterization of Atherosclerotic Lesions PI: Pu Wang (graduate student) Advisor: Ji-Xin Cheng	$52,000	07/01/2011 – 06/30/2013
Year 2010		**Total $512k**	
DOD Breast Cancer Research Program	"Highly Effective Screening of Breast Cancer Risk and Protective Factors" PI: Shuhua Yue, Mentor: JI-Xin Cheng	$129,600	10/01/2010 – 09/30/2013
L'Oreal	"SRS Imaging of Deuterated Compound in Skin Cells", PI: Ji-Xin Cheng	$50,000	11/01/2010 – 05/15/2010
Coulter Foundation	"A Micelle Approach to Early Nerve Repair after Spinal Cord Injury" PI: Ji-Xin Cheng, Clinical collaborator: Xiao-Ming Xu	$200,000	09/01/2010 – 08/31/2012
L'Oreal	"CARS, SRS, and Compound Raman on hair" PI: Ji-Xin Cheng	$50,000	07/01/2010 – 12/31/2010
CTSI translational research	"Intravital Imaging to Assist Development of Remyelination Therapy for Traumatic Spinal Cord Injury" PI: Ji-Xin Cheng, co-PI: Xiaoming Xu	$45,000	6/1/2010 – 5/31/2011
NIH/NCI R01 CA129287 Year 1	"Adaptable polymer micelles for tumor targeting" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$82,421	12/01/2009 - 11/30/2010
Year 2009		**Total $890k**	
NSF	MRI: Acquisition of a high-pulse-energy ultrafast laser system for interdisciplinary research Ji-Xin Cheng: co-investigator	$485,790	09/01/09 – 08/31/12
Roche Palo Alto, LLC	"Imaging liposome-mediated drug delivery by CARS/SRS microscopy", PI: Ji-Xin Cheng	$70,000	July 1 2009 to Dec 31 2009
American Heart Association pre-doctoral fellowship	"NLO imaging to elucidate the role of adventitia inflammation and neovascularization in plaque vulnerability and in-stent restenosis" PI: Ji-Xin Cheng (mentor for Han-Wei Wang)	$52,000	07/01/09 – 06/30/11
L'Oreal USA	"Imaging compounds in skin tissue by coherent Raman microscopy" PI: Ji-Xin Cheng	$9,780	06/15/09 – 12/15/09
Showalter Grant	"High-throughput screening of breast cancer risk factors via real time imaging of 3D culture of phenotypically normal epithelium" PI: Ji-Xin Cheng	$37,500	07/01/09 – 06/30/10
Showalter Grant	"Live imaging and computational analysis of bone morphogenetic proteins in drosophila embryos" PI: David Umulis, Co-PI: Ji-Xin Cheng	$12,700	07/01/09 – 06/30/10
Showalter Grant	"Anti-obese function of curcumin" PI: Kee-Hong Kim, Co-PI: Ji-Xin Cheng	$6,410	07/01/09 – 06/30/10

NIH/NIBIB R21 EB009459-01	"Tissue imaging using desorption electrospray ionization mass spectrometry" PI: G. Cooks. Co-PI: Ji-Xin Cheng	$67,682	04/01/09 – 03/31/10
Purdue Research Foundation	**"**SiNW/Au nanoshells as a nano-bio system to probe cellular response to nanomaterials**"** PI: Ji-Xin Cheng	$16,750	06/01/09 – 05/31/10
Indiana Clinical and Translational Sciences Institute	**"**Intravital imaging to guide development of new spinal cord injury treatments**"** PI: Ji-Xin Cheng	$10,000	06/01/09 – 05/31/10
Indiana State Department of Health	"Effective repair of traumatically injured spinal cord by block co-polymer micelles" PI: Ji-Xin Cheng	$120,000	01/01/09 – 12/31/10
Year 2008		**Total: $428k**	
National Science Foundation	**"**Selective imaging and eradication of activated macrophages using bio-conjugated plasmon-resonant gold nanorods**"** PI: Ji-Xin Cheng	$331,832	01/01/09 – 12/31/11
IVDiagnostics	"Development of an intravital flow cytometer" PI: Ji-Xin Cheng	$80,851	08/01/08 - 07/31/09
L'Oreal	"Skin imaging testing" PI: Ji-Xin Cheng	$6,000	01/01/08 - 12/31/08
Bausch & Lomb	"Hydrogel gel imaging testing" PI: Ji-Xin Cheng	$6,000	12/01/07 - 11/30/08
Amylin	"Peptide imaging testing" PI: Ji-Xin Cheng	$3,000	02/01/08 - 11/14/08
Year 2007		**Total: $1,383,000**	
Ruth L. Kirschtein National Research Service Award	**"**Nonlinear optical imaging to evaluate obesity associated health risks" PI: Ji-Xin Cheng (mentor for postdoc Thuc Le) F32HL089074	$147,750	05/14/07 – 05/13/10
NIH NCI R03 CA128111	"Multiphoton imaging to evaluate the influence of dietary fatty acids on mammary" PI: Ignacio G. Camarillo, Co-PI: Ji-Xin Cheng	$152,100	04/01/07 – 03/31/09
American Heart Association, predoctoral fellowship	"Bio-conjugated gold nanorods for optical hyperthermia of macrophages in an atherosclerotic plaque" PI: Ji-Xin Cheng (mentor for Ling Tong)	$52,000	01/01/08 – 12/31/09
NIH NIBIB R01 EB007243	"Multimodal multiphoton imaging of nervous system ex vivo and in vivo" PI: Ji-Xin Cheng, Co-PI: Riyi Shi	$963,591	03/01/07 – 02/28/10
NIH, R01 HL078715-01A1	"Layer-by-layer assembly for making drug-eluting stents" PI: Kinam Park, Co-PI: Ji-Xin Cheng	$52,000	09/01/07 − 08/31/08
Purdue Research Foundation, Research grant	"Photoacoustic imaging assisted photothermal cancer therapy using gold nanorods" PI: Ji-Xin Cheng	$14,627	06/01/07 – 05/31/08
Year 2006		**Total: 366k**	
Showalter Trust	"Better repair of spinal cord injury with polymer micelle based nanomedicine" PI: Ji-Xin Cheng, Co-PI: Riyi Shi	$33,682	07/01/06 - 06/30/07
NIH NIBIB R21 EB004966-01	"Coherent anti-Stokes Raman scattering microscopy" PI: Ji-Xin Cheng	$182,338	04/01/06 – 03/31/07
NIH, R01	"Layer-by-layer assembly for making drug-eluting	$85,537	09/01/06 − 08/31/07

HL078715-01A1	stents” PI: Kinam Park, Co-PI: Ji-Xin Cheng		
Purdue Oncological Sciences Center	“Live cell and in vivo imaging studies of anti-cancer drug delivery” Co-PIs: Ji-Xin Cheng, Kinam Park	$25,000	4/1/2006 – 3/31/2007
Purdue Oncological Sciences Center	“Bioconjugated gold nanorods for in vitro and in vivo detection and hyperthermia of tumor cells” Co-PIs: Ji-Xin Cheng, Alexander Wei	$25,000	4/1/2006 – 3/31/2007
Purdue Research Foundation, Research grant	“Two-photon imaging and hyperthermia of tumor cells with nanorods” PI: Ji-Xin Cheng	$14,040	6/1/2006 – 5/31/2007
Year 2005		**Total:354k**	
Purdue Research Foundation, Research grant	“Nonlinear optical imaging of spinal cord injury” PI: Ji-Xin Cheng	$14,040	6/1/2005 – 5/31/2006,
NIH NIBIB R21 EB004966-01	“Coherent anti-Stokes Raman scattering microscopy” PI: Ji-Xin Cheng	$ 61,522 + $161,470	04/01/05 – 03/31/06
NIH, R01 HL078715-01A1	“Layer-by-layer assembly for making drug-eluting stents” PI: Kinam Park, co-PI: Ji-Xin Cheng (co-PI)	$95,441	09/01/05 to 08/31/06
Akina Inc	“Characterization of drug distribution”	$22,500	No restriction
Year 2004		**Total: 571k**	
National Science Foundation Award #0416785-MCB	“Study of membrane domains with coherent Raman microscopy and microspectroscopy” PI: Ji-Xin Cheng	$353,638 + $125,349	08/01/04 – 07/31/07
Purdue Cancer Center’s Small Grants Program	“Study of cellular uptake and intracellular pathway of folate linked anticancer therapeutic agents using advanced imaging and spectroscopy methods” PIs: Ji-Xin Cheng and Philip Low	$25,000	07/01/04 – 06/30/06
American Chemical Society PRF # 41741-G7	“Chemical imaging of spontaneous emulsification using coherent anti-Stokes Raman scattering microscopy” PI: Ji-Xin Cheng	$35,000	09/01/04 – 08/31/06
Charles E. Culpeper Biomedical Pilot Initiative	“Three-color coherent anti-Stokes Raman scattering microscopy for imaging specific molecules without fluorophore labeling” PI: Ji-Xin Cheng	$25,000	07/01/04 - 06/30/05
Purdue Research Foundation	Summer Faculty Grant PI: Ji-Xin Cheng	$7,000	2004 Summer

Part II. Entrepreneurship

A. Companies fo-founded

Vibronix Inc, 2014

Co-founders: Ji-Xin Cheng, Pu Wang

Awards in business plan competitions:

- First place in BMEidea competition, sponsored by VentureWell, 2015.
- Finalist in national *InnovateHER* competition. Vibronix is the only team from State of Indiana, 2016.
- *Second place in Purdue University Burton D. Morgan Business plan competition*, 2016.
- Finalist *in Rice Business Plan Competition.* Only team from State of Indiana, 2016.
- *Second place in Carnegie Mellon University Venture Competition*, 2016.

Funds received:
2019: NSF SBIR "fiber optoacoustic guide for precision lumpectomy", phase 2
2017: NSF SBIR "fiber optoacoustic guide for precision lumpectomy", phase 1
2016: NIH STTR R41CA200006 "High-speed intraoperative assessment of breast tumor margin using Margin PAT**"**, phase 1
2016: Vibronix Inc finished a due diligence process and received $1.2 M convertible note from Elevated Venture and Sino-American Venture Funds.
2015: NIH STTR R41 CA2192645 "Diagnosing aggressive prostate cancer by spectroscopic photoacoustic tomography", phase 1

Resarci Therapeutics LLC, 2015

Co-founders: Ji-Xin Cheng, Junjie Li, Timothy Ratliff
Resarchi Therapeutics repurposes metabolic drugs for treatment of aggressive human cancers.
Closed in 2019

Pulsethera Corp, 2019

Co-founders: Ji-Xin Cheng, Steven Qian, Michael Mansour
2021 STTR phase 1, blue light treatment of acne

B. Issued/licensed US Patents

Inventors	Title	Status
Ji-Xin Cheng et al	BACTERIALCIDAL METHODS AND COMPOSITIONS	Licensed to Pulsethera
Ji-Xin Cheng, Mohamed Seleem, and Weili Hong	METHOD FOR THE DETERMINATION OF ANTIBIOTIC SUSCEPTIBILITY THROUGH STIMULATED RAMAN METABOLIC IMAGING	WO2019051398 A1 (PCT) Licensed to Vibronix Inc
Ji-Xin Cheng, Delong Zhang, Ali Shakouri, D. Kerry Maize, Yeran Bai	WIDE-FIELD MID-INFRARED PHOTOTHERMAL MICROSCOPY: METHODS AND DEVICE	WO 2020/123497 A1; PCT/US20 19/065466; Licensed to Photothermal Spectroscopy Corp
Ji-Xin Cheng Delong Zhang	Depth-resolved mid-infrared photothermal imaging of living cells and organisms with sub-micron spatial resolution	WO2018064028A1;PCT/US2017/053407 Licensed to Photothermal Spectroscopy Corp
Ji-Xin Cheng Yingchun Cao	Intravascular photoacoustic tomography apparatus and method thereof	WO2019222505A1, licensed to Vibronix Inc
Ji-Xin Cheng Mohamed Seleem Pu-Ting Dong Jie Hui	METHOD AND DEVICE FOR ANNIHILATION OF METHICILLIN-RESISTANT Staphylococcus aureus	US20190126063A1
Ji-Xin Cheng Mingji Dai	Raman Tag	US9,688,717 B2 Issued 6/27/2017
Ji-Xin Cheng Mikhail N. Slipchenko Robert A Oglesbee	System and methods for multiplex spectroscopic imaging, PRF 66798	US9,068,949 B2, Issued 06/30/2015 Licensed to Vibronix Inc
Ji-Xin Cheng	Vibrational photoacoustic tomography using Raman laser	US9357928 B2, Issued 06/07/2016 Licensed to Vibronix
Ji-Xin Cheng	Methods for determining aggressiveness of a cancer and treatment thereof	US9,164,084 B2, Issued 10/20/2015 Licensed to Resarci Therapeutics
Ji-Xin Cheng, Mikhail N. Slipchenko Robert A Oglesbee	Method and device for optical imaging with a resonant amplifier assembly	US9,222,878 B2, Issued 12/29/2015 Licensed to Vibronix Inc
Ji-Xin Cheng	"Multimodal Platform for nonlinear optical	US8,994,932 B2, Issued 03/31/2015

Hongtao Chen Mikhail N. Slipchenko Haifeng Wang	microscopy and micro-spectroscopy" PRF 65234. Provisional 12/2008. PCT 12/ 2009.	Licensed to Vibronix Inc
Philip Low Ji-Xin Cheng Wei He	Multiphoton In Vivo Flow Cytometer Method and Device	US8,795,633 B2, Issued 08/05/2014
X. S. Xie, A. Volkmer, Ji-Xin Cheng	System and Method for Epi-detected Coherent Anti-Stokes Raman Scattering Microscopy	US 6,809,814 B2, Issued 10/26/2004 Licensed to Olympus & Leica
X.S. Xie, Ji-Xin Cheng	System and Method for Polarization Coherent Anti-Stokes Raman Scattering Microscopy	US 6,798,507 B2, Issued 09/28/2004 Licensed to Olympus & Leica

Part III. Teaching and Mentoring

A. Courses developed and taught

Semester & Year	Course Number, Credit Hour, Type	Course Title	# of Students	Overall Course Rating	Overall Instructor Rating
Fall 2003	BME 595Z/ CHM 599Z	Biomedical Optics 3 cr. lecture	14	4.6/5.0 BME 4.8/5.0 CHM	4.2/5.0 BME 4.8/5.0 CHM
Fall 2004	BME 595Z/ CHM 599Z	Biomedical Optics 3 cr. lecture	16	3.7/5.0 BME 3.8/5.0 CHM	3.3/5.0 BME 3.6/5.0 CHM
Fall 2005	BME 595Z/ CHM 599Z	Biomedical Optics 3 cr. lecture	20	4.2/5.0 BME 4.3/5.0 CHM	3.8/5.0 BME 4.3/5.0 CHM
Fall 2006	BME 553, 3 cr. Lecture	Biomedical Optics	10	4.1/5.0	3.9/5.0
Fall 2006	BME695Y, 1 cr. Lecture	Critical Literature Review	16	3.6/5.0	3.0/5.0
Fall 2007	BME 305 2 cr. Lecture/Lab	Biomedical Instrumentation	45	3.5/5.0 (Lec) 3.7/5.0 (Lab)	2.7/5.0 (Lec) 3.1/5.0 (Lab)
Spring 2008	BME 553	Biomedical Optics	15	4.2/5.0	4.2/5.0
Spring 2008	BME 295S	Frontiers in Biomedical Engineering	55	3.2/5.0	3.9/5.0
Fall 2008	BME305 2 cr. Lecture/Lab	Biomedical Instrumentation	58	4.0/5.0 (Lec) 3.8/5.0 (Lab)	3.5/5.0 (Lec) 3.4/5.0 (Lab)
Spring 2009	BME 553	Biomedical Optics	6	4.8/5.0	4.8/5.0
Fall 2009	BME305 (3 cr.) Lecture/lab	Biomedical Instrumentation	55	3.6/5.0	3.8/5.0
Spring 2010	BME 553 (3 cr.)	Biomedical Optics	12	4.0/5.0	4.0/5.0
Fall 2010	BME 305 (3 cr.) Lecture/lab	Biomedical Instrumentation	60	3.7/5.0	3.7/5.0
Fall 2011	BME305 (3 cr.)	Biomedical Instrumentation	61	2.7/5.0	2.1/5.0
Spring 2012	BME 553 (3 cr.)	Biomedical Optics	15	4.2/5.0	4.5/5.0
Fall 2012	BME 305 (3 cr.)	Biomedical Instrumentation	65		
Fall 2012	BME695 (1 cr.)	Critical Literature Analysis	6		
Fall 2013	BME305 (3 cr.)	Biomedical Instrumentation	65		
Fall 2013	BME695 (1 cr.)	Critical Literature Analysis	7		

Spring 2014	BME 695 (3 cr.)	Frontiers of Bio-photonics	6		
Spring 2016	BME 695 / CHM676	Frontiers of Bio-photonics	20		
Spring 2017	BME299	Undergraduate research scholar program I	10		
Fall 2017	**Transition to BU**				
Spring 2018	EC500/BE500 Boston University	Optical Spectroscopic Imaging	10	4.9/5.0	4.9/5.0
Spring 2019	EC500/BE500, BU	Optical Spectroscopic Imaging	14	4.3/5.0	4.3/5.0
Spring 2020	EC556/BE556	Optical Spectroscopic Imaging	16	4.3/5.0	4.3/5.0
Fall 2020	EK100	Undergraduate advising	9	4.29/5.0	4.43/5.0
Spring 2021	EC556/BE556	Optical Spectroscopic Imaging	17	4.3/5.0	4.3/5.0
Spring 2022	EC556/BE556	Optical Spectroscopic Imaging	21		

B. Ph. D. Supervised (32)

No.	Name	Degree	Year	Major	Current position	Thesis title
1	Li Li	PhD	May 2008	Analytical Chemistry	NA	Imaging of lipid membrane organization and internalization pathways of cell-penetrating peptides
2	Hongtao Chen	PhD	May 2009	Biomedical Engineering	Center manager, NW	Chemical imaging of nanocarriers in live cells and live animals
3	Yan Fu	PhD	Dec 2009	Biomedical Engineering	NA	Study of Myelin Disease by Coherent anti-Stokes Raman Scattering Microscopy
4	Brandon Huff	PhD	Dec 2009	Analytical Chemistry	MD	Ex vivo and in vivo coherent Raman imaging of the peripheral and central nervous system
5	Yunzhou Shi	PhD	Dec 2010	Biomedical Engineering	Director, Samsung	Nanomedicine and chemical imaging approaches to traumatic spinal cord injury
6	Yookyung Jung	PhD	Dec 2010	Physics	Center manager, Tufts	Nonlinear optical imaging of nanomaterials and transient absorption microscopy
7	Ling Tong	PhD	Dec 2010	Analytical Chemistry	Research Scientist, Stanford	Imaging nanomaterials in vitro and in vivo by exploring their intrinsic nonlinear optical signals
8	Han-Wei Wang	PhD	Aug 2011	Biomedical Engineering	Group leader, Li-COR Bioscience	Label-free Bond-selective Imaging of Atherosclerosis
9	Shuhua Yue	PhD	Dec 2013	Biomedical Engineering	Professor, Beihang Univ	Altered Cholesterol Metabolism in Human Cancers Unravelled by Label-free Spectroscopic Imaging
10	Delong Zhang	PhD	Aug 2014	Analytical Chemistry	Professor, JZU	Stimulated Raman Scattering Microscopy
11	Seung Young Lee	PhD	Aug 2014	Biomedical Engineering	Professor, UIC	Nanomedicines for cancer chemotherapy
12	Pu Wang	PhD	Aug 2014	Biomedical Engineering	CEO Vibronix; faculty, Beihang Univ	Intravascular photoacoustic imaging for cardiovascular disease management
13	Junjie Li	PhD	Aug 2015	Biological Science	Scientist, Pfizer	Raman spectroscopic imaging reveals lipid metabolism as a marker and therapeutic target of cancers
14	Bin Liu	PhD	2016	Optical	Engineer, MKS	High-spectral-resolution stimulated Raman

				Engineering		spectroscopic imaging and its applications
15	Rui Li	PhD	May 2017	BME	CFO, Vibronix	High-speed intraoperative assessment of breast tumor margins using a multimodal vibrational photoacoustic tomography system
16	Chien-Sheng Liao	PhD	May 2017	BME	Senior Scientist, Thermo	Microsecond-scale stimulated Raman spectroscopic imaging: technical innovations & biomedical applications
17	Hyeon Jeong Lee	PhD	Dec 2017	Biology / PULSe	Professor, ZJU	Imaging cholesterol metabolism and trafficking by stimulated Raman scattering microscopy
18	Jie Hui	PhD	Dec 2017	Physics	Postdoc, MGH	Intravascular photoacoustic imaging of lipid-laden plaque: from fundamental concept towards clinical translation
19	Ayeeshik Kole	MD PhD	Feb 2018	BME	MD	Depth-resolved assessment of atherosclerosis by intravascular photo-acoustic-ultrasound imaging
20	Andy Jing Chen	PhD	Aug 2018	Biology	Patent Lawyer	Label free chemical imaging reveals novel metabolic signatures in living model organisms
21	Brittani Bungart	MD PhD	Feb 2019	BME	MD, MGH	DEVICE AND ANALYSIS ADVANCEMENTS TOWARDS PHOTOACOUSTIC TOMOGRAPHY-GUIDED PROSTATE BIOPSY
22	Yeran Bai	PhD	May 2019	Optical Engineering	Postdoc, UCSB	Mid-infrared photothermal spectroscopic imaging
23	Lu Lan	PhD	Aug 2019	BME	CTO, Vibronics	Photo- and thermos-acoustic imaging and sensing
24	Pu-Ting Dong	PhD	Dec 2019	Chemistry	Postdoc, Harvard	SINGLE-CELL PUMP PROBE IMAGING OF INTRINSIC CHROMOPHORES IDENTIFIES DIAGNOSTIC MARKER AND THERAPEUTIC TARGET OF DISEASES
25	Kai-Chih Huang	PhD	Dec 2019	BME	Cygnal therapeutics	Single-cell metabolic analysis by stimulated Raman scattering cytometry
26	Minghua Zhuge	PhD	May 2020	Optical Engineering	Postdoc, Shenzhen	Ultrasensitive SRS imaging
27	Chen Li	PhD	May 2020	Chemistry	Scientist, Cytochip Inc	Mid-infrared photothermal microscopy for improved chemical imaging
28	Jiayingzi Wu	PhD	May 2020	Chemistry	Res Scientist, Shenzhen U	Photoacoustic imaging in near II window using semi-conducting polymers
29	Caroline W Karanja	PhD	Dec 2020	Chemistry	Postdoc, Cornell	TOWARDS EFFICACIOUS MANAGEMENT OF MICROBIAL INFECTIONS
30	Ying Jiang	PhD	Jan 2021	Neuroscience	Postdoc, MIT	HIGH PRECISION OPTOACOUSTIC NEURAL MODULATION
31	Haonan Lin	PhD	Sept 2021	Biomedical Engineering	Postdoc, BU	STIMULATED RAMAN SPECTROSCOPIC IMAGING:DATA SCIENCE DRIVEN INNOVATIONS & APPLICATIONS
32	Yi Zhang	PhD	Jan 2022	Physics	Scientist, Huawei	Pushing the Physical Limits of Chemical Imaging
33	Peng Lin	PhD	May 2022	ECE	Scientist, Apple	Volumetric Stimulated Raman Scattering Imaging

M.S. supervised (8)

No.	Name	Degree	Graduation	Major	Current position	Thesis title
1	Zhu, Jiabin	MS	Dec 2008	Biomedical Engineering	NA	A Dynamic, Cytoplasmic Triacylglycerol Pool in Enterocytes Revealed by ex vivo and in vivo Coherent Anti-Stokes Raman Scattering Imaging
2	Lin, Nan	MS	May 2010	Biomedical	NA	Synthesis and optical properties

				engineering		of Si-Au core-shell nanowires
3	Tyler, Jacqueline	MS	Aug 2013	Biomedical Engineering	Genetech	Treating acute spinal cord injury with methylprednisolone modified and loaded glycol chitosan nanocarriers
4	Liu, Rui	MS	Dec 2018	liu1312@bu.edu	Moderna	NA
5	Zhan, Yuewei	MS	Dec 2019	BME	In China	Near infrared anti-microbial therapy
6	Chen, Fukai	MS	Sept 2021	Biology	PhD BU	LIPA-DRIVEN CHOLESTEROL ESTER HYDROLYSIS PROMOTES CANCER AGGRESSIVENESS
7	Wang, Runyu	MS	Jan 2022	ECE	In China	NA
8	Wang, Zian	MS	Jan 2022	BME	PhD BU	Rapid Antifungal Susceptibility Testing by Spectroscopic Stimulated Raman Scattering imaging of D_2O Metabolism
9	Yang, Yongjie	MS	Jan 2022	ECE	NA	NA

Current Cheng Group

Current Ph.D. and M.S. Students

Name	Major	Project	Entering	Projected Grad Date
MS candidates	**3 total**			
Chen, Yuqi	BME	photothermal	Sept 2022	
Xu, XinXin	MSE	nanomaterial	Sept 2022	
Chen, Jiyang	BME	phototherapy	Sept 2022	
PhD candidates	**19 Total**			
Ding, Guangrui	ECE	Deep learning SRS	Sept 2021	TBD
Hyman, Mackenzie	BME	Neuromodulation	Sept 2021	TBD
Teng, Xinyan	Chemistry	Probe development	Sept 2021	TBD
Li, Mingsheng	ECE	PA imaging	Sept 2021	TBD
Marar, Carolyn	BME	Neuromodulation	Sept 2020	TBD
Zhan, Yuewei	BME	Microbiology	Sept 2020	In China, research leave
Dessai, Chinmayee	BME	Cancer, SRS	Sept 2020	TBD
Jia, Danchen	ECE	MIP, nano	Sept 2020	TBD
Guo, Zhongyue	BME	MIP	Sept 2019	TBD
Yin, Jiaze	ECE	MIP	Sept 2019	TBD
Ge, Xiaowei	ECE	SRS	Sept 2019	TBD
Ni, Hongli	ECE	SRS	Sept 2019	TBD
Zhang, Jing	BME	SRS	Sept 2018	TBD
Li, Yueming	ME	Neuromodulation	Sept 2018	TBD
Zong, Haonan	ECE	MIP	Sept 2018	TBD
Zhu, Yifan	Chemistry	SRS	Sept 2018	TBD
Tan, Yuying	BME	Cancer	Sept 2017	Dec 2022
Jusuf, Sebastian	BME	Phototherapy	Sept 2017	Dec 2022
Lin, Peng	BME	SRS	Sept 2016	May 2022, BU ECE

Current postdoctoral fellows and research scientists (7 total)

Name	Period in Cheng lab	Project	Graduated from

Zhang, Guangju	Nov 2020 to Oct 2022	IVPA imaging	Tsinghua University
Lan, Lu (part time)	Sept 2019 to present	IR and neuromodulation	Boston University
Wang, Le	Sept 2020 to present	Nanoscale imaging	Lehigh University
Zhao, Jian	Oct 2019 ~ Aug 2022	Bond-selective IDT	CREOL
Zhang, Meng	March 2018 to present	AST	Xiamen University
Xia, Qing	Oct 2021 to present	Wide-field MIP	Nanjing University
Lin, Haonan	Oct 2021 to Aug 2022	SRS	Boston University

Current Visiting Scholars: NA

Name		Period in Cheng lab	Email	from

C. Supervision of Undergraduate Research Projects:

Current: Saif Ragab (BME, 2022 summer); Stefan A Scott (BME, 2022 spring)

Past: Tiffany Tran-Tang (BME, 2017 to 2019, UROP awardee), Ketan Gupta (BME, 2017 to 2019, UROP awardee), Katherine Reny (BME, 2017-2018), Antony Perry (BME, 2017-2018), Christian Mancini (BME, 2017-2018); Chengqian Zhou (BME 2017-2019), Jason Qian (summer 2019); Yifan Zhu (2017 summer), Shuaibin Chang (2017 summer), Jieying Mai (BME, 2016-2017), Shovik (Biology, 2014-2017), Rui Liu (ABE, 2016 - 2017), Xueyong Zhang (Chem, 2016-2017), Jien Nee Tai (Chemistry 2013-2016), Clara Suh (Biochemistry, 2013-2016), Yuming Gao (BME 2014), Forrest Oberhelman (Biology 14-15), Scott Vicenzi (Biology 2014), Alan Poon (BME2013), Zhouyang Lou (HHMI summer 2013); Tzu-Hsiang Pan (Biology 2012); Elizabeth A Hudson (BME 2012); Jackie Tyler (BME, 2010-12), Ronit Patnaik (BME, 2010), Anna Sullivan (ChE, 2010, *Silicon Fellowship*), Hao Lou (Pharmacy, 2009-2010), Peter Coleman (Chemistry, 2010), Kevin Shyu (08 SURF), Cynthia Huang (08 SURF), Kevin Cheng (08), Alan Wang (08), Joshua Robinson (05-07, *Margerum Research Award*), Kaleigh Evans (05 SURF), Amp Chandrruangphen (2004, *Margerum Research Award*), Michael Chang (04 SURF), Kathryn A. Antle (REU 04), Merrit Debartolo (REU 04), Jonathan Sutcliffe (03 CHM499).

D. Former Postdoctoral Fellows (23)

No.	Name	In Cheng lab	Email	Current postion
1	Wang, Haifeng	2004-2007	phywh@nus.edu.sg	Faculty, National University of Singapore
2	Le, Thuc	2006-2010, NIH F32 fellowship	thuc@uchicago.edu	Faculty, Roseman Univ of Health Sciences, Las Vegas
3	Liu, Yuxiang	2011-2012	yliu11@wpi.edu	Faculty, Worcester Polytechnic Institute
4	Justin R. RAJIAN	2012-2013	NA	NA
5	Wang, Ping	2012-2015	ping79.wang@gmail.com	Faculty, Huazhong Univ of Sci & Tech
6	Song, Bing	2012-2013	bsong1023@gmial.com	Postdoc, Harvard MGH, back to Zhengzhou
7	Deng, Shibing	2016 Feb – Nov	Deng109@purdue.edu	Postdoc, Purdue Chemistry
8	Slipchenko, Mikhail	2008 -	mslipch@gmail.com	Research Associate Professor, Purdue
9	Wang, Pu	Sep 2014 to Dec 2016	Puwang101@gmail.com	CEO of Vibronix INC
10	Hong, Weili	May 2015 ~ May 2018	Hong215@purdue.edu weilihong@buaa.edu.cn	Faculty, Beihang University
11	Liao, Chien-Sheng	July 2017 ~ Feb 2018	cksearching@gmail.com	Pendar Technologies, Thermo Fisher
12	Chang, Jesse	June 2014 ~ July 2018	zhangchi@illinois.edu	Assistant Professor, Purdue University
13	Zhang, Delong	Sept 2014 ~ May 2019	dlzhang@zju.edu.cn	Faculty, Zhejiang University
14	Deng, Max	July 2018 ~ April 2019	maxd@liquidinstruments.com	Joined a start-up https://www.liquidinstruments.com/

15	Li, Junjie	Sept 2015~ July 2019	junjiel168@gmail.com	Scientist at Pfizer
16	Lee, Hyeon Jeong	Jan 2018 to Aug 2019	hyjglee@gmail.com	Faculty, Zhejiang University
17	Cao, Yingchun	March 2015 ~ Dec 2019	ychcao1984@gmail.com	Scientist, Dassault Systemes
18	Hui, Jie	Jan 2018 ~ Jan 2020	Jhui1@mgh.harvard.edu	Postdoc at MGH
19	Dong, Pu-Ting	Feb 2020 ~ July 2020	pdong@forsyth.org	Postdoc at Harvard Dental School
20	Chen, Zhicong	Sept 2020 ~ July 2021	zcchen_n@163.com	MD, Guangzhou
21	Zong, Cheng	Jan 2017~ Sept 2021	czongcz@gmail.com	Scientist, Bay Spec
22	Bai, Yeran	Oct 2016 to Sept 2021	byr1213@163.com	Postdoc, UCSB
23	Jiang, Ying	April 2021 to Dec 2021		Postdoc, MIT

E. Former Visiting Scholars

	Name	In Cheng lab	Email	Current position
1	Shuyi WANG	2006-2007		Professor, University of Shanghai for Science and Technology
2	Hong-Qin YANG	11 Nov – 12 Nov	hqyang@fjnu.edu.cn	Professor, Fujian Normal University
3	Wei WU	2011-2012	wu99@iupui.edu	Postdoc, IUSM
4	Chunrui HU	2011-2013	chunrhu@gmail.com	Postdoc, USTC
5	Bin Liu (CSC)	13 Sept-15 Sept	liu1268@foxmail.com	PhD student, Harbin Institute of Technology
6	Xiaochao QU	14 Sept-15 Sept	xiachaoqu@gmail.com	Associate professor in Xidian University
7	Yuanqin XIA	2015 Sept	xiayuanqin@hit.edu.cn	Harbin Institute of Technology
8	Huaidong YANG	2015 Aug	yanghd@mail.tsinghua.edu.cn	Tsinghua University
9	Fuyou LI	2015 Feb to July	fyli@fudan.edu.cn	Fudan University
10	Mei Shi	2015 – 2016		Fudan University
11	Yin-Xin Zhang	2015 – 2016	yinxin@tju.edu.cn	Tianjin University
12	Wei Chen CSC	2015 – 2016	chw111@mail.ustc.edu.cn	USTC
13	Xueli Chen	March 2015 – March 2017	xuelichenmig@gmail.com	Xidian University
14	Yiru Peng	July to Dec 2016		Fujian Norman University
15	Hao Wang	Feb 2016 to Feb 2017		Fujian Norman University
16	Chunguang Zhang	Feb 2016 to Feb 2017		Fujian Norman University
17	Yue Zhong	Sept 16 to Sept 17		Beijing
18	Frank Lloyd	2016 to 2017		MD, Indianapolis
19	Yifan Zhu	2017 10~12	Zhuf3@mail.sustic.edu.cn	S-USTC, joined BU Sept 2018
20	Shuaibing Chang	2017 Summer	csb@mail.ustc.edu.cn	USTC, joined BU sept 2018
21	Liang, Lijia CSC	Nov 16~May 18	lijialiang3649@163.com	Faculty
22	Ni, Hongli	2018 Summer		Zhejiang University, joined BU Sept 2019
23	Chen, Shufan	Sept 18~June 19	chenshufan@tju.edu.cn	Tianjin University, MS student
24	Li, Xiaojie (CSC)	Nov 2017 to Nov 2019	hitwhlxj@163.com	Lecturer of BME, Wenzhou Medical University
25	Sun, Jieliyue	2019 Summer		Brown University
26	Xu, Jiabao	June 2019 to Nov 2019		Oxford University, postdoc
27	Zhuge, Minghua	Sept 2018 to Dec 2019	cocky_string@163.com	Zhejiang University, now postdoc at Shenzhen

28	Dong, Dashan	March 2019 to May 2019		Peking University
29	Mavrakis, Kostas	Sept 2019 to Mar 2020		University of Crete
30	Ji, Ziheng	Aug 2019 to Aug 2020		Peking University
31	Guo, Qianjin	Dec 2019 to Nov 30 2020	guoqj@iccas.ac.cn	CAS Institute of Chemistry
32	Chen, Zhicong	2019 to July 2021	Zcchen_n@163.com	Hospital at Guangzhou

Part IV. Invited and Keynote Presentations (total >300)

Invited talks in conferences and institutes (year 2021)

1. Dec 2021, IMAT meeting, NIH, imaging cancer metabolism at single cell level by SRS microscopy
2. Dec 2021, seminar at Tsinghua, Department of Precision Instruments, Watching life at molecular level by bond-selective chemical imaging
3. Dec 2021, BAARN, Harvard, Eliminating Drug-resistant Bacteria and Fungi by Photo-bleaching of Intrinsic Chromophore
4. Dec 2021, OPTICS, Taiwan, "Bond-selective imaging by optically sensing the mid-infrared photothermal effect"
5. Nov 2021, NPL SRS workshop, UK, "SRS microscopy, the future is bright"
6. Nov 2021, Logic lab molecular sensing symposium, "Watching life at molecular level by advanced chemical microscopy"
7. Nov 2021, Wiley Conference, "Coherent Raman Scattering Microscopy: Technical Innovations and Biomedical Applications"
8. Aug 2021, ICAVS-11, "Mid-infrared photothermal microscopy"
9. Aug 2021, ACS fall meeting, Coherent Raman Scattering Microscopy: Technical Innovations and Biomedical Applications
10. July 2021, OECC, Hongkong, Bond-Selective Imaging by Optically Sensing the Mid-Infrared Photothermal Effect
11. June 2021, webinar in Chinese, "中红外光热显微镜"
12. May 2021, Photothermal microscopy and spectroscopy webinar, organized by Orrit, "Mid-infrared photothermal microscopy"
13. April 2021, OSA Biomedical Optics, Optics and Brain, "Non-genetic high-precision neural stimulation using laser-produced ultrasound"
14. April 2021, LAMP seminar at UC Irvine, "**Harnessing Photons for Label-free Chemical Imaging, High-Precision Neuromodulation, and Killing of Superbugs**".
15. Jan 2021, "Seeing Life at Molecular Level via Advanced Chemical Microscopy", Keynote Speech in inaugural Photonic Spectra Conference

Invited talks in conferences and institutes (year 2020)

16. Dec 2020, Vebleo Lecture (zoom), Harnessing Photons for Label-free Chemical Imaging and Precision Medicine
17. Aug 2020, ACS meeting (zoom), O-PTIR Microscopy
18. May 23, 2020, Light Scattering Workshop, organized by Max Planck Institute for the Science of Light
19. May 6, 2020, webinar, O-PTIR microscopy
20. March 3, 2020, PITTCON, Pittsburgh Spectroscopy Award Speech, "understanding life at molecular level by advanced chemical microscopy"
21. Feb 14, 2020, Harvard, SEAS Colloqium
22. Feb 3, 2020, Photonics West, multiphoton symposium, "photoherapy"
23. Feb 3, 2020, Photonics West, Keynote speech in label-free symposium
24. Feb 1, 2020, Photonics West, Advanced Chemical Microscopy, Chair Introduction
25. Jan 14, 2020, BU Neurophotonics Center annual symposium

Invited talks in conferences and institutes (year 2019)

26. Dec 5, 2019, UT Austin BME seminar
27. Dec 2, 2019, Odense, Denmark, CRS workshop
28. Nov 24, 2019, Osaka university, Biomedical Raman Conference
29. Nov 21, 2019, BU Photonics Center Annual Symposium, "Harnessing and manipulating photons for precision medicine"
30. Nov 05, 2019, Lehigh University, Department of Chemistry Seminar
31. Oct 14, 2019, SciX meeting, "SRS Imaging Cytometry"

32. Oct 14, 2019, SciX, Plenary Talk for Lippincott Award, "**From Bond-selective Chemistry to Imaging: my 30 years' learning and innovating vibrational spectroscopy**"
33. Oct 3, 2019, University of Vienna, Seminar in microbiology department
34. Sept 28, 2019, USTC Boston Peak Summit
35. Sept 9, 2019, Photothermal IR Webinar
36. Sept 4, 2019, BU Department of Dermatology seminar
37. Aug 25, 2019, San Diego, ACS meeting, Chemical imaging of Living systems at time and space limits
38. Aug 2, 2019, Zhejiang University Seminar, Chemical imaging of Living systems at time and space limits
39. July 11, 2019, BU Medical Campus, Department of Surgery
40. June 27, 2019, Munich, CLEO, bond-selective transient phase imaging
41. June 26, Paris, ENS seminar
42. June 25, 2019, Ramanfest, Oxford University
43. May 30, 2019, Infraredx, intravascular photoacoustic imaging
44. May 17, 2019, MERCK seminar, Chemical microscopy
45. May 7, 2019, CLEO invited, Deep learning SRS microscopy
46. April 15, 2019, OSA Biophotonics, Deep Learning SRS imaging
47. April 2, 2019, MIT, Modern Optical Spectroscopy Seminar
48. March 19, 2019, PITTCON, "enabling precision medical via innovations in chemical microscopy"
49. March 18, 2019, PITTCON, "Mid-infrared photothermal microscopy"
50. March 14, 2019, Harvard Joslin Diabetic Center, "Imaging single cell metabolism"
51. Feb 22, 2019, UMD Bioengineering seminar, "Chemical microscopy"
52. Feb 15, 2019, Yale University Applied Physics Seminar, "Chemical microscopy"
53. Feb 3, 2019, Photonics West, "IR chemical microscopy"
54. Feb 2, 2019, Photonics West, "Bond-selective transient phase imaging"
55. Jan 15, 2019, UC Irvine, PCHEM seminar, "Chemical microscopy: seeing hidden signatures in living system"
56. Jan 9, 2019, BU Medical School GI Round, "Chemical microscopy: seeing hidden signatures in living system"

Invited talks in conferences and institutes (year 2018)

57. Dec 6, 2018, "Eliminating drug-resistant bacteria via photobleaching of intrinsic chromophore", OPTIC2018, Tainan, Taiwan
58. Dec 5, 2018, "Enabling precision medicine through innovations in chemical microscopy", National Tsing- Hua University
59. Dec 4, 2018, "Enabling precision medicine through innovations in chemical microscopy", Colloquium in physics department, NTU, Taipei, Taiwan
60. Dec 3, 2018, "Highly sensitive chemical microscopy using molecular fingerprints", Keynote speech, NTU BMI symposium, Taipei, Taiwan
61. Nov 11, 2018, "Highly sensitive chemical imaging in the mid-infrared", Label-free workshop, MPQ, Munich, Germany
62. Nov 05, 2018, "Enabling precision medicine through innovations in chemical microscopy", World Congress on Photonics, Philadelphia
63. Oct 29, 2018, "Enabling precision medicine through innovations in chemical microscopy", Seminar in Engineering Division, Oxford University, UK
64. Oct 21, 2018, "Deep learning SRS microscopy", SciX meeting, Atlanta, GA
65. Oct 08, 2018, "Elucidating rules of life through innovations in chemical microscopy", Colloquium, EPFL, Lausanne, Switzerland
66. Oct 05, 2018, "Coherent Raman scattering microscopy", MIFOBIO, Seigosse, France
67. Sept 30, 2018, "Enabling precision medicine through innovations in biophotonics", BCIC, Boston, MA
68. Sept 05, 2018, "Seeing chemistry in living cells", Colloquium, Brandeis University
69. Aug 21, 2018, "SRS imaging cytometry", ACS fall meeting, Boston, MA
70. Aug 19, 2018, "Transient absorption microscopy", ACS fall meeting, Boston, MA
71. Aug 19, 2018, "Bond-selective phase imaging", ACS fall meeting, Boston, MA
72. Aug 16, 2018, "Molecular structure elucidation and modulation in living cells", GRC, molecular structure elucidation, Jordan Hotel at Sunday River, Maine
73. July 07, 2018, "Transient absorption microscopy of heme", GRC conference on Chemistry and Biology of Tetrapyrroles, Newport, RI
74. July 09, 2018, "Label-free Chemical Microscopy", Colloquium at MPQ, Munich, Germany
75. June 17 to 22, "Laser-based label-free chemical imaging", in Gordon Conference, Lasers in nano, bio, micro-systems, Waterville Valley, NIH
76. June 6, 2018, "Chemical Microscopy: seeing the unseen", College of Physics, Peking University, Beijing, China
77. June 2 to 3, 1st Beihang International Symposium on Medical Photonics, Beihang University, Beijing, China

78. May 14 to 18, “Annihilation of Methicillin-Resistant *Staphylococcus Aureus* (MRSA) via Photobleaching of Staphyloxanthin”, CLEO, San Jose, CA
79. April 24, 2018, “Chemical imaging of living systems”, Wellman Center for Photomedicine, Boston, MA
80. April 9, 2018, “Seeing the unseen using molecular fingerprints”, Sanofi, MA
81. April 5, 2018, “Living System Spectroscopy”, Colloquium, University of Arizona, Department of Chemistry and Biochemistry.
82. March 12-13, “Label-free chemical imaging: Unveiling hidden signatures for molecule-based diagnosis and treatment”, in FIP symposium, Duke University
83. 02-28-2018, “Killing superbug MRSA with photons”, Photonics Forum, Boston University, Boston, MA
84. 02-24-2018, Keynote speaker, “Seeing the unseen in living systems through molecular fingerprints”, Boston Photonics Conference, Boston, MA.
85. 02-23-2018, Seminar in Department of Biomedical Engineering, University of Virginia
86. 01-12-2018, PQE Plenary Talk, “Label-free spectroscopic imaging, from physics to medicine”, Snowbird, Utah

Invited talks in conferences and institutes (year 2017)

87. 10-20-2017, Seminar in Mechanical Engineering, Boston University, Boston, MA
88. 10-16-2017, Seminar in Tufts University BME Department, Boston, MA
89. 10-12-2017, SciX Innovation Award Symposium, “Probing cancer with spontaneous and stimulated Raman scattering”, Reno, Nevada
90. 10-02-2017, IEEE Photonics, “Pushing the physical limits of label-free spectroscopic imaging for biology and medicine”, Orlando, FL
91. 09-22-2017, Medicine Conference, “无标记分子诊疗的技术前沿与应用”,Shijiazhuang, China
92. 09-16-2017, Applied Spectroscopy Symposium, “Revisiting the little animals under a chemical microscope”, Purdue University, West Lafayette, IN
93. 08-17-2017, Proteomics Center, Beijing, China
94. 08-16-2017, Peking University 1st Hospital, Beijing, China
95. 08-15-2017, 301 Hospital, Beijing, China
96. 08-03-2017, Frontiers and Challenges of Laser-based Microscopy Symposium, “Revisiting the little animals under a chemical microscope”, Telluride, CO
97. 06-05-2017, Janelia Farm Conference, “Seeing deeper via PA imaging at the second window”.
98. 06-02-2017, Ramanfest, “Latest advances in coherent Raman microscopy”, Purdue University, West Lafayette, IN
99. 05-18-2017, CLEO, “Nonlinear Spectroscopic Imaging”, San Jose, CA
100. 04-03-2017, ECONOS Keynote Speech, “Nonlinear Spectroscopic Imaging: a new window into the unseen world”, Jena, Germany
101. 03-24-2017, Colloquium, Living System Chemistry: Analytical Innovation, Signature Discovery, & Clinical Translation, Chemistry at BU, Boston, MA
102. 03-06-2017, PITTCON, “Seeing the invisible using spectroscopic signal”, Chicago, IL
103. 01-30-2017, SPIE Spectroscopic Imaging, “Pushing the physical limits of spectroscopic imaging”, San Francisco, CA
104. 01-23-2017, Seminar, “Chemical Microscopy”, BU Medical Campus, Boston, MA

Invited talks in conferences and institutes (year 2016)

105. 12-07-2016, “Cancer Metabolism: from single cell biology to in vivo diagnosis”, Boston University Photonics Center Annual Symposium, Boston, MA.
106. 12-01-2016, “Cancer Metabolism: from single cell biology to in vivo diagnosis”, Podium talk in NCI IMAT PI meeting, Bethesda, MD
107. 09-21-2016, “Label-free diagnosis and detection using molecular fingerprint”, SciX meeting, RSC & ACS Joint symposium, Minneapolis.
108. 09-20-2016, “Living system spectroscopy for diagnosis and therapy monitoring”, SciX meeting, Multimodal Imaging symposium, Minneapolis.
109. 09-09-2016, “Lipid metabolism: from single cell biology to in vivo diagnosis”, BTCRC Summit, Indianapolis, IN.
110. 08-21-2016, “Sparsely-sampled stimulated Raman scattering microscopy towards video-rate hyperspectral imaging”, ACS National Meeting, Philadelphia, PA.
111. 07-13-2016, “Imaging metabolism inside living cells”, ISOTT, Chicago, IL.
112. 07-07-2016, “Molecular spectroscopic imaging: An emerging platform for biology and medicine”, Label-free Imaging Workshop, Purdue University.
113. 06-29-2016, “Molecular spectroscopic imaging towards precision medicine”, Cancer Moonshot, Purdue University.
114. 06-20-2016, **Plenary Talk** “Molecular Spectroscopy of Living Systems”, International Symposium of Molecular Spectroscopy, UIUC, Champaign, IL.
115. 05-27-2016, “Label-free spectroscopic imaging towards precision medicine”, Beihang University, Beijing, China.

116. 05-06-2016, “Label-free spectroscopic imaging towards precision medicine”, Department of Bioengineering, UCSD, San Diego, CA.
117. 04-14-2016, “Label-free spectroscopic imaging: An emerging platform for biology and medicine”, IUSM Wells Center, Indianapolis, IN.
118. 04-04-2016, “Label-free spectroscopic imaging: An emerging platform for biology and medicine”, Center for Biophotonics, Vanderbilt University.
119. 03-14-2016, “In vivo vibrational spectroscopic imaging: emerging platform for biology and medicine”, ACS Meeting, San Diego, CA.
120. 03-10-2016, “Label-free spectroscopic imaging for molecular diagnosis”, PITTCON, Lednev Symposium, New Orleans.
121. 03-06-2016, “Vibrational spectroscopic imaging of living system”, PITTCON, In situ Analysis Symposium, New Orleans.
122. 02-14-2016, “Label-free vibrational imaging of membrane potential in live neurons”, Photonics West, Coherent Raman Scattering Microscopy Symposium, San Francisco, CA.
123. 02-14-2016, **Keynote Speech** “Coherent Raman scattering microscopy: An emerging platform for biology and medicine”, Photonics West, Multiphoton Microscopy Symposium, San Francisco, CA.
124. 02-13-2016, “In vivo vibrational imaging: An emerging platform for biology and medicine”, Photonics West, Vibrational Spectroscopy Symposium, San Francisco, CA.
125. 01-29-2016, “Label-free spectroscopic imaging: An emerging platform for biology and medicine”, Boston University Photonics Center, Boston, MA

Invited talks in conferences and institutes (year 2015)

126. Dec 2015, “Transforming vibrational spectroscopy into an in vivo imaging platform for biology and medicine”, Pacific Chem, presented by Delong Zhang, Hawaii, USA
127. Nov 2015, Lipid Metabolism as a Cancer Therapeutic Target Revealed by Raman Spectroscopic Imagi, GTC Novel Cancer Therapeutics Summit 2015 - Cancer Metabolism, presented by Junjie Li, San Francisco, CA
128. Oct 2015, “Pushing the speed limit of label-free hyperspectral microscopy”, presented by Pu Wang, Frontiers in Optics/Laser Science, San Jose, CA
129. Oct 16, 2015, “Label-free spectroscopic imaging of atherosclerosis”, IUPUI Imaging Symposium, Indianapolis, IN.
130. Oct 1, 2015, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Neuroscience Program, IUSM, Indianapolis.
131. Sept 2015, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, sciX, Rode island.
132. Sept 2015, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Department of Nutrition, Purdue University.
133. Aug 215, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Dalian, China
134. Aug 2015, 第十四届全国化学动力学会议, “Dancing with molecules: from bond-selective chemistry to bond-selective imaging”, Xi-An, China.
135. Aug 2015, “Spectroscopic imaging of living systems: emerging platform for biology and medicine”, Eli Lilly, Indianapolis
136. Aug 3-7, 2015, Frontiers and Challenges of Laser-based Microscopy Symposium, “Spectroscopic imaging of living systems: emerging platform for biology and medicine”, Telluride, CO
137. July 2015, Summer Workshop, “In vivo and in situ spectroscopic imaging: emerging platform for biology and medicine”, Purdue University.
138. May 26-28, 2015, Targeting Cancer Metabolism Conference, “Spectroscopic imaging of cancer metabolism at single cell level”, Boston, MA
139. May 2015, Zhejiang University, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Hanzhou, China
140. May 2015, Ramanfest meeting “Stimulated Raman imaging for biology and medicine”, Xiamen China.
141. May 2, 2015, Xiamen University Department of Chemistry, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Xiamen, China.
142. April 2015, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, University of Notre Dame.
143. April 2015, Single Cell Symposium, “Single-cell metabolic imaging using molecular fingerprint”. NIH, Bethesda, MD.
144. April 2, 2015, Purdue Center for Cancer Research, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Purdue University.
145. March 26, Medicinal Chemistry, “In vivo spectroscopic imaging: emerging platform for biology and medicine”, Purdue University.
146. March 11, 2015, PITTCON, “Stimulated Raman spectroscopic imaging”, New Orleans.
147. Feb 10, 2015, SPIE, “Spectroscopic imaging of membrane potential in living neurons”, San Francisco, CA.
148. Jan 4-8, 2015, **Plenary Talk at PQE**, “In vivo spectroscopic imaging for biology and medicine”, Snowbird, Utah.

Invited talks in conferences and institutes (year 2014)

149. Dec 9-10, NSF I/UCRC meeting at UC Davis, “Biophotonics at Purdue University”, Sacramento, CA
150. Nov 2014, STJU, “Frontiers of Label-free Spectroscopic Imaging and its applications to Biology, Medicine and Materials Science”, Shanghai, China.
151. Nov 2014, USTC, same title as above, Hefei, China.
152. Nov 2014, Tianjing University, same title as above, Tianjing, China.
153. Nov 2014, Tsinghua University, same title as above, Beijing, China.
154. Nov 12-13, NIH IMAT meeting, “Imaging cancer cell in metabolic space using molecular fingerprint”, NIH campus, Bethesda, MD
155. Oct 7, Indiana University School of Medicine, “in vivo spectroscopic imaging for paradigm shifting biomedical applications”, Indianapolis, IN
156. Oct 1, FACSS Meeting, “Vibrational imaging beyond the ballistic regime”, Reno, NV.
157. Sept 30, FACSS Meeting, “Imaging single cell metabolism using molecular fingerprint”, Reno, NV.
158. Sept 4, Drug Discovery Center Symposium, “In vivo spectroscopic imaging for biology and medicine”, Purdue University.
159. Sept 16, UIUC BME seminar, “Transforming spectroscopy from in vitro to in vivo for paradigm shifting biomedical applications”, Urbana-Champaign, IL
160. Sept 11, Colloquium in Chemistry Department, “Transforming spectroscopy from in vitro to in vivo for paradigm shifting biomedical applications”, Purdue University.
161. Sept 2, Seminar in Department of Biochemistry, “Imaging biochemistry in living cells using molecular fingerprint”, Purdue University.
162. Aug 10-15, ICORS, “microsecond-scale Raman spectral imaging for in vivo molecular analysis”, Jena, Germany.
163. July 13-18, Gordon Conference on the Lasers in Biology and Medicine, “Vibrational spectroscopic imaging for biology and medicine”, Holderness School, New Hampshire.
164. July 10-11, Label-free Spectroscopy Imaging Workshop, “Resolving the complex machinery of a cell by spectroscopic imaging”, Purdue University.
165. July 1, Vibrational Imaging Workshop, “Deep tissue imaging by listening to molecular vibration”, Marseille, France.
166. June 30, Vibrational Imaging Workshop, “Stimulated Raman scattering microscopy”, Marseille, France.
167. June 26, Beihan University, “Spectroscopic imaging: An emerging platform for biology, medicine and materials science”, Beijing, China
168. June 25, Institute of Chemistry, “Spectroscopic imaging: An emerging platform for biology, medicine and materials science”, Beijing, China
169. June 23, Tsinghua University, “Spectroscopic imaging: An emerging platform for biology, medicine and materials science”, Beijing, China
170. June 12-13, RamanFest at Harvard, “Microsecond Raman spectral imaging”, Boston, MA
171. May 28, UIUC Photonics Workshop, “Label-free visualizaiton of the nervous system with chemical bond selectivity and cm imaging depth”, Champaign, IL
172. May 15, Boston University Photonics Center, “Imaging single cell function with molecular vibrational spectroscopy”, Boston, MA
173. May 7, Structural Biology Seminar, “Imaging single cell function with molecular vibrational spectroscopy”, Purdue University.
174. April 10, Oregon Health & Science University, “Spectroscopic imaging for biology and medicine: pushing the limits of speed, depth, resolution”, Portland, Oregon.
175. Feb 24-25, MIT, “In vivo spectroscopic imaging: analysis of molecules in their natural environment”, Boston, MA.
176. Feb 1-4, 2014, SPIE Photonics West, “Spectroscopic Imaging Unveils the Essential Role of Cholesteryl Ester Accumulation in Cancer Proliferation”, San Francisco, CA. Translational Research Award.
177. Jan 21, 2014, University of Chicago, “In vivo spectroscopic imaging”, Chicago.
178. Jan 5-9, 2014, Planetary talk, “Spectroscopic Imaging: from physics to medicine”, 44th Winter Symposium of Physics of Quantum Electronics, Snowbird, Utah. Not attend due to snow storm.

Invited talks in conferences and institutes (year 2013)

179. Oct 4, 2013, Walther Cancer Foundation Symposium, “Altered cholesterol metabolism: new target for cancer diagnosis and treatment”, Notre Dame, IN
180. Sept 25, 2013, Cornell University, Biophysics Program, “Spectroscopic imaging: analysing molecules in their natural states”, Ithaca, NY
181. Sept 11, 2013, ACS fall meeting, “Spectroscopic imaging: analysing molecules in their natural states”, Indianapolis, IN
182. Sept 5, 2013, “Altered cholesterol metabolism: new avenue to diagnosis and treatment of human prostate cancer”, Cincinnati.
183. Aug 2013, SPIE Optics & Photonics Meeting, “Label-free spectroscopic imaging: seeing the hidden world of biology”, San Diego, CA.

184. Aug 2013, Amgen, “Most recent advances in Raman imaging and applications to pharmaceuticals”, Los Angelos, CA
185. Aug 2013, Coulter Meeting, “Functional Restoration of Traumatically Injured Spinal Cord by a Two-in-One Antioxidant”, Ft Lauderdale, FL
186. Aug 2013, Huston Methodist Hospital, “Label-free spectroscopic imaging: seeing the hidden world of biology”, Huston, Texas.
187. Aug 2013, Telluride Workshop, “Label-free spectroscopic imaging: seeing the hidden world of biology”, Telluride, CO.
188. July 2013, Xiamen University, “Translational medicine using label-free imaging as platform”, Xiamen, China.
189. July 2013, Fujian Normal University, “Translational medicine using label-free imaging as platform”, Fuzhou, China.
190. May 29, 2013, Purdue—Jackson Symposium, “Label-free imaging: a new window into the unseen world”, Bar Harbor, ME.
191. May 23, 2013, Purdue Imaging Workshop, “label-free spectroscopic imaging: a new window into the unseen world”, Purdue University, IN
192. April 30, 2013, MGH Workshop, “Label-free spectroscopic imaging of white matter injury and repair”, Boston, MA
193. April 2013, Janelia Farm, “Spectroscopic imaging: a new window into the unseen world”, Virginia,
194. March 2013, NIH/NIBIB, “Spectroscopic imaging: a new window into the unseen world”, Maryland.
195. March 19, 2013, Advanced Imaging Workshop in UIUC, “Spectroscopic imaging: a new window into the unseen world”, Urbana-Champaign, IL
196. Feb 28 2013, Colloquium in Department of Physics, Purdue University, “Bond-selective imaging: A new window into the unseen world”
197. Feb 2013, Pancreatic Cancer Center, IU School of Medicine, Indianapolis, “Aberrant Cholesterol Metabolism in Pancreatic Cancer”
198. Feb 2013, SPIE Photonics West, “Multiplex simulated Raman scattering microscopy”, San Francisco, CA.
199. Jan 2013, NIST, Gaithersburg, MD, “Seeing the unseen in cell machinery by spectroscopic imaging”
200. Jan 2013, University of Maryland, Department of Biomedical Engineering, College Park, MD, “Offering new solutions to medicine via spectroscopic imaging”
201. Jan 2013, PQE 2013, “Bond-selective imaging beyond the ballistic regime”. Snowbird, Utah.

Invited talks in conferences and institutes (year 2012)

202. Dec 6, 2012, Elsevier Webinar, Sponsored by Andor Technology, “Seeing the unseen in cell machinery by label-free spectroscopic imaging”.
203. Dec 5, 2012, Structure Biology Seminar, Purdue University, “Seeing the unseen in cell machinery by label-free spectroscopic imaging”
204. Oct 2012, PUCCR seminar, Purdue University, “Altered lipid metabolism in human prostate, pancreas and cervical cancer”.
205. Sept 22-23, 2012, The International Neural Regeneration Symposium 2012, Shenyang, China, “Nanotechnology and imaging in CNS research”.
206. Sept 21, 2012, Peking University, “Seeing the unseen in cell machinery by label-free spectroscopic imaging”
207. Sept 10, 2012, University of Maryland, Biophysics Program, College Park, MD, “Seeing the unseen in cell machinery by label-free spectroscopic imaging”
208. Aug 20, 2012, ACS meeting, Philadelphia, PA, “seeing the secret in life by label-free spectroscopic imaging”
209. Aug 15, 2012, Coulter Foundation Meeting, Fort Lauderdale, FL, “Nanomedicine for repair of spinal cord injury”.
210. July 26, 2012, The 2nd workshop on multimodal nonlinear optical microscopy, “Molecular vibration based spectroscopic imaging”
211. July 9, 2012, Fudan University, Shanghai, China, “Seeing the Unseen by Spectroscopic Imaging”
212. July 1, 2012, Shenzhen University, Shenzhen, China, “Seeing the Unseen by Spectroscopic Imaging”
213. June 29, 2012, The Third Workshop on Imaging in Biology and Medicine, Chengdu, China, “Seeing the Unseen in Cell Machinery by Spectroscopic Imaging”
214. June 8, 2012, Indiana SCBI meeting, Indianapolis, IN, “Nanomedicine for functional recovery of spinal cord injury”
215. April 23, 2012, CRS Symposium, Exeter, UK, “Seeing the secret in cell machinery by spectroscopic imaging”
216. April 11, 2012, Purdue Center for Cancer Research, “Seeing the secret in cell machinery by spectroscopic imaging”
217. March 2012, University of Michigan Medical School, “Seeing the secret in life and disease by label-free spectroscopic imaging”,
218. March 2012, Materials Today Virtual Conference, “Imaging nanomaterials in vitro and in vivo by exploring intrinsic optical signals”
219. Feb 1, 2012, Indiana University School of Medicine, Indianapolis, IN “Spectroscopic imaging of lipid metabolism in prostate cancer: new opportunities for diagnosis and treatment”
220. Jan 2012, SPIE Photonics West, “vibrational photoacoustic microscopy”, San Francisco, CA.

221. Jan 2012, SPIE Photonics West, “Lock-in free SRS microscopy”, San Francisco, CA.

Invited talks in conferences and institutes (year 2011)

222. November 4, 2011, Department of Chemistry, University of Notre Dame, “Seeing the secret in life and disease by label-free spectroscopic imaging”
223. Oct 23-27, 2011, American Association of Pharmaceutical Scientists (AAPS) Annual Meeting, Washington DC, “High-speed coherent Raman imaging of pharmaceutical products”.
224. Aug 28-Sep 1, 2011, Fall ACS Meeting, Denver, “Label-free, Bond-selective Microscopy”.
225. August 1-5, 211, Workshop on Frontiers and Challenges in Laser-based Microscopy, Telluride, CO, “Label-free bond-selective imaging by listening to molecular vibration”.
226. July 17-22, 2011, **Gordon Conference** on Lipids, Waterville Valley Resort, Waterville Valley, NH, “Label-free, bond-selective microscopy to monitor lipids in cells and organisms”
227. June 20-21, 2011 **Keynote speaker** in CARS Explorer symposium, Marseille, France, “Offering new solutions to biomedicine via molecular imaging of cells and tissues”
228. June 8-10, 2011, ACS Central Region Meeting, Indianapolis, “Label-free bio-imaging through spectroscopic signals”.
229. May 18, 2011, Cancer Research Award presentation in Lafayette Loins Club, West Lafayette, “Developing new therapies based on imaging studies of nano-bio interactions”.
230. May 17, 2011, Zhejiang University School of Medicine, “Offering new solutions to Biomedicine via label-free imaging of cells and Organisms”.
231. May 13, 2011, invited talk in University of Science and Technology, School of Life Sciences, “Offering new solutions to Biomedicine via label-free imaging of cells and Organisms”.
232. May 9-13, 2011, Cold Spring Harbor Asia Conference, “Label-free imaging by listening to molecular vibration”.
233. May 2, 2011, Hot topics in CLEO conference, Baltimore, “Label-free molecular imaging by listening to molecular vibration”
234. April 3-6, 2011, Janelia Farm Research Campus, symposium on multiphoton imaging, “Advanced optical microscopy for label-free imaging”.
235. March 17, 2011, IUSM Center for Diabetes Research**, “**Chasing lipids in health and disease by label-free microscopy”
236. March 2, 2011, Coulter Foundation Meeting, Las Vegas, “Synergistic Therapy for Early Stage Nerve Repair”
237. Jan 24, 2011, Photonics West Meeting, San Francisco, “Vibrational photoacoustic microscopy”

Invited talks in conferences and workshops (2003-2010)

238. November 2010, CARS workshop, Ottawa, Canada, “Chasing lipids in health and diseases by CARS”.
239. October 2010, UIUC Imaging Symposium, Urbana, IL, “Label-free imaging by transient absorption microscopy”.
240. August 2010, Coulter Foundation Meeting, Fort Lauderdale, FL, “A micelle approach to early nerve repair”.
241. August 2010, Coherent Raman Scattering Symposium, Boston, MA, “Pushing the limits of CRS microscopy with new laser sources”.
242. July 14, 2010, the 37th Controlled Release Society Annual Meeting, Portland, “Vibrational imaging of drug delivery systems”.
243. June 2010, CRS workshop, Harvard University, “Biological Applications of Coherent Raman Scattering Microscopy”
244. June 2010, China-US Nanomeeting, Shuzhou, China, “Nanomedicine: a fancy or fantacy?”
245. May 2010, CLEO meeting, San Jose, CA, “OPO-based multimodal NLO microscopy”.
246. May 14, 2010, Breast Cancer Discovery Retreat, Purdue University, “Raman imaging of lipids in cancer”.
247. May 11, 2010, **keynote speaker** in microCARS Workshop, Goteborg, Sweden, “Shedding new light on lipid biology by multimodal CARS microscopy”.
248. May 8, 2010, International symposium on the membrane biology of cancer, Purdue University, “CARS microscopy: seeing the invisible”.
249. Mar 2, 2010, Membrane Biophysics Workshop in Telluride, “Membrane translocation and membrane repair with amphiphilic molecules”.
250. Feb 4, 2010, Roche Nutley, “Assisting drug formulation by molecular vibration based imaging”.
251. Feb 3, 2010, IFPAC, Baltimore, Maryland, “High-speed vibrational imaging of tablets by stimulated Raman scattering microscopy”.
252. January 23, 2010, Photonic West, San Francisco, CA, “Current status and new advances of coherent Raman microscopy”.
253. November 2009, **keynote speaker** in the Opening Ceremony of CARSLab in the Steacie Institute for Molecular Sciences, Ottawa, Canada.
254. September 2009, Purdue-KIST Symposium, “A micelle approach for membrane repair after spinal cord injury.”
255. August 2009, ACS National Meeting, “Bond-selective chemical imaging by coherent Raman scattering”, Washington DC.
256. July 13, 2009, **Keynote speech** in NSF Center for Biophotonics, “Bridging nonlinear optical microscopy and

nanophotonics with medicine," UC Davis, CA.

257. June 25, 2009, Harvard University CARS Workshop, "Biological applications of coherent Raman scattering imaging," Boston, MA.
258. June 10, 2009, UIUC Nano-Biophotonics Summer School, "Bond-selective imaging based on coherent Raman scattering," Urbana, IL.
259. April 22, 2009, invited talk in Myelin Repair Foundation, Bay Area, CA.
260. March 2009, O'Brien Workshop on Applied Microscopy in Kidney Research, "CARS microscopy," Indianapolis, IN.
261. January 2009, Photonics West, "Compound Raman microscopy," San Jose, CA.
262. November 2008, The 21st Annual Meeting of The IEEE Lasers & Electro-Optics Society, "New advances in nonlinear optical microscopy," Newport, CA.
263. October 2008, International Biomembrane Symposium, Purdue University, "Imaging membrane by CARS microscopy: from domains in supported bilayer to demyelination in multiple sclerosis," West Lafayette, IN
264. August 2008, Microscopy & Microanalysis 2008 Meeting, "Driving CARS into biomedical field," Albuquerque, NM.
265. August 2008, ACS Annual Meeting, "Intravital imaging of circulating nanoscale drug carriers," Philadelphia, PA.
266. July 2008, Chinese Academy of Sciences Conference on Imaging in Biology and Medicine, "CARS microscopy: A central tool for tissue biology," Lijiang, China.
267. June 2008, Lecture in summer workshop on CARS microscopy, Harvard University, Boston, MA.
268. May 2008, CLEO Conference, "Biomedical applications and new developments of CARS microscopy," San Jose, CA.
269. March 2008, OSA Topical Meeting, BIOMED, "Multimodality nonlinear optical imaging," St. Petersburg, FL.
270. January 2008, Photonics West, "New development and biomedical applications of CARS microscopy," San Jose, CA.
271. October 2007, FACSS Meeting, "CARS microscopy: seeing the invisible without labeling," Memphis, TN.
272. September 2007, First Purdue – KIST Symposium, "Bridging nonlinear optical microscopy and nanotechnology with medicine," West Lafayette, IN.
273. September 2007, The 3rd Annual Meeting of American Academy of Nanomedicine, "Two-photon luminescence imaging and optical hyperthermia of tumor cells and activated macrophages with bioconjugated gold nanorods," UCSD, San Diego, CA.
274. August 2007, National ACS Meeting, "Nonlinear optical imaging of obesity and related health risks," Boston, MA.
275. June 2007, ECI Conference on Advances in Optics for Biotechnology, Medicine, and Surgery, "Shedding light on diseases with coherent anti-Stokes Raman scattering," Naples, FL.
276. June 2007, Lecture in summer workshop on CARS microscopy, Harvard University, Boston, MA.
277. May 2007, Lecture in summer workshop on nonlinear optics, Purdue University, West Lafayette, IN.
278. February 2007, 13th International Symposium on Recent Advances in Drug Delivery Systems, "Imaging drug delivery with advanced optical microscopy," Salt Lake City, UT.
279. February 2007, Pittcon 2007, "Driving CARS into the biological field," Chicago, IL.
280. January 2007, Biomedical Optics Symposium, Biophotonics West, "Driving CARS into biological field," San Jose, CA.
281. September 2006, Workshop on Biological Imaging and Engineered Biosystems, "Driving CARS into the biological field," Lehigh University, Bethlehem, PA.
282. September 2006, First Purdue-KIST Collaborative Symposium, "Biomedical photonics," Seoul, Korea.
283. June 2006, Lecture in summer workshop on CARS microscopy, Harvard University, Boston.
284. June 2006, The 6th International Meeting of the European Light Microscopy Initiative, "Ex vivo and in vivo imaging with multimodality multiphoton microscopy," Ofir, Portugal.
285. March 2006, National ACS Meeting, "In vivo molecular imaging with nonlinear optical microscopy," Atlanta, GA.
286. January 2006, Photonics West, "Biomedical applications and new developments of CARS microscopy," San Jose, CA.
287. October 2005, National APS Meeting, "Coherent anti-Stokes Raman scattering microscopy," Tucson, AZ.
288. August 2005, National ACS Meeting, "Nonlinear optical imaging of central nervous systems," Washington D.C.
289. Summer 2005, Lecture in summer workshop on CARS microscopy, Harvard University, Boston, MA.
290. January 2005, Photonics West, "Biophysical and biomedical applications of CARS microscopy," San Jose, CA.
291. Summer 2004, Lecture in summer workshop on CARS microscopy, Harvard University, Boston, MA.
292. October 2002, Annual Meeting of OSA, "CARS microscopy: theory, implementation, and applications," Orlando, FL.
293. 2002, 29th Annual Meeting of FACSS, "CARS microscopy and microspectroscopy," Providence, RI.
294. 2001, Advances in Optics for Biotechnology, Medicine and Surgery, "Coherent anti-Stokes Raman scattering (CARS) microscopy of living cells," Banff, Canada.
295. August 2002, 7th International Conference on Near-field Optics and Related Techniques, "Multiphoton vibrational imaging: CARS microscopy and microspectroscopy," Rochester, NY.
296. January 2002, SPIE's International Biomedical Optical Symposium, "A fresh look into cells with coherent anti-Stokes Raman scattering (CARS) microscopy," San Jose, CA.

297. January 2001, SPIE's International Biomedical Optical Symposium, "New advances in coherent anti-Stokes Raman scattering (CARS) microscopy," San Jose, CA.
298. January 2001, SPIE's International Biomedical Optical Symposium, "Epi-CARS microscopy: Vibrational imaging with high-sensitivity," San Jose, CA.

Cheng's Invited Lectures in Institutes (2003~2010)

299. March 2010, Phys Chem Division, Purdue University, "Vibrational Photoacoustic Microscopy".
300. January 2010, Stark Institute of Neuroscience, IU School of Medicine, "New approaches for imaging and repairing spinal cord injury".
301. February 2009, School of Pharmacy, Purdue University, "Chemically selective imaging of drug delivery systems," West Lafayette, IN.
302. February 2009, Department of Chemistry, Purdue University, "On the frontier of coherent Raman imagine: Instrumentation development and application to lipid biology," West Lafayette, IN.
303. December 2008, National Nanocenter, "Chemical microscopy and applications to biology and medicine," Beijing, China.
304. December 2008, University of Science and Technology of China, "Chemical microscopy and applications to biology and medicine," Hefei, China.
305. July 2008, Institute for Laser Medicine & Biophotonics, "Nonlinear optical microscopy and its application to bioimaging," Shanghai JiaoTong University, China.
306. July 2008, Hefei No.1 People's Hospital, "Optical imaging and nanotechnology in early diagnosis, basic understanding and new treatment of cancer," Hefei, China.
307. April 2008, Physical Chemistry Division, Purdue University, "Gold nanophotonics and its application to bio-imaging," West Lafayette, IN.
308. March 2008, Cancer Research Clinical Partnership Workshop, Purdue University, "Fighting cancer with imaging," West Lafayette, IN.
309. March 2008, IUPUI BME Departmental Seminar, "Nanomedicine: from pharmacokinetic behaviour to photothermal therapy," West Lafayette, IN.
310. September 2007, University of Pennsylvania, Physical Chemistry Seminar, "CARS microscopy: seeing the invisible without labelling," Philadelphia, PA.
311. December 2006, University of Science and Technology of China, "Bridging nonlinear optical microscopy and nanotechnology with medicine," Heifei, China.
312. December 2006, Qsinghua University, China, "Bridging nonlinear optical microscopy and nanotechnology with medicine," Hefei, China.
313. October 2006, Ohio University, Department of Chemistry, "Label-free molecular imaging with CARS microscopy," Athens, OH.
314. April 2006, Steacie Institute for Molecular Sciences, "In vivo molecular imaging with nonlinear optical microscopy," Ottawa, Canada.
315. February 2006, Physical Chemistry Division, University of Wisconsin Madison, "Nonlinear optical imaging of central and peripheral nervous system ex vivo and in vivo," Madison, WI.
316. December 2005, Physical Division, Chemistry Department, Purdue University, "Nonlinear optical imaging of central and peripheral nervous system ex vivo and in vivo," West Lafayette, IN.
317. October 2005, Department of Physics, Indiana University Purdue University at Indianapolis, "Nonlinear optical microscopy," Indianapolis, IN.
318. September 2005, Department of Electrical and Computer Engineering, University of Illinois Urbana-Champaign, "Visualizing molecules at work with nonlinear and linear optical microscopy," Urbana, IL.
319. April 2005, Department of Biomedical Engineering, Indiana University Purdue University at Indianapolis, "Seeing is believing, non-invasive chemical imaging of membranes, cells, tissues and mice," Indianapolis, IN.
320. 2004, Analytical Division, Chemistry Department, Purdue University, "Bioanalytical and biomedical imaging," West Lafayette, IN.
321. 2004, Biological Division, Chemistry Department, Purdue University, "Biophysical and biomedical imaging of living cells," West Lafayette, IN.
322. 2003, Physical Division, Chemistry Department, Purdue University, "Coherent anti-Stokes Raman scattering microscopy," West Lafayette, IN.

Part V. Professional Service

Editorial Board:

Neurophotonics, 2021 -
Science Advances, 2020 -
Applied Spectroscopy, 2016 -
Scientific Reports, 2015 -
Vibrational Spectroscopy, 2005 –
Journal of Innovative Optical Health Sciences, 2013 –

Panel Review

NIH DP5 Proposals (mail review), 2021; NIH Transformative Proposals (mail review), Feb 2021; NIH Transformative Proposals (mail review), Feb 2020; NIH/ITD study section, Oct 2020; NIH/IMAT study section, Oct 2017; NIH/NIHGMS Center for Biomedical Research Excellence, July 2016; NIH/NIBIB Quantum application, 2015; NIH EBIT study section, 2015; NIH Gene and Drug Delivery Study Section, Oct 2012;
NIH EBIT Study Section, Feb 2011; NIH Gene and Drug Delivery Study Section, May 2010
NIH SBIR Study Section, March 2010
Purdue Cancer Center New Idea Proposal Review Panel, 2008
Purdue Cancer Center New Idea Proposal Review Panel, 2007
NIH Nanotechnology Study Section, February 2007
NIH Nanotechnology Study Section, July 2006
NIH Nanotechnology Study Section, November 2005

Activities as Journal Referee:

ACS Biochemistry; ACS Chemical Biology; Applied Physics Letter; Biophysical Journal; Journal of American Chemical Society; Journal of Biomedical Optics; Journal of Controlled Release; Journal of Physical Chemistry; Nano Letters; Nature; Nature Cell Biology; Nature Methods; Nature Chemical Biology; Nature Communications; Nature Chemistry; New Journal of Physics; Optics Express; Optics Letters; Physical Review Letters; Science; Small

Organizer of Symposia and/or Editor of Special Issues

Year	Role	Meeting	Place / Journal	Title
2022 Jan	Session Chair	Computational Imaging	Online by IS&T	Computational chemical imaging
2022 Jan	Conference Chair	Photonics West	San Francisco, CA	Advanced Chemical Microscopy
2021 Jan	Conference Chair	Photonics West	San Francisco, CA	Advanced Chemical Microscopy
2020 Jan	Conference Chair	Photonics West	San Francisco, CA	Advanced Chemical Microscopy
2019 June	Symposium Chair	European CLEO	Munich	Label-free Techniques for Molecular Identification
2019 Jan	Organizer/ Session Chair	Photonics West	San Francisco, CA	Nonlinear and Linear Chemical Microscopy
2018 June	Organizer	International symposium	Beijing	1st Beihang Symposium on Medical Photoncis
2018 Jan	Organizer/ Session Chair	Photonics West	San Francisco, CA	Coherent Raman Scattering Microscopy
2018 Jan	Session Chair	PQE 2018	Snowbird, Utah	Frontiers of Medical Photonics
2017 Aug	Session Chair	4th Summer Symposium	Telluride, CO	Frontiers and Challenges in Laser-Based Biological Microscopy
2017 June	Organizer	Raman Fest	Purdue University	Applied Raman spectroscopy
2017 Feb	Session Chair	Photonics West	San Francisco, CA	Coherent Raman scattering microscopy symposium
2016 July	Organizer	6th Annual Workshop	Purdue University	Label-free Spectroscopic Imaging

2016 May	Co-editor		Current Opinion in Chemical Biology	Molecular Imaging
2016 June	Session chair	Photonics West	San Francisco, CA	Coherent Raman scattering microscopy symposium
2015 Aug	Session Chair	3rd Summer Symposium	Telluride, CO	Frontiers and Challenges in Laser-Based Biological Microscopy
2015 July	Organizer	5th Annual Workshop	Purdue University	Label-free Spectroscopic Imaging
2015 Feb	Session chair	Photonics West	San Francisco, CA	Coherent Raman scattering microscopy symposium
2015 Jan	Session chair	PQE2015	Snowbird, Utah	Transforming spectroscopy from in vitro to in vivo for biology and medicine
2014 July	Organizer	4th Annual Workshop	Purdue University	Label-free Spectroscopic Imaging
2014 Jan	Session chair	Photonics West	San Francisco, CA	Coherent Raman scattering microscopy symposium
2013 Aug	Organizer & Chair	2nd Summer Symposium	Telluride, CO	Frontiers and Challenges in Laser-Based Biological Microscopy
2013 May	Organizer	3rd Annual Workshop	Purdue University	Spectroscopic Imaging: A new window into the unseen world
2013 Jan	Session chair	Photonics West	San Francisco, CA	CRS microscopy symposium
2012 Aug	Co-organizer	ACS Fall Meeting	Philadelphia, PA	Emerging quantitative applications of nonlinear optics
2012 July	Organizer	2nd annual workshop	Purdue University	Multimodal nonlinear optical microscopy symposium & training workshop
2012 May	Co-editor	Special issue	Journal of Biophotonics	Frontiers in Multimodal Microscopy
2012 Jan	Session chair	Photonics West	San Francisco, CA	CRS microscopy symposium
2011 Aug	Organizer & Chair	1st Summer Symposium	Telluride, CO	New Frontiers and Grand Challenges in Laser-Based Biological Microscopy
2011 July	Organizer	1st Annual workshop	Purdue University	Multimodal nonlinear optical microscopy symposium/training workshop
2011 Jan	Session chair	Photonics West	San Francisco, CA	CRS microscopy symposium
2010 Jan	Session chair	Photonics West	San Francisco, CA	CARS Microscopy Symposium
2010	Co-editor	Special Issue	Journal of Biomedical optics	Coherent Raman Microscopy
2009	Co-editor	Special Issue	*Journal of Innovative Optical Health Sciences* (JIOHS)	Nonlinear Optical Microscopy
2009 Aug	Organizer	ACS meeting	Washington DC	Biological Applications of Nonlinear Optical Imaging and Spectroscopy
2009 Jan	Session chair	Photonics West	San Jose, CA	CARS microscopy symposium
2008	Co-chair	Biomedical Engineering Society Annual Fall Meeting	St. Louis, MO	Imaging for Quantitative Pathology
2008	Organization committee	OSA topical meeting	St Petersburg, FL	OSA Topical Meeting BIOMED 2008
2008 Jan	Session chair	Photonics West	San Jose, CA	CARS microscopy symposium
2007 Aug	Co-organizer	231st ACS meeting	Boston, MA	Biological Applications of Nonlinear Optics

2005 Oct	Co-organizer	National American Physics Society	Tucson, AZ	Nonlinear Optical Microscopy Annual meeting of the Division of Laser Science
2005 Aug	Co-organizer: Garth Simpson	230th ACS Meeting	Washington, DC	Analytical and Biological Applications of Nonlinear Optics