Shaochen Chen, PhD

Zable Endowed Chair Professor in Nanoengineering Technologies
Department of Chemical and Nano Engineering
University of California, San Diego
9500 Gilman Drive, La Jolla, CA 92093-0448
Phone: (858) 822-7856
e-mail: shc064@ucsd.edu
Website: http://schen.ucsd.edu/lab/

1. Research Achievements:

Prof. Chen is a pioneer in 3D bioprinting for tissue engineering and regenerative medicine with over **290 technical papers**, including over 190 peer-reviewed journal publications, 20 books and book chapters, and 17 patents. His work has tackled many key manufacturing challenges, including materials synthesis, printer design, light-mater interactions, mechanics of the tissue construct, printing throughput, reproducibility, and scalability. In his groundbreaking work published in *Advanced Drug Delivery Reviews* (2004) and *J. Biomed Materials Research* (2005), Dr. Chen developed a microscale 3D printing platform for hydrogel biomaterials. In 2006, he developed a rapid, projection 3D printing method to produce highly precise, 3D microstructures from a broad selection of functional materials – A **first in the field for projection 3D printing of hydrogel biomaterials** for tissue engineering (*J. Biomed Materials Research, 2006*). In contrast to a traditional 3D printing process (e.g. stereolithography or extrusion-based printing) where a 3D device is fabricated point-by-point or line-by-line, using digital light processing (DLP), this light-projection printing method enables an entire layer of biomaterial to be fabricated simultaneously, resulting in a much faster printing speed and better device integrity.

Building upon his DLP-based 3D printing technique, Dr. Chen invented a dynamic optical stereolithography method (DOPsL) (*Advanced Materials,* 2012). This is **another first in the field about dynamic and continuous 3D printing** of hydrogel biomaterials. DOPsL enables rapid 3D bioprinting that is 1,000 times faster in printing speed and 100 times better in printing resolution comparing to a traditional extrusion-based 3D printing. This continuous printing approach significantly improves the structural integrity of the 3D-printed parts since the process does not create artificial interfaces within the part. More recently, Dr. Chen invented a **high-throughput, direct in-well printing method** for 3D micro-tissues in a standard multi-well plate (*Biofabrication* 2021). This technique enables pharmaceutical company to conduct high throughput drug screening using such bioprinted micro-tissues with much needed speed, throughput, resolution and well-plate compatibility.

One of the major bottlenecks for future organ manufacturing is the ability to print the organ with a high cell density for critical cell-cell interactions to recapitulate the physiological conditions. Dr. Chen invented a **high cell density (HCD) bioprinting method** for future organ printing (***Science Advances,*** 2023). He and his team designed a novel bioink material containing an optical tuning agent that can minimize light scattering by the cells and enables printing living materials at high resolution and high cell viability. This work represents the **first DLP-based 3D bioprinting for HCD vascularized tissues** in the field.

Dr. Chen's group was **the first in the field to bioprint a 3D biomimetic multicellular liver tissue** using human induced pluripotent stem cells (hiPSC). The liver tissue has precise hexagon microarchitecture containing liver cells surrounded by human endothelial cells and mesenchymal stem cells. This liver tissue shows significantly improved functions over other simple liver models and better predictions in drug testing (***PNAS***, 2016). This work was highlighted by *Nature Reviews Gastroenterology & Hepatology* (2016). Dr. Chen's team also developed a ventricular wall model using 3D bioprinting to study heart development (***Nature***, 2024). By bioprinting the model layer by layer, and precisely controlling the biological function of each layer, they have identified key factors that control how the heart's muscle cells migrate during development. This groundbreaking work provided a transformative new technique to create a precise *in vitro* model to study disease mechanism. Using his rapid bioprinting techniques, Dr. Chen has also successfully demonstrated 3D brain tumor models, retinal tissues, muscle tissues, and ovarian cancer models using various biomaterials powered by artificial intelligence (*Biomaterials* 2022, 2024; *Materials Today* 2018; *Cell Research*, 2020). These human tissue models enable pharmaceutical and biotech companies to test drug efficacy and toxicity with the benefits of better prediction, reduced cost and risk, reduced animal uses, and faster time-to-market.

For therapeutic applications, Dr. Chen and his team integrated neuron stem cells within a 3D bioprinted biomimetic scaffold and demonstrated functional recovery in a severely damaged spinal cord in a rat model (***Nature Medicine,*** 2019). This was a giant step towards future clinical treatment for spinal cord injury (SCI). This work was highlighted in *Nature Reviews Neuroscience* (2019) and reported by ***NIH Director's Blog*** (2019) to the entire biomedical community. More recently, Dr. Chen and his team received a **$26 million award from ARPA-H** to bioprint a large scale, vascularized liver using patient derived cells. His team is scaling up the cell production and the bioprinting process to fabricate an entire liver, use artificial intelligence to design the vasculature network, test the liver first in a rat model and then in a humanized pig model with a goal for human clinical trials after the 5-year project. This transformational work could save many lives and improve many others.

2. Research Recognitions:

Prof. Chen's research contributions have been recognized extensively by his peers, and he has received numerous awards for his research, including:

- ✓ CAREER award from NSF (2001-2006),
- ✓ Young Investigator award from ONR (2004-2007),
- ✓ Edward Nagy New Investigator award from NIBIB of NIH (2014),
- ✓ Milton C. Shaw Manufacturing Research Medal from ASME (2017),
- ✓ BRITE Fellow from NSF (2022-2027),
- ✓ Frederick W. Taylor Research Medal from the Society of Manufacturing Engineers (SME, 2023),
- ✓ Listed in Highly Cited Researchers in the World (Clarivate, 2025)
- ✓ Elected Fellow of several major societies, including the
  - National Academy of Inventors (NAI),
  - American Association for the Advancement of Science (AAAS),
  - American Institute for Medical and Biological Engineering (AIMBE),

- American Society of Mechanical Engineers (ASME),
- International Society for Optics and Photonics (SPIE), and
- European Academy of Sciences and Arts (EASA).

Dr. Chen's original, high-impact research work has been reported widely in the scientific and popular press. Articles and interviews about his work aimed at the general audience have appeared in *NSF News*, *NSF Top Story, NIH News, NIH Director's Blog*, *NIH Research Matters*, *The Washington Post*, *The Wall Street Journal*, *Forbes*, *Yahoo News*, *CNBC News, ABC News*, *EurekAlert!*, *The Economic Times,* etc.

3. Industrial Impacts:

Dr. Chen's pioneering work in 3D bioprinting and biomaterials laid the foundation for the emerging field of biomanufacturing for tissue engineering and regenerative medicine applications. His groundbreaking research has inspired the birth of the biofabrication industry. Many biofabrication companies emerged, including Organovo (2007, US), Aspect Biosystems (2013, Canada), and Cellink (2016, Sweden, IPO in 2017). In 2014, NIH established the *NIH 3D Print Exchange* (https://3dprint.nih.gov) to strengthen R & D in biofabrication. With the potential to revolutionize the life science field, the global 3D biofabrication market has a value of several billion dollars, and is projected to reach $20 billion by 2035, at a compounded annual growth rate of roughly 12% to 18%.

By licensing the key patents from his recent inventions, **Dr. Chen founded a startup, Allegro 3D**, Inc. in 2016. He led the company for successful commercialization of his biomaterials and bioprinting techniques with angel funding and SBIR funds from NSF and NIH. In 2018, Allegro 3D launched its bioink products including STEMINK™ series gelatin methacrylate, gelatin norbornene, glycidyl methacrylate-hyaluronic acid, alginate methacrylate, poly(glycerol-co-sebacate) acrylate. In March 2021, Allegro 3D launched its first 3D bioprinter product, Stemaker™ Model D for rapid, direct bioprinting of human tissues in a multiwell plate. This novel 3D bioprinter was aimed to transform the pharmaceutical and biotech industries for rapid, high throughput drug toxicity and efficacy testing using bioprinted 3D human tissue models. In May 2022, **Allegro 3D was successfully acquired** by a public company, BICO (formally CELLINK, OTCMKTS: CLLKF). After merging with CELLINK, the Stemaker™ Model D bioprinter was re-branded as BIONOVA X and has been a flagship bioprinter product of CELLINK.

Additionally, Dr. Chen and his team invented rotating optical catheter probes for intravascular imaging for coronary and peripheral applications. Seven of his patents were licensed to a startup company, CardioSpectra, Inc. (CSI) where Dr. Chen served as a consultant. CSI was later acquired by Volcano Corporation (NASDAQ:VOLC) in 2007. Volcano Corporation had been a global leader in intravascular imaging and was later acquired by Philips.

4. Leadership and Services:

Prof. Chen has long been a strong leader in the manufacturing community. He served as an **NSF Program Director for the Nanomanufacturing Program** in the Civil, Mechanical, Manufacturing Innovation (CMMI) Division at NSF from 2008 to 2010. As the Program Director, he regularly organized proposal panel reviews and make recommendations with an annual program budget of $11 million. Besides managing 3 research centers and over 150 active awards, he led the efforts in

defining the scope and future directions of nanomanufacturing research in the US. He also served as a **Cluster Leader of the Advanced Manufacturing Cluster** in the CMMI Division to guide the manufacturing community for funding priorities and new research directions. Working with the White House Office of Science and Technology Policy (OSTP) while at NSF, Dr. Chen helped to develop the **Scalable Nanomanufacturing (SNM) Initiative**, (Solicitation #: NSF 10-618, $10M budget), for research projects that support the identification and demonstration of nanomanufacturing processes with high potential to scale to economically and industrially relevant production level. With extremely strong interests from the research community, this SNM initiative was continued for another 6 years with 6 following up solicitations. The SNM initiative supported over 50 research projects with a total budget over $40M. This had a significant impact to the US nanomanufacturing industry.

Within the scientific community, he served as an **Associate Editor** for *J. Manufacturing Science and Engineering*, the flagship journal in manufacturing from 2007-2010. Currently he serves as an Associate Editor for *J. Nanoparticle Research*. Additionally, he has been on **editorial boards** of several top manufacturing journals, including *Additive Manufacturing* (Elsevier), *Biofabrication* (IOP Science), *Bio-Design and Manufacturing* (Springer/Nature). He was an **editor for a book** – "Nanomanufacturing" (ASP, 2009).

Since joining the NanoEngineering Department at UC San Diego in 2010, Prof. Chen has been playing a leading role as the department Graduate Program Chair (2010-2014), **Vice Chair (2014-2019) and Chair (2019-2023)** in growing the **first academic NanoEngineering Department** in the US. Within 12 years, the department expanded from 6 to 31 faculty and is currently supporting over 200 graduate students and 660 undergraduates. Under his leadership, the department developed and reformed its nanoengineering curriculum for B.S., M.S., and Ph.D. students. This academic program has received ABET accreditation. The NanoEngineering department graduates are playing a critical role in high-tech companies such as Illumina, Intel, Tesla, HP, and Qualcomm. They also founded startups such as Nanome, Allegro 3D, Grolltex, and Bioling. During the COVID 19 pandemic, Dr. Chen steered the entire department, overcoming many extraordinary challenges such as budget cut and hiring freeze, transition from on-site to on-line and back to on-site teaching, developing and reinforcing safety measures. His strong leadership enabled the department to grow major areas such as research funding per faculty (doubled from 2018 to 2022) and enhanced the student learning experience by adding new lab courses.

EDUCATION

B.S.	Tsinghua University (Beijing)	Thermal Engineering	1989
Ph.D.	University of California, Berkeley	Mechanical Engineering	1999

PROFESSIONAL EXPERIENCE

1999-2001	Assistant Professor, Industrial & Manufacturing Engineering Dept, Iowa State Univ.
2000-2001	Associate Scientist, Ames Laboratory, U.S. Department of Energy (DOE)
2002-2005	Assistant Professor, Mechanical Engineering Department, Univ of Texas at Austin
2005-2009	Associate Professor, Mechanical Engineering Department, Univ of Texas at Austin
2008-2010	Program Director, NanoManufacturing Program, National Science Foundation

2009-2010	Professor, Mechanical Engineering Department, University of Texas at Austin
2010-present	Professor, Chair (2019-2023), Vice Chair (2014-2019), Chair for Graduate Affairs (2010-2014), Chemical and Nano Engineering Department (formerly Nanoengineering Department), University of California, San Diego (UCSD) Professor, Program in Materials Science and Engineering, UCSD Faculty, Clinical and Translational Research Institute, UCSD Faculty, Institute of Engineering in Medicine, UCSD
2013-present	Professor Affiliate, Bioengineering Department, UCSD
2014-present	Founding Co-Director, Biomaterials and Tissue Engineering Center, UCSD
2021-present	Professor Affiliate, Electrical and Computer Engineering Department, UCSD
2023-present	Professor Affiliate, Scripps Institution of Oceanography, UCSD

HONORS AND AWARDS

2001-2006	CAREER Award, National Science Foundation (NSF).
2002	Outstanding Young Manufacturing Engineers Award, Society of Manuf. Engineers.
2003	Cited as a successful young investigator in the *Report to the Assistant Director for Engineering of NSF* by the Committee of Visitors to NSF DMII Division.
2004-2007	Young Investigator Award, Office of Naval Research (ONR).
2005	Outstanding Faculty Award, College of Engineering, Univ of Texas at Austin
2005	Licensed 7 patents to CardioSpectra, Inc. (CSI). CSI was acquired by Volcano Corporation (NASDAQ:VOLC).
2006	Outstanding Reviewer, ASME *Journal of Heat Transfer*.
2006	Best Paper Award, Joint AIAA/ASME Thermophysics Conference, 2006.
2006-2010	Pearlie D. Henderson Centennial Endowed Faculty Fellowship, Univ of Texas at Austin.
2007-	Fellow, American Society of Mechanical Engineers (ASME).
2007-	Member of Various NIH Study Sections such as the New Innovator and U01 Programs.
2008-	Fellow, International Society for Optics and Photonics (SPIE).
2009	Outstanding Paper Award, 37th North American Manufacturing Research Conference by the Society of Manufacturing Engineers (SME).
2011	Fellow, American Association for the Advancement of Science (AAAS).
2013	Fellow, International Society for Nanomanufacturing (ISNM).
2014	Edward Nagy New Investigator Award, National Institute of Biomedical Imaging and Bioengineering (NIBIB of NIH).
2014	The Corinne Bower Lecture, *Pre Retina Society Annual Meeting*, Philadelphia, PA, 2014.
2015	Fellow, American Institute for Medical and Biological Engineering (AIMBE).
2015	SPIE Applications of 3D Printing Best Paper Award, Photonics West, 2015.
2015	Invited Speaker, National Academy of Engineering US-China Frontier of Engineering Symposium.
2015	Distinguished Seminar, Biomedical Engineering Dept, University of California, Davis.
2015	Russell Springer Professor (visiting), University of California at Berkeley.
2016	Distinguished Seminar, Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research, University of Southern California, September 2016.
2016	Licensed 2 patents and founded a startup Allegro 3D, Inc. that was later acquired by BICO in 2022.
2016	Distinguished seminar speaker, Medical Engineering Program, California Institute of Technology, 2016.
2017	Milton C. Shaw Manufacturing Research Medal, American Society of Mechanical Engineers (ASME)

2017 Distinguished Seminar, BU Photonics Center, Boston University.
2018 Distinguished Seminar, Frontiers in Cardiovascular Science, Stanford Cardiovascular Institute, Stanford University.
2019 Best Teacher Award, Jacobs School of Engineering, UC San Diego.
2021 Elected Member of the European Academy of Sciences and Arts.
2022 Elected Fellow of the US National Academy of Inventors.
2022 BRITE Fellow, National Science Foundation.
2022- Zable Endowed Chair in Nanoengineering Technologies, UC San Diego.
2023 Frederick W. Taylor Research Medal, the Society of Manufacturing Engineers (SME).
2025 Listed in Highly Cited Researchers (Clarivate).

RESEARCH INTERESTS

- 3D Printing and Bioprinting with Artificial Intelligence
- Biomaterials and Stem Cell Engineering
- Tissue Engineering and Regenerative Medicine
- Organ-on-a-chip and Micro-physiological Systems
- Biomanufacturing of living materials

RESEARCH FUNDING: $41M current and $40M completed from ARPA-H, NIH, NSF, DARPA, ONR, AFOSR, GBM Foundation, industries, etc.

PUBLICATIONS

Refereed Journal (*corresponding author)

1. **S. C. Chen** and C. P. Grigoropoulos*, "Noncontact Nanosecond-time-resolution Temperature Measurement in Excimer Laser Heating of Ni-P Disk Substrates", *Applied Physics Letters*, Vol. 71 (22), pp. 3191-3193, 1997.
2. **S. C. Chen,** C. P. Grigoropoulos*, H. K. Park, P. Kersterns, and A.C. Tam, "Photothermal Displacement Measurement of Transient Melting and Surface Deformation During Pulsed Laser Heating", *Applied Physics Letters*, Vol. 73 (15), pp. 2093-2095, 1998.
3. I. Zergioti, S. Mailis, N. A. Vainos, C. Fotakis, **S. C. Chen,** and C. P. Grigoropoulos*, "Microdeposition of Metals by Femtosecond Excimer Laser", *Applied Surface Science*, Vol. 127-129, pp. 601-605, 1998.
4. **S. C. Chen,** C. P. Grigoropoulos*, H. K. Park, P. Kersterns, and A.C. Tam, "Photothermal Displacement Detection and Transient Imaging of Bump Growth Dynamics in Laser Zone Texturing of Ni-P Disk Substrates", *Journal of Applied Physics*, Vol. 85 (8), pp.5618-5620, 1999.
5. **S. C. Chen,** D. G. Cahill, and C. P. Grigoropoulos*, "Melting and Surface Deformation in Pulsed Laser Surface Micro-modification of NiP Disks", *Journal of Heat Transfer*, Vol.122 (1), pp. 107-12, 2000.
6. V. Kancharla, **S. C. Chen*,** D.S. Zamzow, D. P. Baldwin, "Laser Micromachining of a Biodegradable Polymer", *Transactions of the North American Manufacturing Research Institute of SME,* Vol. 29, pp. 407-412, 2001.
7. T. Schwarz-Selinger, D.G. Cahill*, **S. C. Chen**, S. J. Moon, and C. P. Grigoropoulos, "Micron-scale Modifications of Si Surface Morphology by Pulsed-laser Texturing," *Physical Review B*., Vol. 64 (15), pp. 155323-1—155323-7, 2001.

8. V. Kancharla and **S. C. Chen*,** "Fabrication of Biodegradable Polymeric Micro-devices Using Laser Micromachining." *Biomedical Microdevices*, Vol. 4 (2), pp. 105-109, 2002.
9. W. Zheng and **S. C. Chen*,** "Micro-Manufacturing of a Nano-liter Scale, Continuous-Flow Polymerase Chain Reaction System", *Transactions of the North American Manufacturing Research Institute of SME,* Vol. 30, pp. 551-555, 2002.
10. **S. C. Chen*,** V. Kancharla, and Y. Lu, "Laser-based Microscale Patterning of Biodegradable Polymers for Biomedical Applications", *International Journal of Material and Product Technology*, Vol. 18 (4), pp. 457-468, 2003.
11. S. F. Li and **S. C. Chen***, "Analytical Analysis of a Circular PZT-actuator for Valveless Micropumps", *Sensors and Actuators A,* Vol. 104 (2), pp. 151-161, 2003.
12. S. Theppakuttai and **S. C. Chen*,** "Nanoscale Surface Modification of Glass Using a 1064 nm Pulsed Laser," *Applied Physics Letters*, Vol. 83 (4), pp. 758-760, 2003.
13. S. F. Li and **S. C. Chen*,** "Polydimethylsiloxane Fluidic Interconnects for Microfluidic Systems", *IEEE Transactions on Advanced Packaging,* Vol. 26 (3), pp. 242-247, 2003.
14. Y. Lu and **S. C. Chen***, "Nanopatterning of a Silicon Surface by Near-field Enhanced Laser Irradiation," *Nanotechnology,* Vol. 14 (5), pp. 505-508, 2003.
15. Y. Lu, S. Theppakuttai, and **S. C. Chen***, "Marangoni Effect in Nanosphere-enhanced Laser Nanopatterning of Silicon", *Applied Physics Letters,* Vol. 82 (23), pp. 4143-4145, 2003.
16. Y. C. Lee, B. Amirparviz, A Chiou, and **S. C**. **Chen,** "Packaging for Microelectromechanical and Nanoelectromechanical Systems", *IEEE Transactions on Advanced Packaging,* Vol. 26 (3), pp. 217-226, 2003.
17. S. Theppakuttai, Y. Lu, and **S. C. Chen***, **"**Near-field Enhanced Massively Parallel Nanoscale Modification of Solids", *Transactions of the North American Manufacturing Research Institute of SME,* Vol. 32, pp. 33-38, 2004.
18. S. Theppakuttai, D. B. Shao, and **S. C. Chen*,** "Localized Laser Transmission Bonding for Microsystem Fabrication and Packaging", *Journal of Manufacturing Processes,* Vol. 6 (1), pp. 24-31, 2004.
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20. S. F. Li and **S. C. Chen*,** "Design, Simulation, and Micro-fabrication of a Heat Conduction DNA Chip with Integrated Microheaters", *Journal of Manufacturing Processes,* Vol. 6 (1), pp. 81-87, 2004.
21. Y. Lu and **S. C. Chen***, "Micro and Nano-fabrication of Biodegradable Polymers for Drug Delivery", *Advanced Drug Delivery Reviews*, Vol. 56, pp. 1621-1633, 2004 (PMID: 15350292)
22. Y. Lu, D. B. Shao, and **S. C. Chen***, "Laser-assisted Photothermal Imprinting of Nanocomposites", *Applied Physics Letters*, Vol. 85 (9), pp.1604-1606, 2004.
23. D.B. Shao, S. F. Li and **S. C. Chen***, "Near-field-enhanced, Mold-assisted, Parallel Direct Nanostructuring of a Gold Thin Film on Glass", *Applied Physics Letters*, Vol. 85 (22), pp. 5346-5348, 2004.
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25. L.H. Han, **S. C. Chen***, "Wireless Bimorph Micro-actuators by Pulsed Laser Heating", *Sensors and Actuators A*, Vol. 121 (1), pp. 35-43, 2005.

26. S. F. Li, P. N. Floriano, N. Christodoulides, D. Y. Fozdar, D.B. Shao, M. F. Ali, P. Dharshan, S. Mohanty, D. Neikirk, J. T. McDevitt, **S. C. Chen***, "Disposable Polydimethylsiloxane/Silicon Hybrid Chips for Protein Detection", *Biosensors and Bioelectronics*, Vol. 21 (4), pp. 574-580, 2005.
27. Y. Lu, C. A. Aguilar, **S. C. Chen***, "Shaping Biodegradable Polymers as Nanostructures: Fabrication and Applications", *Drug Discovery Today*, Vol. 2 (1), pp. 97-102, 2005.
28. G. Mapili, Y. Lu, **S. C. Chen***, K. Roy*, "Laser-layered Microfabrication of Spatially Patterned Functionalized Tissue Engineering Scaffolds", *Journal of Biomedical Materials Research B,* Vol. 75B (2), pp. 414-424, 2005.
29. D.B. Shao and **S. C. Chen***, "Numerical Simulation of Surface-Plasmon-Assisted Nanolithography", *Optics Express*, Vol. 13 (18), pp. 6964-6973, 2005.
30. C. A. Aguilar, Y. Lu, S. Mao, and **S. C. Chen***, "Direct Micro-patterning of Biodegradable Polymers Using Ultraviolet and Femtosecond Lasers", *Biomaterials*, Vol. 26 (36), pp. 7642-7649, 2005. (PMID: 15950279)
31. A. J. Heltzel, S. Theppakuttai, J. R. Howell*, and **S. C. Chen***, "Analytical and Experimental Investigation of Laser-Microsphere Interaction for Nanoscale Surface Modification", *Journal of Heat Transfer*, Vol. 127, pp. 1231-1235, 2005.
32. D. B. Shao and **S. C. Chen***, "Surface-Plasmon-Assisted Nanoscale Photolithography by Polarized Light", *Applied Physics Letters*, Vol. 86, pp. 253107(1-3), 2005.
33. A. Battula, S. Theppakuttai, and **S. C. Chen***, "Direct, Parallel Nanopatterning of Silicon Carbide by Laser Nanosphere Lithography", *Journal of Microlithography, Microfabrication, and Microsystems*, Vol. 5 (1), pp. 011009 (1-5), 2006.
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37. A. Battula and **S. C. Chen***, "Extraordinary Transmission in a Narrow Energy Band for Metallic Gratings with Converging-Diverging Channels", *Applied Physics Letters*, Vol.89 (13), 131113, 2006.
38. L.H. Han, T.J. Tang, and **S. C. Chen***, "Turning the Absorptions of Au Nanospheres on a Microshell by Photo-Deformation", *Nanotechnology*, Vol. 17, pp.4600-4605, 2006.
39. N. Gomez, Y. Lu, **S. C. Chen**, C. E. Schmidt*, "Immobilized Nerve Growth Factor and Microtopography Have Distinct Effects on Polarization Versus Axon Elongation in Hippocampal Cells in Culture", *Biomaterials*, Vol. 28 (2), pp. 271-284, 2006. (PMID: 16919328)
40. D.B. Shao and **S. C. Chen***, "Direct Patterning of Three-dimensional Periodic Nanostructures by Surface-Plasmon-Assisted Nanolithography", *Nano Letters*, Vol. 6 (10), pp. 2279-2283, 2006.
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42. N. Gomez, S.C. Chen, and C. Schmidt*, "Polarization of Hippocampal Neurons with Competitive Surface Stimuli: Contact Guidance Cues are Preferred Over Chemical Ligands", *Journal of the Royal Society Interface,* Vol. 4, pp. 223-233, 2007. *(*PMID: 17251152)
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44. A. J. Heltzel, A. Battula, J. R. Howell*, and **S. C. Chen***, "Nanostructuring Borosilicate Glass with Near-field Enhanced Energy Using a Femtosecond Laser Pulse", *Journal of Heat Transfer*, Vol. 129 (no.1), pp.53-59, 2007.
45. A. Battula, Y. L. Lu, R. J. Knize, K. Reinhardt, **S. C. Chen***, "Extraordinary Transmission and Enhanced Emission with Metallic Gratings Having Converging-Diverging Channels", *Active and Passive Electronic Components*, Vol. 2007, Article ID 24084, December 2007.
46. K. C. Dickey, S. Subramanian, J. E. Anthony, L. H. Han, **S. C. Chen**, and Y. L. Loo*, "Large-area patterning of a solution-processable organic semiconductor to reduce parasitic leakage and off currents in thin-film transistors", *Applied Physics Letters*, Vol. 90, 244103, 2007.
47. A. Battula, **S. C. Chen***, Y. L. Lu, R. J. Knize, K. Reinhardt, "Tuning the extraordinary optical transmission through subwavelength hole array by applying a magnetic field", *Optics Letters*, 32 (18), pp. 2692-2694, 2007.
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50. A. J. Heltzel, S. Theppakuttai, **S. C. Chen***, and J. R. Howell*, **"**Surface Plasmon-Based Nanopatterning Assisted by Gold Nanospheres", *Nanotechnology*, Vol. 19 (2), pp. 025305 (1-6), 2008.
51. L. H. Han, G. Mapili, **S. C. Chen***, K. Roy, "Projection Microfabrication of Three-Dimensional Scaffolds for Tissue Engineering", *Journal of Manufacturing Science and Engineering*, Vol. 130, pp. 021005 (1-4), April 2008.
52. D. B. Shao and **S. C. Chen***, "Surface Plasmon Assisted Contact Scheme Nanoscale Photolithography Using a UV Lamp", *Journal of Vacuum Science and Technology B*, Vol. 26 (1) pp. 227-231, 2008.
53. D.Y. Fozdar, W. Zhang, M. Palard, C.W. Patrick, and **S. C. Chen***, "Flash Imprint Lithography Using a Mask Aligner: a Method for Printing Nanostructures in Photosensitive Hydrogels," *Nanotechnology*, Vol. 19, pp. 215303 (1-13), 2008.
54. Y. Lu and **S. C. Chen***, Direct-write of Microlens Array Using Digital Projection Photopolymerization", *Applied Physics Letters*, Vol. 92 (4) pp. 041109 (1-3), 2008.
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39. **S.C. Chen***, L. H. Han, G. Mapili, K. Roy, "Projection Direct-write of Tissue Engineering Scaffolds", *Proceedings of 2008 NSF Engineering Research and Innovation Conference*, Knoxville, TN, 2008.
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45. W. Wang, S. Wu, **S.C. Chen**, "Surface Plasmons –Assisted Broadband Light Absorption Enhancement in Thin-Film Silicon Solar Cells," *Proceedings of 2011 NSF CMMI Engineering Research and Innovation Conference*, Atlanta, 2011.
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7. **S. C. Chen**, "Building a New CAREER in Laser Nanomanufacturing" in *NSF CAREER Proposal Writing Tips* (Editor: Z.J. Pei), 2007.
8. D. A. Fozdar, Y. Lu, D. B. Shao, and **S. C. Chen***, "*Chapter 4: Nano/Microfabrication Techniques for Organic Electronics and Photonics*",* book chapter in *Handbook of Organic Electronics and Photonics* (American Scientific Publishers), 2007.
9. **S. C. Chen** (Editor), *Nanomanufacturing* (American Scientific Publishers), 2009.
10. Y. Lu and **S. C. Chen***, "Projection Printing of 3-Dimensional Tissue Scaffolds", book chapter in *Computer Aided Tissue Engineering* (Editor: M. Liebschner) (Springer), 2012.
11. W. Zhang, P. Chung, A. Zhang, **S. C. Chen***, "Chapter 10. Biomimetic materials and laser processing of natural-based biomaterials", pp. 237-258, book chapter in *Laser Technology in Biomimetics: Basics and Applications* (Editor: V. Schmidt and M. Belegratis) (Springer), 2013.
12. P. Soman and **S. C. Chen***, "Chapter 3: Projection Printing of 3-Dimensional Tissue Scaffolds with Tunable Poisson's Ratio", pp. 47-56, book chapter in *Biofabrication* (Editors: W. Sun and G. Forgacs) (Elsevier), 2013.
13. W. Zhu, J. G. Ock, X. Ma, W. Li, and **S. C. Chen***, "3D Printing and Nanomanufacturing", pp. 25-55, book chapter in *3D Bioprinting and Nanotechnology in Tissue Engineering and Regenerative Medicine* (Editors: L. Zhang, J.P. Fisher, and K. W. Leong) (Elsevier), 2014.
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16. P. Wang, S.-H. Pyo, W. Zhu, H. Hwang, **S.C. Chen***, "3D printing of polyurethanes for biomedical applications", book chapter in *Emerging Technologies for Biofabrication and Biomanufacturing* (Editors: P. Chen and R.E. Assal) (World Scientific Publishing), 2020.
17. D. Berry, C. Yu, **S.C. Chen***, "Chapter 75: Biofabricated three-dimensional tissue models", book chapter in *Principles in Tissue Engineering 5th Edition* (Editors: Langer et al.) (Elsevier), 2020)
18. J. Li, S. You, **S.C. Chen***, "Femtosecond laser assisted nanoscale 3D printing of hydrogels", pp 1-28, Book chapter in *Handbook of Laser Micro- and Nano-Engineering* (Editor: Koji Sugioka**)** (Springer), 2021.
19. M. Tang, D. Berry, K. Miller, X. Ma, **S.C. Chen*, "**Chapter 2: Bioprinting of biomimetic tissue models for disease modeling and drug screening", pp 33-70, book chapter in *3D Bioprinting and Nanotechnology in Tissue Engineering and Regenerative Medicine* (Editors: L. Zhang, J.P. Fisher, and K. W. Leong) (Elsevier), 2022.

20. Z. Zhong and **S. C. Chen***, "3D Bioprinting for the Regenerative Medicine and Disease Modeling of Ocular Surface", book chapter in *Advances in 3D Bioprinting*, Taylor & Francis (Editor Roger Narayan), 2023.

Keynote/Plenary Lectures

1. Keynote Lecture, "Nanomanufacturing", *International Conference on Frontiers of Design and Manufacturing*, Tianjin, China, September 22-24, 2008.
2. Keynote Talk, "Nanomanufacturing: Challenges and Opportunities", *Nanomanufacturing Summit*, Boston, May 2009.
3. Keynote Talk, "Nanomanufacturing: Challenges and Opportunities", *SPIE Annual Conference*, San Diego, 2010.
4. The Corinne Bower Lecture, "3D Bioprinting: Materials, Fabrication, and Tissue Engineering", *Pre Retina Society Annual Meeting*, Philadelphia, PA, 2014
5. Plenary Talk, "Femtosecond Laser Assisted 3D Nano-printing", *International Congress on Applications of Lasers & Electro-Optics (ICALEO),* San Diego, 2014.
6. Keynote Talk: ""3D Bioprinting: An Enabling Technology for Tissue Engineering and Regenerative Medicine", 9th UCSD-UST Bilateral Symposium, Taiwan, Nov. 16, 2015.
7. Keynote Talk: "Nano and Microscale Rapid 3D Printing for Regenerative Medicine", *5th ASME NanoEngineering for Medicine and Biology Conference (NEMB)*, Houston, Feb 22-23, 2016.
8. Keynote Talk, "Rapid Scanningless 3D Printing: Vision, Status, and Research Needs," *NSF Additive Manufacturing for Health Workshop*, Arlington, VA, March 16-17, 2016.
9. Keynote Talk: "3D Bioprinting: An Enabling Technology for Tissue Engineering and Regenerative Medicine", *Nature Conference on Tissue Engineering and Regenerative Medicine* (Guangzhou, April 7–9, 2016).
10. Keynote Talk: "3D Bioprinting: An Enabling Technology for Early Drug Screening and Disease Modeling", *CAST-SD Annual Conference, San Diego, CA,* December 11, 2016
11. Keynote Talk: "Rapid 3D BioPrinting of Scaffolds and Microphysiological Systems", *International Conference on Biofabrication 2017*, Beijing, China, October 15-18, 2017.
12. Keynote Talk: "Continuous projection 3D bioprinting for functional scaffolds and tissue models", *Select Biosciences Organ-on-a-Chip and 3D-Printing World Congress 2018*, October 4-5, 2018, San Diego, CA.
13. Plenary Talk, "Nano and Microscale Light-based 3D Bioprinting: An Enabling Technology for Regenerative Medicine", *International Congress on Applications of Lasers & Electro-Optics (ICALEO),* Orlando, FL., 2018.
14. Keynote Talk: "Microscale light-based 3D printing of functional scaffolds for precision tissue engineering", *Society of Engineering Science Annual Meeting*, Oct. 13-15, 2019, St. Louis, MO.
15. Keynote Talk: "Modulating Physical, Chemical, and Biological Properties of Tissue Constructs via Rapid 3D Bioprinting", *Select Biosciences Organ-on-a-Chip and 3D-Printing World Congress 2019*, October 14-15, 2019, San Diego, CA.
16. Keynote Talk: "Nanobots: Design, Fabrication, and Emerging Biomedical Applications", *NSF Nano Grantees Conference*, Dec 9-10, 2019, Washington DC.
17. Keynote Talk: "DMD-based Rapid 3D Bioprinting for Precision Tissue Engineering and Regenerative Medicine", *Emerging Digital Micromirror Device Conference, SPIE Photonic West 2020*, Feb. 1-5, 2020, San Francisco, CA.
18. Keynote Talk: "Nano and Microscale 3D Bioprinting at 20 Years of National Nanotechnology Initiative", *NSF Nano Grantees Conference*, December, 2020, Washington DC.
19. Keynote Talk: "Rapid High Throughput 3D Bioprinting for Early Drug Screening and Disease Modeling", *CAST-USA Annual Conference,* December 19, 2020

20. Keynote Talk: “Nano and Microscale Light-based 3D Bioprinting for Tissue Engineering and Regenerative Medicine”, *12th International Conference on Nanotechnology: Fundamentals and Applications*, August 05 – 07, 2021
21. Keynote Talk: “DLP-based Rapid bioprinting for 3D tissues”, SelectBIO Conference on Bioprinting and Bioink Innovations for 3D-Tissues, October 6, 2021.
22. Plenary Talk: “Rapid 3D Bioprinting for Tissue Engineering and Regenerative Medicine”, 2nd Global Summit on Biomaterials and Applications, August 25-27, 2022, Edinburgh, Scotland.
23. Plenary Talk, “3D Bioprinting for Tissue Engineering and Regenerative Medicine”, Global Summit and Expo on Nanotechnology and Applications, Las Vegas, December 01-03, 2022.
24. Keynote Talk: “Capturing in vivo Conditions with Multi-material DLP Bioprinting”, Webinar on Bioprinting, Sept 12, 2023.
25. Keynote Talk: “Rapid DLP-based bioprinting for tissue engineering and regenerative medicine”, *International Conference on Biofabrication*, Saskatoon, Canada, Sept. 17-20, 2023
26. Keynote Talk: “Translating DLP bioprinters: from prototypes to commercial products” Symposium for Translational Biofabrication: From Benchtop to Bedside, *International Conference on Biofabrication*, Saskatoon, Canada, Sept. 17-20, 2023.
27. Keynote Talk: “Rapid DLP Bioprinting for Tissue Engineering and Regenerative Medicine”, *Bioprinting Partnership Conference*, Portsmouth, UK, Oct 25-27, 2023.
28. Plenary Talk, “Design Innovations for DLP Bioprinting and Tissue Engineering”, 4th International Conference on Biomaterials, Bio-Design and Manufacturing, August 18–20, 2024, Tokyo, Japan.
29. Plenary Talk, “High Cell Bioprinting towards Organ Manufacturing”, 5th International Conference on Biomaterials, Bio-Design and Manufacturing, August 8–10, 2025, Oxford, UK.
30. Keynote Talk: “Rapid 3D Bioprinting for Tissue Engineering and Regenerative Medicine”, *NYCU–UCSD Bilateral Symposium,* October 13–14, 2025, Taiwan.

Abstracts and Technical Presentations

1. **S.C. Chen** (poster), “Laser Micromachining of Biodegradable Polymers”, *National Science Foundation DMII Division Grantees Conference*, January 2002.
2. S. Li and **S. C. Chen** (poster), “Heat-conduction Based, Nano-liter Scale, Continuous Flow PCR for DNA Amplification”, *BECON*, National Institute of Health (NIH), May 2002.
3. S. Theppakuttai (speaker) and **S. C. Chen,** “Laser Micromachining of a Shape Memory Alloy”, *Nanospace2002,* May 2002.
4. Y. Lu (speaker), **S. C. Chen,** “Nano-sphere Assisted Nanolithography”, *Nanospace,* May 2002.
5. S. Li (speaker) and **S. C. Chen,** “Analytical Analysis of a PZT-actuated Valveless Micropump”, *Nanospace 2002,* May 2002.
6. G. Mapili (poster), Y. Lu, **S. C. Chen,** and K. Roy, “Spatio-temporal Patterning of Microfabricated Polymer Scaffolds for Stem Cell Engineering”, *Biomedical Engineering Society Annual Fall Meeting*, Nashville, TN, October 1-4, 2003.
7. G. Mapili (poster), Y. Lu, **S. C. Chen**, and K. Roy, “Spatio-temporal Patterning of Growth Factors in Micro-fabricated Scaffolds”, *30th Annual Meeting & Exposition of the Controlled Release Society*, Glasgow, July 19-23, 2003.
8. **S.C. Chen** (poster), “Laser Nanosphere Lithography of Biodegradable Polymers”, *National Science Foundation DMII Division Grantees Conference*, Jan. 2003.
9. G. M. Mapili (speaker), Y. Lu, S. C. Chen, and K. Roy, “Microfabrication of Spatio-temporally Patterned Polymer Scaffolds for Stem Cell Engineering,” Society for Biomaterials Program, *Biomaterials in Regenerative Medicine: The Advent of Combination Products,* Philadelphia, PA, October 16-18, 2004.

10. N. Gomez (poster), C. Schmidt, and **S.C. Chen**, "Studies on Competitive Responses in Neurons to Extracellular Cues Using Microfabricated Systems", *Biomedical Engineering Society Annual Fall Meeting*, 2004.
11. G. M. Mapili (speaker), Y. Lu, **S. C. Chen,** and K. Roy, "Spatio-Temporally Patterned Polymer Scaffolds for Stem Cell Engineering," *AIChE 2004 Annual Meeting,* Austin, November 2004.
12. **S. C. Chen** (poster), "Laser Micro/Nano-scale Processing of Biodegradable Polymers", *National Science Foundation DMII Division Grantees Conference*, Jan. 2004.
13. **S. C. Chen** (speaker), "Transport and Mechanics Issues in Laser Nanomanufacturing", *US-China NSF Workshop of Young Investigator Awardees in Bio and Nano Mechanics and Materials*, Dec 2005 (**Invited Talk**).
14. D.B. Shao and **S.C. Chen**, "Surface Plasmons-Assisted Nanoscale Photolithography", *ASME Integrated Nanosystems Conference*, Berkeley, 2005.
15. L.H. Han and **S.C. Chen**, "Photo-deformation of Microshells of Nanometer Thick", *ASME Integrated Nanosystems Conference*, Berkeley, 2005.
16. **S. C. Chen** (speaker), "Nanomanufacturing using near-field laser optics", *ASME International Mechanical Engineering Congress and Exposition*, Dec 2005 (**Invited Talk**).
17. A.R. Battula, S. Theppakuttai and **S.C. Chen**, "Nanosphere-Assisted Direct-patterning of Silicon Carbide by a Nanosecond Pulsed Laser", *International Congress on Applications of Lasers and Electro-Optics,* Florida, 2005.
18. A. Battula, S. Theppakuttai, and **S. C. Chen**, "Multi-photon Effects in Nanomachining of SiC by a Nanosecond Pulsed Laser", *Conference on Laser Ablation*, Banff, Canada, 2005.
19. N. Gomez (poster), C. Schmidt, and **S.C. Chen**, "Neuron Response to Simultaneous and Competing Extracellular Cures", *Biomedical Engineering Society Annual Fall Meeting*, 2005.
20. G. Mapili (poster), Y. Lu, **S. C. Chen,** and K. Roy, "3D-Laser Scanning Stereolithography for Spatio-Temporal Patterning of Polymer Scaffolds," *Biomedical Engineering Society Annual Fall Meeting*, Oct. 2005, Baltimore, MD.
21. Y. Lu (poster), G. Mapili, **S. C. Chen,** and K. Roy, "Laser Scanning Stereolithography for Spatio-Temporal Patterning of Tissue Scaffolds," *16th Symposium of Solid Freeform Fabrication*, Austin, TX, 2005
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23. D.B. Shao (speaker), Y. Lu, and **S.C. Chen**, "Surface-Plasmon-Assisted, High-Density, Sub-100 nm Photolithography", *Second Conference on Nanoscale Devices & System Integration (NDSI)*, Houston, 2005.
24. L.H. Han (speaker), T.J. Tang, **S.C. Chen**, and S. E. Webber, "Photo-deformable Micro-shells", *Second Conference on Nanoscale Devices & System Integration (NDSI)*, Houston, 2005.
25. **S.C. Chen**, "Biomanufacturing and Nano-Bio-Mechanical Systems", *UK-UT Workshop on Tissue Engineering and Regenerative Medicine*, Houston, 2005.
26. G. Mapili (speaker), M. H. Kim, L. Nguyen, Y. Lu, **S.C. Chen**, K. Roy, "Spatially Patterned Microfabricated Polymer Scaffolds for Tissue Engineering", *Biomedical Engineering Society Annual Fall Meeting*, Oct 11-14, Chicago, 2006.
27. Y. Lu (speaker), **S.C. Chen**, "A Digital Micro-Mirror Device (DMD)-based System for the Microfabrication of Complex, Spatially Patterned Tissue Engineering Scaffolds", *The Seventeenth Solid Freeform Fabrication Symposium*, Austin, 2006.
28. Y. Lu (speaker), **S.C. Chen**, "Ultra-fast Direct Forming of Microlens Arrays Using Digital Micro-Mirror Projection"**,** *The Seventeenth Solid Freeform Fabrication Symposium*, TX, 2006.

29. G. Mapili (speaker), Y. Lu, G. Suhali, M. H. Kim, **S.C. Chen**, K. Roy, "A Digital Micro-Mirror Device (DMD)-based Stereolithography System for the Microfabrication of Complex, Spatially Patterned Tissue Engineering Scaffolds", *2006 Society for Biomaterials Annual Meeting*, April 26-29, Pittsburgh, PA.
30. D.Y. Fozdar (speaker), W. Zhang, M. Palard, C.W. Patrick, and **S.C. Chen**, "Nanoimprinting in xPolyethylene Glycol Using an Optical Aligner," *Biomedical Engineering Society Annual Fall Meeting*, September 26-29, 2007, Los Angeles.
31. A. R. Battula (speaker) and **S.C. Chen**, "Extraordinary Transmission and Enhanced Emission with Metallic Gratings having Converging-Diverging Channels", *AVS 54th International Symposium*, October 14-19, 2007, Seattle.
32. A. R. Battula, D.B. Shao, and **S.C. Chen**, "Extraordinary Transmission in Metallic Apertures and Applications for Nanolithography", *The 6th Asia-Pacific Conference on Near-Field Optics,* Yellow Mountain, China, 2007 (**Invited Talk**).
33. G. Mapili (speaker), L. Han, J. Rytlewski, L. Nguyen, M. Kim, **S.C. Chen**, K. Roy, "Microfabricated Scaffolds for Spatially Patterned Multi-lineage Differentiation of Stem Cells", *Society for Biomaterials Annual Meeting*, April, 2007, Chicago.
34. G. Mapili (speaker), L. Nguyen, M. Kim, J. Rytlewski, Y. Lu, **S.C. Chen**, K. Roy, "Spatially Patterned Microfabricated Scaffolds Towards Engineering Complex Tissues", *The 11th Annual Hilton Head Workshop- Tissue Engineering and Regenerative Medicine*, March 7-11, 2007, Hilton Head Island, SC.
35. C.A. Aguilar (speaker), A. Mavrokefalos, B.A. Korgel, **S.C. Chen**, R. Haight, "Electronic Properties and Performance of Molecular Engineered ZnO Nanowires" - *Gordon Research Conference*, Tilton, NH, July 13-18, 2008.
36. W. Zhang (speaker), L.H. Han, **S.C. Chen**, "Surface-Plasmon-Assisted Two-Photon Polymerization of Sol-Gels", *19th Annual International Solid Freeform Fabrication Symposium*, Austin, TX 2008.
37. **S.C. Chen** (speaker), H.H. Kwon, N. Mitchell, and Y.B. Guo, "Experimental Investigation on Sub-Micron Scale Laser Shock Peening of Metallic Surfaces", *19th Annual Advanced Aerospace Materials and Processes Conference and Exhibition*, Austin, TX, June 2008.
38. **S.C. Chen** (speaker), L.H. Han, W. Zhang, "Laser Micromanufacturing of Polymer Nanocomposites", *19th Annual Advanced Aerospace Materials and Processes Conference and Exhibition*, Austin, TX, June 2008.
39. M. P. Sealy (speaker), Y. B. Guo, **S.C. Chen**, "Modeling and Experimental Analysis of Micron Surface Dents and Mechanical Behavior During Laser Shock Peening of Ti-6Al-4V", *19th Annual Advanced Aerospace Materials and Processes Conference and Exhibition*, Austin, TX, June 2008.
40. D. Y. Fozdar (poster), X. M. Wu, C.W. Patrick, and **S.C. Chen**, "Micro-well Texture Printed into PEG Hydrogels Using the FILM Nanomanufacturing Process Affects the Behavior of Preadipocytes", *2008 World Biomaterials Congress*, Netherlands.
41. A.S. Paranjape (speaker), L. Ma, J. Qiu, W. Zhang, K. Johnston, **S.C. Chen**, T. E. Milner, "Femtosecond Laser Irradiation of Infrared Absorbing Nanoparticles in Tissue Phantoms", *28th Annual Conference of ASLMS*, April 2-6, 2008, Kissimee, Florida
42. **S.C. Chen** (poster), "Laser Direct-write of Micro and Nano-dents in metals for enhanced fatigue performance", *National Science Foundation CMMI Grantees Conference*, Knoxville, TN, 2008.
43. **S.C. Chen** (poster), "Projection Direct-write of Tissue Engineering Scaffolds", *National Science Foundation CMMI Grantees Conference*, Knoxville, TN, 2008.

44. **S.C. Chen** (poster), "Surface Plasmon Assisted Nanolithography Using a UV Lamp" *National Science Foundation CMMI Grantees Conference*, Knoxville, TN, 2008.
45. **S.C. Chen**, "Plasmonics: Extraordinary Transmission for Imaging and Nanolithography", *The 126th ECS meeting*, Vienna, Austria, 2009 (**Invited Talk**).
46. **S.C. Chen**, "Bionanomanufacturing: Processing, Devices, and Cell Studies", *ICALEO 2009*, Orlando, FL, 2009 (**Invited Talk**).
47. **S.C. Chen**, "Nanomanufacturing: Challenges and Opportunities from Design to Fabrication", *IEEE International Conference on CAD/Graphics*, Huangshan, China, 2009 (**Invited Talk**).
48. S. Wu, W. Wang, **S.C. Chen**, "Optical Enhancement in Solar Cells by the Incorporation of Periodic Metallic Nanopatterns", *SPIE Annual Conference*, San Diego, 2009.
49. W. Zhang, L. H. Han, **S.C. Chen**, "Nanoimprinting Using Molds Prepared by Two-Photon Polymerization," *SPIE Annual Conference*, San Diego, 2009.
50. S. Wu, L.H. Han, **S.C. Chen**, "Localization of Gold Nanoparticles with Three-dimensional Selectivity in Polymer Microstructures," *SPIE Annual Conference*, San Diego, 2009.
51. L. H. Han, W. Zhang, **S.C. Chen**, "Equipment and Method for Heterogeneous, 3D fabrications at micro-meter scales", *20th Annual International Solid Freeform Fabrication Symposium*, Austin, TX 2009.
52. R. Gauvin, Y. C. Chen, J.W. Lee, P. Soman, P. Zorlutuna, J. Nichol, **S.C. Chen,** A. Khademhosseini, "Microfabrication of complex porous scaffolds for tissue engineering applications using 3D projection stereolithography", TERMIS 2011.
53. P. Soman, W. Zhang, A. Umeda, Z.W. Zhang and **S.C. Chen**, "Femtosecond Laser-Assisted Optoporation for Drug and Gene Delivery into Single Mammalian Cells"**,** *Society for Biomaterials Annual Meeting*, Orlando, April 2011.
54. P. Soman, J.W. Lee, D. Fozdar, L.H. Han, and **S.C. Chen**, "3D Biomaterial Scaffolds Exhibiting a Tunable Negative Poisson's Ratio", *Society for Biomaterials Annual Meeting*, Orlando, April 2011.
55. P. Soman, W. Zhang, A. Umeda, Z.W. Zhang and **S.C. Chen**, "Targeted Optoporation of HEK Cells with GFP Using Femtosecond Laser Optoporation", *MRS Spring Meeting*, San Francisco, April 2011.
56. P. Soman, J.W. Lee, D. Fozdar, L.H. Han, and **S.C. Chen**, "A Tunable Negative Poisson's Ratio 3-D Biomaterial Construct", *MRS Spring Meeting*, San Francisco, April 2011.
57. **S.C. Chen**, "Laser-assisted bio and nanomanufacturing: processing, devices, and cell studies", NSF Workshop on Laser Processing and Energy Applications, Berkeley, CA, 2011(**Invited**).
58. **S.C. Chen**, "Direct-Write of 3D Functional Biomaterials using Projection Stereolithography", Lab-on-a-Chip World Congress, San Diego, Sept. 2012 (**Invited**).
59. P. Chung, P. Soman, **S. C. Chen**, "Complex 3D cell-laden hydrogels via dynamic stereolithography for co-culture applications, Biomedical Engineering Society Annual conference, Atlanta, October 2012.
60. P. Soman, J.W. Lee, A. Phadke, D. Fozdar, S. Varghese and **S. C. Chen**, "A novel approach to tune Poisson's ratio of biological scaffolds. Biomedical Engineering Society Annual conference, Atlanta, October 2012.
61. P. Soman, J. Kelber, J.W. Lee, T. Wright, K. Vecchio, R. Klemke and **S. C. Chen**, "Three dimensional analysis of tumor cell migration reveals unique features of oncogene-induced motility that depend upon substrate stiffness", Society for Biomaterials 2012 Fall Symposium, New Orleans, October 2012.
62. S.P. Grogan, P. H. Chung, P. Soman, P. Chen, M.K. Lotz, **S. C. Chen**, D. D. D'Lima, "Digital-Micromirror-Device Projection Printing System for Meniscus Tissue Engineering", Orthopedic Research Society ORS annual meeting, San Antonio, TX, January 2013.

63. A. P. Zhang, X. Qu, P. Soman, **S. C, Chen,** "3D Printing of Microstructures in Hydrogels for Tissue Engineering", 4th Asia Biomaterials Congress, Hong Kong, June 27, 2013.
64. **S.C. Chen**, "Microscale 3D printing of designer scaffolds for cardiac tissue engineering," NHLBI Symposium on Cardiovascular Regenerative Medicine, Bethesda, MD, 2013.
65. **S.C. Chen**, "Rapid, Direct Printing of Vasculature-like Structures in Hydrogel", BIO-PRINTING - Additive/3D for BioMedical Summit, Atlanta, GA, 2013 (**Invited**).
66. K. C. Hribar, **S. C. Chen**, "Patterned Mechanical Stiffening of PEG Hydrogels by Near-Infrared light", IMECE, San Diego, November 19, 2013.
67. J. Liu, **S. C. Chen**, "Microfabrication of Physiologically Relevant Three-Dimensional Cardiac Tissue Constructs Mimicking Native Tissue", Biomedical Engineering Society Cellular and Molecular Bioengineering Meeting, Jan 7-11, 2014
68. K. C. Hribar, Y. S. Choi, M. Ondeck, A. J. Engler, **S. C. Chen**, "Patterning of Hydrogel-Gold Nanoparticle Composites by Near-Infrared Light", MRS Spring Meeting, San Francisco, April 24, 2014.
69. **S.C. Chen**, "3D Bioprinting: Materials, Fabrication, and Tissue Engineering", The Corinne Bower Lecture, Pre-Retina Society Annual Meeting, Philadelphia, September 11, 2014 (**Invited**).
70. **S.C. Chen**, "Incorporating Nanoelements in Micro-architectures by 3D Printing" International Congress on the Applications of Lasers & Electro-optics, San Diego, October 20, 2014 (**Invited**).
71. K. C. Hribar, Y. S. Choi, M. Ondeck, A. J. Engler, **S. C. Chen**, "Patterned Mechanical Stiffening of PEG Hydrogels by NIR laser", Biomedical Engineering Society (BMES) Annual Meeting, San Antonio, Texas, October 22-25, 2014.
72. **S.C. Chen**, "3D Bioprinting: An Enabling Technology for Stem Cell Engineering", 2014 Stem Cell Meeting on the Mesa IX, La Jolla, CA, 2014 (**Invited**).
73. W. Zhu, **S.C. Chen**, "Micro- and Nanoscale 3D Bioprinting for Functional Tissue Scaffolds" Functional Analysis and Screening Technologies Congress, Boston, MA, Nov. 17-19, 2014. (**Invited**)
74. K. Kim, W. Zhu, **S.C. Chen**, and D. Sirbuly, "3D optical printing of piezoelectric nanoparticle-polymer", Photonics West, 2015 (**Best Paper Award**)
75. **S.C. Chen**, "Nano and Microscale 3D Bioprinting: An Enabling Technology for Personalized Regenerative Medicine", National Academy of Engineering (NAE) China-American Frontiers of Engineering Symposium, Irvine, CA, June 1-3, 2015. (**Invited**)
76. **S.C. Chen**, "Micro and Nanoscale 3D Bioprinting for Functional Tissue Scaffolds", TERMIS 2015, Boston. (**Invited**)
77. **S.C. Chen**, "Blue Sky Technology: Nanobots", NIH 3rd Annual Human Placenta Project Meeting, Bethesda, MD, April 14-15, 2016) (**Invited**).
78. **S.C. Chen**, "3D Bioprinting for Functional *in vitro* Tissue Models", 2016 World Congress on In Vitro Biology, San Diego, June 2016 (**Invited**)
79. F. Xu, T. Kang, J. Deng, J. Liu, X. Chen, Y. Wang, L. Ouyang, T. Du, H. Tang, X. Xu, **S.C. Chen**, Y. Du, Y. Shi, Z. Qian, Y. Wei, H. Deng, M. Gou, **"**3D printing of a liver-inspired device for blood detoxification", 10th World Biomaterials Congress, Montreal, Canada, May 27, 2016
80. **S.C. Chen**, "Rapid 3D Printing of Nano-bots", Functional and Nanomaterials 2025 conference**,** Irvine, CA Sept 15-16, 2016. (**Invited**)
81. **S.C. Chen**, "Rapid 3D BioPrinting of Liver Tissues", Biofabrication 2016, October 29-30, NC, 2016
82. **S.C. Chen**, "Rapid 3D Printing of Tubular Structures in Biopolymers", **10th** UCSD-UST Bilateral Symposium, La Jolla, Nov. 16, 2016 (**Invited**)

83. **S.C. Chen**, "3D BioPrinting: Technology Overview", Panelist for the workshop – "Perspectives on the Commercialization of Bioprinting in Regenerative Medicine". TERMIS-AM Annual Meeting, San Diego, December 11, 2016 (**Invited**)
84. **S.C. Chen**, "Interplay of Materials and Mechanics in 3D Scaffolds through Rapid 3D Printing" Panelist for the workshop – "Development of New Biomaterial Scaffolds for Tissue Engineering". TERMIS-AM Annual Meeting, San Diego, December 11, 2016 (**Invited**)
85. **S.C. Chen**, "Rapid 3D Bioprinting for Precision Tissue Engineering", Frontier Tech Forum San Diego, December 14, 2016 (**Invited**)
86. **S.C. Chen**, "3D Printing of Precision Tissue Models", Workshop on 3D Printing in Medical Imaging, SPIE Medical Imaging Conference, Orlando, Florida, February 13-16, 2017 (**Invited**)
87. D. B. Berry, S. You, J. Warner, L. Frank, **S.C. Chen**, S. R. Ward, "Quantitation of DTI changes associated with muscle injury using a 3D printed phantom" ISMRM 25th Annual Meeting & Exhibition, Honolulu, April 22-27, 2017.
88. W. Zhu, **S.C. Chen**, "Rapid 3D BioPrinting of Designer Scaffolds for Microphysiological Systems", Conference on 3D Bioprinting: Physical and Chemical Processes, Winston Salem, NC, May 2-3, 2017 (**Invited**)
89. **S.C. Chen**, "Rapid 3D Printing of Scaffolds and Microphysiological Systems", Additive Manufacturing Partnership Meeting, US Patent and Trademark Office (USPTO), June 1, 2017 (**Invited**).
90. **S.C. Chen**, "Rapid 3D BioPrinting: An Enabling Technology for Microphysiological Systems", Symposium on Organ-on-a-Chip: A More Ethical, Economical, and Effective Model System, San Diego, May 2017. (**Invited**)
91. **S.C. Chen**, "Rapid 3D bioprinting of prevascularized tissue constructs", BioPharm America fall meeting- "From Bench to Bedside: Translational Driven Animal Model Development for Drug Discovery", Boston, September 26, 2017. (**Invited**)
92. **S.C. Chen**, "Rapid 3D Bioprinting of Functional Scaffolds and Micro-physiological Systems", AHA Scientific Session, Anaheim, CA, November 2017. (**Invited**)
93. W. Zhu and **S.C. Chen**, "3D bioprinting: Processes, Materials, and Tissue Engineering Applications", 3D Printing Workshop, Minneapolis, MN, Jan 9, 2018. (**Invited**)
94. **S. C. Chen**, "Rapid 3D Bioprinting: an Enabling Technology for Microphysiological Systems", Research Society on Alcoholism meeting, San Diego, June 2018. (**Invited**)
95. C. Yu, **S.C. Chen, "**Rapid Digital 3D Bioprinting of Human Tissues with Tunable Decellularized Extracellular Matrix Bioinks", UC System-wide Bioengineering Symposium, Riverside, CA, June 2018.
96. Wangpraseurt D, You S, Hildebrand M, Gaidarenko O, Deheyn D, **Chen S.** & Vignolini S. Gordon Research Conference on Multifunctional Materials and Structures. Ventura, USA, 2018
97. **S. C. Chen**, "Nanoscale Light-based 3D Bioprinting: An Enabling Technology for Regenerative Medicine", ACS National Annual Meeting, Boston, August 2018. (**Invited**)
98. K. Miller, C. Yu, J. Schimelman, **S.C. Chen**, "Rapid 3D Bioprinting of Gelatin Hydrogels via Click Chemistry", Cellular and Molecular Bioengineering Conference, Coronado, CA, Jan 2-6, 2019.
99. S. You, C. Yu, **S.C. Chen**, "Rapid 3D Printing of Multiscale and Multi-Functional Materials", UCSD-bilateral symposium, March 2019.
100. D. B. Berry, E. Englund, V. Galinsky, C. Konersman, **S.C. Chen**, S. R. Ward, L. Frank, "Simulated effect of diffusion time and skeletal muscle fiber size on the diffusion tensor", International Society for Magnetic Resonance in Medicine (ISMRM) Annual Meeting & Exhibition, Montreal, Canada, 2019.
101. **S.C. Chen**, "High-Precision and High-Throughput 3D Bioprinting of Functional Tissue Constructs", *JDRF 3D Bioprinting Workshop*, July 24, 2019, New York. (**Invited**)

102. **S.C. Chen**, "Rapid 3D Bioprinting for Vascular Tissue Engineering", AHA Scientific Session, Philadelphia, PA, November 2019. (**Invited**)
103. J. Schiemelman, **S.C. Chen**, "Bottom-up design of a 3D-printed multi-microchannel nerve conduit for axonal guidance and vascular integration", ACS Spring meeting, April 5-30, 2021
104. Z. Zhong, **S.C. Chen**, "Injectable Hydrogel Micro-Scaffolds Encapsulating Conjunctival Stem Cells for Subconjunctival Ocular Delivery", MRS Spring Meeting, April 18 - 23, 2021
105. **S.C. Chen**, "Rapid 3D Bioprinting of Stem Cell-based Human Placenta-on-a-Chip," Annual Meeting of the Society for Reproductive Investigation, Boston, July 6, 2021 (**Invited**)
106. D. Wangpraseurt, S. Yu, D. Deheyn, **S.C. Chen**, S. Vignolini, "3D bioprinting corals: a new tool for coral reef science", ICRS 2021 - 14th International Coral Reef Symposium, Bremen, Germany, July 19-23, 2021.
107. **S.C. Chen**, "Rapid 3D Bioprinting for Precision Tissue Engineering", 3D Bioprinting Conference, AICHE, Sept. 21-23, 2021**(invited).**
108. **S.C. Chen**, "3D Bioprinting of Prevascularized Tissue Constructs with Complex Microarchitecture", American Heart Association's Scientific Sessions 2021. (**Invited**)
109. **S.C. Chen, "**Rapid 3D Printing of Multi-functional Adaptive Nerve Conduits", NIH Workshop - '*Towards realizing bioprinted tissue construct for OB/GYN and Pediatric applications*', November 16-17, 2021**(Invited).**
110. **S.C. Chen**, "Rapid 3D Bioprinting for Precision Tissue Models", Congressionally Directed Medical Research Program (CDMRP) and the National Institutes on Deafness and Other Communication Disorders (NIDCD) workshop on *Improving Ex Vivo Models to Accelerate Therapies to Treat Hearing Loss*. November 18, 2021 (**Invited**)
111. J. Schiemelman, **S.C. Chen**, "3D Bioprinting of Cell-Laden Neurotrophic Factory Gradient Conduit for Functional Neural Repair", Pacifichem 2021 Congress, Honolulu, Hawaii December 16 - 21, 2021.
112. **S.C. Chen**, "BRITE Fellow: Intelligent Nanoscale 3D Biomanufacturing Towards Human-on-a-Chip" NSF BRITE PI Annual Meeting, June 2-22.
113. J. Schiemelman, D. Yu, S. You, **S.C. Chen**, "3D-Printing Multi-Dimensional Microscale Stiffness Gradients for Biomimetic Hydrogels", ACS Fall 2022, Chicago, August 21-25, 2022.
114. **S.C. Chen**, "Rapid 3D Bioprinting for Precision Tissue Models", Society for Biomaterials workshop on *Recent Advances in Bioprinting and 3D Printing of Biomaterials*, San Diego, April 19, 2023 (**Invited**)
115. **S.C. Chen**, "Developing DLP bioprinters: from a prototype to commercial products", The US-Korea Joint Workshop on Biomaterials in Translational Medicine, Society for Biomaterials Annual Meeting, San Diego, April 20, 2023 (**Invited**)
116. Panelist – "Development of Next-generation Biomaterials," *Bioprinting Partnership Conference*, Portsmouth, UK, Oct 25-27, 2023.
117. **S.C. Chen**, "Microscale Modulation of Scaffold Stiffness using Multimodal Light-Based 3D Printing Assisted by Machine Learning", *The 11th WACBE World Congress on Bioengineering*, Hong Kong, August 4-7, 2024.
118. **S.C. Chen**, "Rapid 3D Bioprinting for Precision Tissue Models", 8th Bioengineering and Translational Medicine Conference, San Diego, 2024 (**Invited**)
119. J. Schimelman, T.-Y. Lu, **S.C. Chen**, "Designing Hydrogel Scaffolds to Direct Cell Fate and Behavior", *AIChE Annual Meeting*, San Diego, 2024
120. H. Tran, D. Datta, E. Hild, N. Soulier, **S.C. Chen**, D. Lipomi and J. W. Golden, S.S. Golden, J. K. Pokorski, "Cyanobacteria-Driven Polymerization of PEDOT:PSS", *AIChE Annual Meeting*, San Diego, 2024

121. Zhao Z, Xiang Y, **Chen S**., Steinmetz N.F, "Polymer-plant virus nanoparticle networks for sustained cancer immunotherapy", ACS *Spring Meeting*, San Diego, 2025. (**Invited**)
122. J. Schimelman, T.-Y. Lu, **S.C. Chen**, "Designing hydrogel scaffolds to direct stem cell fate and behavior in three-dimensional culture", *ACS Spring Meeting*, San Diego, 2025.
123. J. Schimelman, D. Agarwal, T.-Y. Lu, K. Wahlin, **S.C. Chen**, "Direct Human Stem Cell Bioprinting for 3D Expansion Culture and Temporally Controlled Differentiation", *BMES Annual Meeting*, San Diego, 2025.
124. J. Schimelman, Q. Nguyen, **S.C. Chen**, "3D Printed Nerve Guidance Conduit For Biologics-Free Nerve Regeneration and Vascular Integration", *BMES Annual Meeting*, San Diego, 2025.
125. T.-Y. Lu, Y. Ji, C. Lyu, E. Shen, Y. Sun, Y. Xiang, G.-S. Feng, **S.C. Chen***, "Bioprinted functional liver models of high cell density", *BMES Annual Meeting*, San Diego, 2025.
126. E. J. Yao, Grace Lu, **S.C. Chen**, "A 3D Bioprinted Glioblastoma Model with Tunable Hypoxic Microenvironment", *BMES Annual Meeting*, San Diego, 2025.
127. W. Zhu, X. Ma, S. You, J. Guan, **S. C. Chen**, "Light-Based Bioprinting Strategies to Address Critical Barriers in Tissue Engineering", *TERMIS-AP*, China, Oct 2025
128. J. Schimelman, D. Agarwal, K. Wahlin, **S.C. Chen**, "Multi-step 3D Printed Platform for Systematically Studying the Role of Retinal Axon Guidance Cues", TERMIS-AM annual meeting, Detroit, MI, Nov. 9-12. 2025.
129. L. Huang, G. Leach, C. M. Reid, R. Abrams, **S.C. Chen,** D. B. Berry, "A 3D-Printed Microvascular Surgery Training Platform with High-Fidelity, Biomimetic Properties", American Society for Reconstructive Microsurgery Annual Meeting, Chula Vista, CA, January 16-20, 2026.
130. D. Berry, L. Huang, J. Gaarder, Y. Ma, V. Galinsky, L. Frank, **S. Chen**, S. Ward, "A Large-Format 3D-Printed Diffusion Phantom for Cross-Platform Muscle Microstructure Validation" Annual International Society for Magnetic Resonance in Medicine, South Africa, 09-14 May 2026

PATENTS

Issued Patents

1. US patent No. 7,711,413, "Catheter Imaging Probe and Method", M. D. Feldman, T. E. Milner, **S. C. Chen**, J. H. Kim, L. H. Han, J.-H. Oh, H. Lee, issued on May 4, 2010. The patent was licensed to CardioSpectra, Inc. (CSI) in 2005. CSI was acquired by Volcano Corporation (NASDAQ:VOLC) with $25M in cash in 2007. Volcano was later acquired by Philips for $1.2 billion in 2015.
2. US patent No. 7,783,337, "OCT Using Spectrally Resolved Bandwidth", M. D. Feldman, T. E. Milner, J.-H. Oh, E. Kim, K. Kumar, C. Condit, R. Grant, N. Kemp, J. H. Kim, **S. C. Chen**, L. H. Han, issued on August 24, 2010. The patent was licensed to CardioSpectra, Inc. (CSI) in 2005. CSI was acquired by Volcano Corporation in 2007.
3. US patent No. 7,853,316, "Rotating Optical Catheter Tip for Optical Coherence Tomography", T. E. Milner, M. D. Feldman, J.-H. Oh, **S. C. Chen,** P. Castella, issued on Dec. 14, 2010. The patent was licensed to CSI. CSI was acquired by Volcano Corporation in 2007.
4. US patent No. 8,540,627, "OCT Using Spectrally Resolved Bandwidth", M. D. Feldman, T. E. Milner, J.-H. Oh, E. Kim, K. Kumar, C. Condit, R. Grant, N. Kemp, J. H. Kim, **S. C. Chen**, L. H. Han, issued on Sept. 24, 2013. The patent was licensed to CardioSpectra, Inc. (CSI) in 2005. CSI was acquired by Volcano Corporation in 2007.
5. US patent No. 8,989,849, "Rotating Optical Catheter Tip for Optical Coherence Tomography", T. E. Milner, M. D. Feldman, J.-H. Oh, **S. C. Chen,** P. Castella, issued on March 24, 2015. The patent was licensed to CSI. CSI was acquired by Volcano Corporation in 2007.
6. US patent No. 8,996,099, "Catheter Imaging Probe and Method", M. D. Feldman, T. E. Milner, **S. C. Chen**, J. H. Kim, L. H. Han, J.-H. Oh, H. Lee, issued on March 31, 2015. The patent was licensed

to CardioSpectra, Inc. (CSI) in 2005. CSI was acquired by Volcano Corporation (NASDAQ:VOLC) in 2007.

7. US patent No. 9,526,425, "OCT Using Spectrally Resolved Bandwidth", M. D. Feldman, T. E. Milner, J.-H. Oh, E. Kim, K. Kumar, C. Condit, R. Grant, N. Kemp, J. H. Kim, **S. C. Chen**, L. H. Han, issued on Dec. 27, 2016. The patent was licensed to CardioSpectra, Inc. (CSI) in 2005. CSI was acquired by Volcano Corporation in 2007.
8. US patent No. 9,631,171, "Micro-Structured Biomaterials and Fabrication Methods Therefor", P. Soman, **S.C. Chen**, D.Y. Fozdar, issued on April 25, 2017.
9. US patent No. 10,351,819, "Method for fabrication of microwells for controlled formation of 3-dimensional multicellular-shapes", K. Hribar, **S.C. Chen**, D. Finlay, K. Vuori, X. Ma, issued on July 16, 2019.
10. US patent No. 10,464,307, "Layerless Bioprinting Via Dynamic Optical Projection and Uses Thereof", P. Chung, X. Qu, A.P. Zhang, **S.C. Chen**, issued on Nov. 5, 2019; China patent no. ZL2015800357350; Europe EP 3145689B1, Canada 2,952,595. The patents were licensed to Allegro 3D, Inc. in 2017 and now with CELLINK.
11. US patent No. 10,754,250, "DNA Double-Write/Double Binding Identity", M. Heller, E. Skowronski, Y. Song, J. Warner, **S.C. Chen**, issued on August 25, 2020.
12. US patent No. 10,954,489 B2, "Liver-Mimetic Device and Method for Simulation of Hepatic Function Using Such Device", X. Qu, M. Gou, W. Zhu, **S.C. Chen**, on March 23, 2021. The patent was licensed to Allegro 3D, Inc. in 2017 and now with CELLINK.
13. US patent No. 11,440,225, "Layerless Bioprinting Via Dynamic Optical Projection and Uses Thereof", P. Chung, **S.C. Chen**, issued on September 13, 2022. The patents were licensed to Allegro 3D, Inc. and now with CELLINK.
14. US patent No. 11, 833,742, "High-fidelity 3D printing using flashing photopolymerization", S. You, **S.C. Chen**, issued on December 5, 2023 (effective until November 26, 2041)
15. U.S. patent No. 11,871,672 B2, "3D piezoelectric polymer materials and devices", D. Sirbuly, **S.C. Chen**, K. Kim, W. Zhu, issued on Jan 9, 2024.
16. U.S. patent No. 12,167,720, "Structure and method for promoting microalgae growth", **S.C. Chen**, D. Wangpraseurt. D. Deheyn, S. You, S. Vignolini, issued on Dec 17, 2024.
17. U.S. patent No. 12,364,609, "Biomimetic implants", Y. Koffler, **S.C. Chen**, M. Tuszynski, W. Zhu, Issued on July 22, 2025.

Pending Patents

18. US patent application No. 18/959,285, "In vivo 3D bioprinting Device and Method", D. Berry, **S.C. Chen**, filed on May 27, 2022, International Filing, WO2023230360, May 26, 2023, PCT filed on Nov. 25, 2024.
19. US patent application No. 63/428,981, "3D Printing of High Cell Density Vascularized Tissue", S. You, Y. Xiang, **S.C. Chen**, filed on November 30, 2022. PCT/US2023/081860, WO2024118942A1 (U.S. National Phase Application No. 19/133,673)
20. US patent application No. 19/067,860 (based on 63/560407), "Bio-Inspired Needle for Controlled Release", **S.C. Chen**, Y. Sun, X. Wang, filed on March 1, 2024.
21. US patent application No. 63/670,603, "Synthetic Matrix for Stem Cell Encapsulation", **S.C. Chen**, J. Schimelman, filed on July 12, 2024. PCT/US25/37598

22. US patent application No. 63/669,650 “Hybrid nanomaterials for assisted coral recruitment and reef rehabilitation”, D. Wangpraseurt. S. Kundu, **S. C. Chen**, L. Kelly, July 10, 2024. International Application No. PCT/US25/37163
23. US patent application No. 63/753,410, **“**Human iPSC-Derived Multicellular Liver Model for High-Throughput Drug Screening”, **S.C. Chen**, C. Lyu, T.Y. Lu, Y. Sun, filed on Feb 3, 2025.
24. US patent application No. 63/764,548, **“**Wireless Sensor Implant for Nerve Monitoring”, **S.C. Chen**, J. Schimelman, Q. Nguyen, J. Rogers, A. Vazquez-Guardado, filed on Feb 27, 2025.
25. US patent application No. 63/891,202, “Vascular Microsurgery Training Platform with High-Fidelity Biomimetic Properties”, L. Huang, D. B. Berry, K. Narotam, R. A. Abrams, and **S.C. Chen**, filed on September 30, 2025.
26. US patent application No. 63/902,378, “3D-Bioprinted Glioblastoma Model”, E. Yao and **S.C. Chen**, filed on October 20, 2025.
27. US patent application No. 63/940,012, “Redox-Responsive Dopamine-Crosslinked Hydrogels for Therapeutic Delivery and Tissue Engineering”, L. Huang and **S.C. Chen**, filed on December 12, 2025.

Selected Press and Media Coverage

3D Printed Living Materials Could Clean up Polluted Water

- *3D Printing* (Sept. 2023)*; Life Technology; Smart Water Magazine; Phys Org*

A New Technique Creates Greater Fidelity in Bioprinting Functional Human Tissues

- *NSF News (Multimedia Gallery), ScienceDaily* (Feb. 2023); *San Diego Biotechnology Network; News Break; Fight Aging*

Super Productive 3D Bioprinter Could Help Speed Up Drug Development

- *EurekAlert* (June, 2021), *Pioneering Minds; Global Biotech Insights*

3D Printed Bionic Coral

- NSF News, (April, 2020); *EurekAlert*; *COSMOS; Yahoo News; Optics and Photonics News*

3-D Printed Functional Scaffolds to Repair Spinal Cord Injury

- *NIH Director’s Blog* (June 6, 2019); *NIH Research Matters; Yahoo New*s; *ABC News*

3-D Printer Creates Blood Vessel Networks

- *NIH Research Matters* (March 2017); *NSF News; 3D Print; R&D Magazine*

3D Bioprinted Functional Human Liver Tissue

- *EurekAlert!* (February 2016); *the Economic Times*; *R&D*, *The San Diego Union-Tribune*

3D-Printing of Movable Micro-fish

- *The Wall Street Journal* (Sept., 2015); *The Washington Post; Forbes*; *Fortune;* NSF’s *Science 360*

3D Bioprinting of a Liver-mimic Device for Detoxifying Blood

- *The Financial Express; NIH, NSF News*; *The Economic Times*

Rapid 3D Printing

- *CNBC News*; *Eurekalert*; *Economic Times*; *Yahoo News*

New Biomaterial That More Closely Mimics Human Tissue

- *Society for Biomaterials*; *R&D Magazine* (May 2011), *The Engineer* (May 2011)

Growing Tissues with Functional Blood Vessels

- *The Medical News* (11/2010); *Health Canal* (11/2010); *R&D Magazine* (11/2010)

Service and Professional Leadership

Professional Societies

- Fellow, National Academy of Inventors (NAI)
- Member, European Academy of Sciences and Arts (EASA)
- Fellow, American Association for the Advancement of Science (AAAS)
- Fellow, American Institute for Medical and Biological Engineering (AIMBE)
- Fellow, American Society of Mechanical Engineers (ASME)
- Fellow, International Society for Optics and Photonics (SPIE)
- Fellow, International Society for NanoManufacturing (ISNM)

Advisory and Editorial Boards

- 2025-present Co-Founder and Scientific Advisory Board, TissueGenix, Inc
- 2025-present Editorial Board, *Next Bioengineering (Elsevier)*
- 2023-present Associate Editor, *Journal of Nanoparticle Research (Springer/Nature)*
- 2022-2023 Scientific Advisory Board, BICO
- 2016-2022 Founder and Scientific Advisory Board, Allegro 3D, Inc. (now a BICO company)
- 2013-present Editorial Board, *Lasers in Manufacturing and Materials Processing (Springer)*
- 2014-present Editorial Board, *Additive Manufacturing (Elsevier)*
- 2017-present Editorial Board, *Bio-Design and Manufacturing (Springer/Nature)*
- 2008-2021 Editorial Board, *Biofabrication (IOP).*
- 2008-2020 Editorial Board, *The Open Materials Science Journal* (Bentham).
- 2010-2020 Editorial Board, *Journal of Nanoengineering and Nanomanufacturing (ASP)*
- 2010-2020 Editorial Board, *Journal of Nano Energy and Power Research (ASP).*
- 2014-2020 Scientific Advisory Board, StemoniX (now Vyant Bio, Inc.)
- 2016-2019 Editorial Board, *Scientific Report (Nature)*
- 2010-2016 Advisory Board, NextWave Ventures
- 2010-2011 Scientific Advisory Board, Biolux Corp
- 2007-2010 Associate Editor, ASME *Journal of Manufacturing Science and Engineering*
- 2007-2010 Associate Editor, *Journal of Biomedical Nanotechnology*
- 2005-2010 Editorial Board: *Nanomedicine* (Future Science Pub, UK).
- 2003 Guest Editor, *IEEE Transactions on Advanced Packaging*, special issue on MEMS/NEMS packaging.

Technical Committee

- Technical committee on State Strategy of Advanced Technology, State of Texas, 2004-2005.
- Technical committee, Micro/Nano systems of the Design Engineering Div., ASME, 2005-2010
- Technical committee, Biomanufacturing of ASME (MED), 2006-2018
- Technical committee, Nanomanufacturing of the ASME Nanotechnology Institute, 2003-2012.
- Technical committee, Nanorobotics and Nanomanufacturing of the IEEE Nanotechnology Council, 2003-2012.
- Technical committee, MEMS/NEMS Packaging (Chair 2001 and 2002) of the Electronics and Photonics Packaging Division, ASME, 2001-2010.
- Technical committee on Bionanotechnology and BioMEMS, IEEE-Engineering in Medicine and Biology Society (IEEE-EMBS), 2011- present
- Manufacturing Engineering Division Award Committee, ASME, 2018-2022
- Society for Biomaterials Postdoctoral Recognition Award committee, 2023.

- Judge Committee for Innovators Under 35 Asia Pacific (TR35 Asia Pacific), 2024.

Conference Chair / Committee

- Co-chair, Sensing session, *7th Mechatronics Forum International Conference,* 2000.
- Organizer, MEMS Packaging Symposium of MEMS sub-division, International Mechanical Eng. Congress & Exposition (**IMECE**), 2001.
- Chair, MEMS Packaging Session I, IMECE 2001.
- Organizing committee, SPIE Lasers in Materials Processing & Manufacturing Conference (International Society for Optics and Photonics), 2002.
- Chair, MEMS Packaging Sessions I and II, IMECE 2002.
- Chair, Nano/Micro/Meso-scale Manufacturing Session, IMECE 2002.
- Organizer, MEMS Packaging Symposium of MEMS sub-division, IMECE 2002.
- Chair, MEMS Packaging Session III, IMECE, 2003.
- Panelist, "Challenging issues in NEMS/MEMS packaging", IMECE, 2003.
- Panelist, "Transport Phenomena in Processing of Biomaterials and BioMEMS", IMECE, 2003.
- Panelist, NSF CAREER workshop, NSF Grantees Conference, 2003.
- Organizing committee, Symposium of NEMS / MEMS Packaging, IMECE, 2003
- Organizing committee, Symposium on Micro- and Nanoscale Laser Materials Processing in 41st Annual Technical Meeting of the Society of Engineering Science, 2004.
- Organizing committee, Symposium of NEMS / MEMS Packaging, IMECE, 2004
- Chair, MEMS Packaging Session II, IMECE, 2004.
- Panelist, "Recent Development and Opportunities in Nanomanufacturing Towards 3D Nanosystems", IMECE, 2005
- Organizing committee, Symposium of NEMS / MEMS Packaging, IMECE, 2005
- Co-Chair, Nanoscale Radiation Heat Transfer, IMECE, 2005.
- Co-organizer, Materials Research Society (MRS) Symposium of Surface Modifications and Interactions for Manufacturing Applications, 2005.
- Organizing committee, Symposium of NEMS / MEMS Packaging, IMECE, 2006
- Program Committee of Nanomanufacturing, International Congress on Applications of Lasers & Electro-Optics (ICALEO), 2007.
- Organizing Committee, Micro & Nano Society-Wide Forum, IMECE, 2007.
- Organizing committee, Symposium of NEMS / MEMS Packaging, IMECE, 2007.
- Scientific Committee, International Conference on Agile Manufacturing, 2007.
- Organizing committee, SPIE International Symposium of Laser-based Micro- and Nano-Packaging and Assembly, 2007.
- Organizing Committee, Micro & Nano Society-Wide Forum, IMECE, 2008.
- Panelist, "Nanomanufacturing", The 8th International Conference on Frontiers of Design and Manufacturing, 2008.
- Organizing committee, "Cross Industry Issues in Nanomanufacturing Workshop", National Institute of Standards and Technology, May 2008.
- Program Committee (Nanophotonics), International Conference on Optical MEMS and Nanophotonics, Freiburg, Germany, 2008.
- Program Committee (Nanomanufacturing), ICALEO, 2008.

- Co-organizer, Symposium for 3D Nanofabrication Technologies for Tissue Engineering Scaffolds, 8th World Biomaterials Congress, Amsterdam, The Netherlands 2008.
- Organizing committee, SPIE International Symposium of Laser-based Micro- and Nano-Packaging and Assembly, 2008.
- Organizing Committee, Micro & Nano Society-Wide Forum, IMECE, 2009.
- Program Committee (Nanomanufacturing), ICALEO, 2009.
- Session Chair on "Fabrication of Nanophotonic Structures", 126th ECS meeting, Austria, 2009.
- Program Committee (Nanophotonics), International Conference on Optical MEMS and Nanophotonics, Clearwater Beach, FL, 2009.
- Session Chair, SPIE International Symposium of Nanomanufacturing and Nanometrology, 2009.
- Organizing committee, SPIE International Symposium of Nanomanufacturing and Nanometrology, 2009.
- Organizing committee, SPIE International Symposium of Laser-based Micro- and Nano-Packaging and Assembly, 2009.
- Program Committee (Nanomanufacturing), International Congress on Applications of Lasers & Electro-Optics (ICALEO), 2010.
- Organizing Committee, Micro & Nano Society-Wide Forum, IMECE, 2010.
- Program Committee (Nanophotonics), International Conference on Optical MEMS and Nanophotonics, 2010.
- Program Committee ("Micro-Nanotechnology Sensors, Systems, and Applications"), SPIE International Symposium on Defense, Security and Sensing, Florida, 2010.
- Track co-Chair, NanoEngineering for Medicine and Biology Congress 2010, Houston, TX.
- Program Committee (Nanomanufacturing), ICALEO, 2011.
- Organizing Committee, Micro & Nano Society-Wide Forum, IMECE, 2011.
- Organizing Committee, Micro & Nano Society-Wide Forum, International Mechanical Eng. Congress & Exposition, 2012.
- Program Committee (Nanomanufacturing), ICALEO, 2012.
- Technical committee, The 3rd ASME Micro/Nanoscale Heat and Mass Transfer International Conference, Atlanta, March 2012.
- Technical committee, IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS 2013), Suzhou, China, April 7-10, 2013.
- Technical committee, IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS 2014), Hawaii, China, April 13–16, 2014.
- Technical committee, 2014 Stem Cell Meeting on the Mesa IX, La Jolla, CA, 2014.
- Co-Chair, Tissue Engineering Session, Stem Cell Meeting on the Mesa X, La Jolla, CA, 2015.
- Scientific Symposium Steering Committee, Stem Cell Meeting on the Mesa X, La Jolla, CA, 2015.
- Scientific Advisory Committee, Tissue Engineering and Regenerative Medicine International Society Americas (TERMIS-AM) Annual Conference, San Diego, Dec. 11-14, 2016
- Technical committee, IEEE International Conference on Nano/Micro Engineered and Molecular Systems (IEEE-NEMS 2017), Hawaii, April 9–12, 2017.
- Scientific Advisory Committee, 2017 International Conference on Biofabrication, October 15-18, 2017, Beijing, China
- Session Co-Chair, 2017 International Conference on Biofabrication, October 15-18, 2017, Beijing, China.

- Co-Organizer, 16th US-Korea Forum on nanotechnology, Sept. 23-24, San Diego, 2019.
- International Advisory Committee, International Conferences on Modern Materials and Technologies, Montecatini Terme, Italy, June 2020.
- Organizing Committee, Regenerative Engineering Conference, December 1-3, 2020
- Conference Chair, SelectBIO Conference on Bioprinting and Bioink Innovations for 3D-Tissues, October 6, 2021.
- Scientific Advisory Committee, 13th International Conference on Nanotechnology: Fundamentals and Applications (ICNFA'22), August 3-5, 2022, Prague, Czech Republic
- Organizing Committee, Global Summit and Expo on Nanotechnology and Applications (GSNA2022), Las Vegas, December 1-3, 2022.
- Session Chair, International Conference on Biofabrication, Saskatoon, Canada, September 17-20, 2023.
- Co-Chair, the Distributed Biomanufacturing Systems session, 2023 NSF Nanoscale Science and Engineering Grantees Conference, DC, December 7-8, 2023.
- Scientific Committee, 4th International Conference on Biomaterials, Bio-Design and Manufacturing, Tokyo, Japan, August 18-20, 2024.
- Scientific Committee, 5th International Conference on Biomaterials, Bio-Design and Manufacturing, Oxford, UK, August 8-10, 2025.

Proposal review panels/study sections

- NSF DMII Division proposal review panel, 2000.
- NSF DMII Division proposal review panels (two panels), 2001.
- The State of Louisiana Nanobiotechnology proposal review panel, 2002.
- NSF DMII Division proposal review panels (two panels), 2002.
- NSF CTS Division proposal review panel, 2003.
- NSF DMII Division proposal review panel, 2003.
- NSF DMII Division proposal review panels (two panels), 2004.
- NSF CTS Division proposal review panel, 2005.
- NSF DMII Division proposal review panel, 2005.
- NSF DMII Division proposal review panel, 2006.
- DOE Energy Nanomanufacturing, 2008
- NIH Biomaterials and Biointerfaces Study Section (ad hoc), 2007-present.
- NIH SBIR for Biomaterials, Drug and Gene Delivery, and Nanotechnology, 2009.
- DARPA DSO panel, 2009
- NIH Nanoinformatics Study Section, 2010.
- NSF CMMI Division panel, 2012.
- NSF CMMI Division panel, 2012.
- NSF CMMI Division panel, 2013.
- NSF CAREER Review Panel, 2013.
- NIH Shared Instrument Program Study Section, 2014.
- NIH Special Emphasis Panel for Bioengineering Research Partnership (BRP), 2015.
- Swiss National Science Foundation, 2016.
- NIH NIDDK RBK PPP Study Section, 2016
- NIH/NIAID Special Emphasis Panel - Human Tissue Models for Infectious Diseases (U19), 2016.
- NIH/NCI Special Emphasis Panel - Cancer Tissue Engineering Collaborative: Enabling Biomimetic Tissue-Engineered Technologies for Cancer Research (U01), 2017.
- NIH Director's Transformative Research Award, Stage I, 2017.
- NIH SBIR: Biomaterials, Delivery, and Nanotechnology, 2017.

- NIH BTS Special Emphasis Study Section, 2017.
- NIH New Innovator Program, 2017.
- NIH BMBI Special Emphasis Study Section, 2018.
- NIH New Innovator Program, 2018.
- NSF CAREER panel, 2018.
- NSF CMMI Division panel, 2018.
- NIH High Impact, Interdisciplinary Science in NIDDK Research Areas (RC2), 2019.
- NIH New Innovator Program, 2019.
- NIH U18 Drug Screening with Biofabricated 3-D Skin Disease Tissue Models, 2019.
- NIH/NIBIB Career Development (Ks) and Conference support (R13) Review Panel, 2020.
- NSF EEC Division panel, 2020.
- NIH F30/31/32 Fellowship review panel, 2020.
- NSF CMMI Division Panel, 2020.
- NIH New Innovator Program, 2020.
- NSF CMMI Division Review Panel, 2022.
- NIH-NIBIB T32 Training Review Panel, 2022.
- U.S. Department of Veterans Affairs Merit Proposal Panel, 2022.
- NSF CMMI CAREER panel, 2022.
- NIH New Innovator Program, 2022.
- NIH NIBIB Special Emphasis Study Section, 2023.
- DoD Military Infectious Disease Research Program Study Section, 2024
- NSF CMMI Division BRITE Program Review Panel, 2024.
- NIH Support for Research Excellence Study Section, 2024.
- NSF CMMI CAREER Review Panel, 2024.
- NIH SBIR Program, 2025.
- NIH New Innovator Program, 2025.

Proposal reviewer (mail-in proposals) for the following agencies

- Civilian Research & Foundation of the U. S. Department of State, 2000-2002.
- Lawrence Livermore National Laboratory, 2000.
- NSF CTS Division, 2002-2004.
- The Petroleum Research Fund of the American Chemical Society, 2003.
- NSF DMII Division, 2004, 2005.
- Agency for Science, Technology and Research (Singapore), 2003, 2007.
- Air Force Office of Scientific Research, 2004.
- Army Research Office, 2006.
- NSF Chemistry, 2006.
- Department of Energy (DOE) Basic Energy Science, 2008.
- Swiss National Science Foundation, 2008, 2009.
- The State of Missouri Life Science Research Board, 2009.
- Florida State Fund, 2010.
- NIH SBIR on Basic and Integrative Bioengineering, 2011.
- NSF DMR Division, 2012
- NIH SBIR on Basic and Integrative Bioengineering, 2012.
- Department of Energy (DOE) Basic Energy Science, 2012.
- NSF CMMI Division, 2012.
- NSF DMR Division, 2013.
- NSF CMMI Division, 2013.

- A joint program by the Netherlands Organisation for Health Research and Development (ZonMw) and the German Federal Ministry of Education and Research (BMBF), 2015.
- Agency for Science, Technology and Research (A*STAR), Singapore, 2016.
- Science Foundation Ireland, 2017.
- South Carolina EPSCoR Stimulus Research Program, 2017.
- NSF CMMI Division, 2020
- Swiss National Science Foundation, 2023.
- NSF CMMI Division, 2023.
- NSF CMMI Division, 2024.
- Dutch Research Council, The Netherlands, 2024.
- Christian Doppler Forschungsgesellschaft (Austria), 2025.

Referee for the following journals

Science	Nature
Nature Biotechnology	Nature Materials
Nature Nanotechnology	Nature Communications
PNAS	Nature Biomedical Engineering
Advanced Materials	Nature Protocol
Nano Letters	Advanced Functional Materials
Journal of Applied Physics	Journal of Manufacturing Processes
ACS Nano	Microscale Thermophysical Engineering
Biomaterials	IEEE Transactions on Advanced Packaging
Optics Letters	Journal of Laser Micro and Nanoengineering
Sensors and Actuators A	International Journal of Heat and Mass Transfer
Applied Physics Letters	Journal of Manufacturing Science and Engineering
Journal of Heat Transfer	Journal of the American Chemical Society
Optics Express	Journal of Micromechanics and Microengineering
Thin Solid Films	Journal of Nondestructive Evaluation
Applied Physics A	Journal of Optics & Laser Technology
Nanomedicine	Journal of Biomedical Materials Research B

Referee for the following international/national conferences

- ASME International Mechanical Engineering Congress & Exposition (1998-2007).
- National Heat Transfer Conference (1998-2007).
- International Conference on Advanced Materials (1999).
- European Conference on Thermophysical Properties (2000).
- North American Manufacturing Research Conference, SME (2002-2006)
- International Conference on Metallurgical Coatings and Thin Films (2003).
- American Institute of Aeronautics and Astronautics (AIAA) conference (2004).
- SPIE International Symposium of Laser-based Micro/Nano-Packaging & Assembly (2005-2008).
- International Conference on Agile Manufacturing (2007).
- International Conference on Optical MEMS and Nanophotonics (2008).
- North American Manufacturing Research Conference, SME (2011)
- IEEE-NEMS 2013, 2014

Textbook reviewer

Reviewed 7 textbooks in the areas of Bioprinting, Biomedical Nanotechnology, MEMS, Heat Transfer, Nano and Micro-fabrication, and Manufacturing respectively (2000-present). The publishers are McGraw-Hill, Springer, Addison-Wesley Longman, and Elsevier.

Invited Seminars

1. "Laser texturing of computer hard disk for high density recording", IBM Manufacturing Technologies Center, Boca Raton, Florida, November 1998.
2. "Microscale laser materials processing", Thermal Engineering Department, Tsinghua University (China), August 1998.
3. "Pulsed laser surface micro-modification of solid materials", Mechanical Engineering Department, Columbia University, March 1999.
4. "Pulsed laser surface micro-modification of solid materials", Mechanical Engineering Department, University of Iowa, April 1999.
5. "Thermal properties evaluation and transient miniature surface deformation detection by thermal and optical methods", Electrical Engineering Department, Iowa State University, October 1999.
6. "Micro/nano-scale processing of biomaterials and BioMEMS", Biomedical Engineering Department, University of California at Davis, May 2001.
7. "Micro/nano-scale laser materials processing", Mechanical Engineering Department, University of Florida, May 2001.
8. "Micro/nano-manufacturing: processes and applications", Society of Manufacturing Engineers (SME) Austin Chapter Meeting, April 2002.
9. "Laser nanosphere interactions and applications for nanomanufacturing", Nanotechnologies, Inc. March 2003.
10. "Marangoni effect in micro and nanoscale laser materials processing", Nanoengineering Group, Department of Mechanical Engineering, Massachusetts Institute of Technology, May 2003.
11. "Laser-nanosphere interaction and its applications for nanoscale materials processing", Central Texas IEEE Lasers & Electro-Optics Society (LEOS) Meeting, January 2004.
12. "Nano/Micro-manufacturing Processes and Devices", UT Applied Research Lab, March 2004.
13. "Laser nanosphere interactions and applications for nanoscale materials processing", Department of Chemical Engineering, Princeton University, March 2004.
14. "Nanoscale materials processing using near-field laser optics", Department of Mechanical and Aerospace Engineering, Rutgers, the State University of New Jersey, March 2004.
15. "Nano/Micro-manufacturing Processes and Devices", Department of Engineering Mechanics, Tsinghua University (China), June 2004.
16. "Nano/Micro-manufacturing Processes and Devices", Department of Microelectronics, Beijing University (China), June 2004.
17. "Laser nanosphere interactions and applications for nanoscale materials processing", Institute of Mechanics, Chinese Academic of Science, June 2004.
18. "Micro- and nano-fabrication of biodegradable polymers for tissue engineering", invited lecturer, 12th annual short course on Advances in Tissue Engineering, Rice University, August 2004.
19. "Laser-nanostructure interactions: nano-optics, heat transfer, and nanomanufacturing", Department of Mechanical Engineering, Stanford University, January 2005.
20. "Laser-nanostructure interactions: nano-optics, heat transfer, and nanomanufacturing", Center for Nanotechnology, University of Washington, March 2005.
21. "Laser-nanostructure interactions: nano-optics, heat transfer, and nanomanufacturing", Department of Mechanical and Aerospace Engineering, University of California, San Diego, April 2005.

22. “Laser-nanostructure interactions: science, engineering, and applications”, IBM T.J. Watson Research Center, May 2005.
23. “Laser-nanostructure interactions: science, engineering, and applications”, College of Engineering, University of Missouri at Columbia, May 2005.
24. “Laser-nanostructure interactions: science, engineering, and applications”, Naval Research Laboratory, Washington DC, June 2005.
25. “Micro- and nano-fabrication of tissue engineering scaffolds”, invited lecture, 13th annual short course on Advances in Tissue Engineering, Rice University, August 2005.
26. “Laser-nanostructure interactions: science, engineering, and applications”, Department of Mechanical Engineering, University of California at Berkeley, September 2005.
27. “Laser-nanostructure interactions: optical, thermal, and mechanics issues”, Department of Aerospace Engineering and Engineering Mechanics, Univ. of Texas at Austin, October 2005.
28. “Laser-nanostructure interactions: science, engineering, and applications”, Institute of Mechanics, Chinese Academic of Science, December 2005.
29. “Laser-nanostructure interactions: science, engineering, and applications”, Institute of Micro-Nano Technologies, Shanghai Jiaotong University (China), December 2005.
30. “Laser-nanostructure interactions: science, engineering, and applications”, Center for Nanotechnology, Zhejiang University (China), December 2005.
31. “Laser-nanostructure interactions: optical, thermal, and mechanics issues”, Department of Thermal Engineering, Tsinghua University (China), January 2006.
32. “Laser-nanostructure interactions: science, engineering, and applications”, College of Engineering, China University of Petroleum (China), January 2006.
33. “Nanophotonics and Nanomanufacturing”, Department of Mechanical Engineering, Northwestern University, May 2006.
34. “Micro- and nano-fabrication of biomaterials”, invited lecture, 14th annual short course on Advances in Tissue Engineering, Rice University, August 2006.
35. “Micro-PCR for Rapid DNA Analysis”, Lumonix, August 2006.
36. “Nanophotonics, Nanomanufacturing, and Nanomedicine”, Department of Mechanical Engineering, Carnegie Mellon University, March 2007.
37. “Nanophotonics, Nanomanufacturing, and Nanomedicine”, Department of Mechanical Engineering, Tsinghua University, July 2007.
38. “Nanophotonics, Nanomanufacturing, and Nanomedicine”, Department of Mechanical and Aerospace Engineering, University of California at Los Angeles, August 2007.
39. “Nanomanufacturing and Nanomedicine”, Department of Biological Engineering, The University of Texas Health Science Center at Houston, August 2007.
40. “Nanophotonics, Nanomanufacturing, and Nanomedicine”, Department of Industrial and Systems Engineering, University of Southern California, August 2007.
41. “Micro- and Nano-fabrication of Matrices and Scaffolds”, invited lecture, 15th annual short course on Advances in Tissue Engineering, Rice University, August 2007.
42. “Nanophotonics, Nanomanufacturing, and Nanomedicine”, School of Mechanical Engineering, Georgia Institute of Technology, November 2007.
43. “Nanophotonics, Nanomanufacturing, and Medicine Applications”, Center for Optical and Electromagnetic Research, Zhejiang University (China), December 2007.
44. “Nanophotonics and Nanomanufacturing”, Institute of Mechanics, Chinese Academic of Science, December 2007.

45. “Enabling Nanophotonics and Nanomanufacturing Techniques for Nano-medicine”, Alliance for NanoHealth (Baylor College of Medicine, Rice University, MD Anderson Cancer Center, and University of Texas Health Science Center), January 2008.
46. “Light Manipulation at Nanoscale and Applications for Nanomanufacturing and Nanomedicine”, Department of Mechanical Engineering, University of Colorado at Boulder, Feb. 2008.
47. “Light Manipulation at Nanoscale and Applications for Nanomanufacturing and Nanomedicine”, Department of NanoEngineering, University of California, San Diego, May 2008.
48. “Nanomanufacturing”, Department of Mechanical and Aerospace Engineering, Rutgers, the State University of New Jersey, May 2008.
49. “Light Manipulation at Nanoscale and Applications for Nanomanufacturing and Nanomedicine”, College of Engineering, Beijing University (China), Sept. 2008.
50. “Light Manipulation at Nanoscale and Applications for Nanomanufacturing and Nanomedicine”, Department of Thermal Engineering, Tsinghua University (China), Sept. 2008.
51. “Nanomanufacturing for Energy and Medicine”, Department of Mechanical and Aerospace Engineering, University of California at Los Angeles, November 2008.
52. “Nanoscale Light Manipulation for Nanomanufacturing and Nanomedicine”, Department of NanoEngineering, University of California, San Diego, April 2009.
53. “Nanomanufacturing: Challenging and Opportunities”, Department of Mechanical Engineering and Mechanics, Drexel University, April 2009.
54. “Nanoscale Light Manipulation for Nanomanufacturing and Nanomedicine”, Department of Mechanical Engineering, Southern Methodist University, April 2009.
55. “Nanoscale Light Manipulation for Nanomanufacturing and Energy”, Department of Mechanical and Aerospace Engineering, George Washington University, May 2009.
56. “Nanomanufacturing: Challenging and Opportunities”, Department of Mechanical Engineering, Massachusetts Institute of Technology, May 2009.
57. “Nano/Micro-Scale Light Manipulation for Nanomanufacturing, Solar Cells, and Nanomedicine” Texas Instruments, Inc., June 2009.
58. “Nanomanufacturing for Medicine”, School of Mechanical Engineering and School of Medicine, Zhejiang University, August 2009.
59. “Nanoscale Light Manipulation for Nanomanufacturing and Medicine”, Institute of Mechanics, Chinese Academy of Science, August 2009.
60. “Nanomanufacturing for Energy and Medicine”, Department of Mechanical Engineering, Yale University, September 2009.
61. “Nanomanufacturing for Energy and Medicine”, Department of Mechanical and Applied Mechanics, University of Pennsylvania, September 2009.
62. “Nanomanufacturing and Nanostructured Materials for Renewable Energy”, Princeton Institute for the Science and Technology of Materials, Princeton University, October 2009.
63. “Nanoscale Light Manipulation for Nanomanufacturing and Energy”, Naval Research Laboratory, Jan 2010.
64. “Bio-nano-manufacturing: Processing, Devices, and Biological Studies”, Bioengineering Department, UC San Diego, Feb 2011.
65. “Laser-Assisted Bio-nano-manufacturing: Processing, Devices, and Tissue Engineering”, Mechanical Engineering Department, Zhejiang University, June 2012.

66. “Laser-Assisted Bio-nano-manufacturing: Processing, Devices, and Cell Studies”, Mechanical Department, Beijing Institute of Technology, June 2012.
67. “Laser-Assisted Biomanufacturing and Nanomanufacturing”, School of Mechanical Engineering, Ningbo University, June 2013.
68. “Laser-Assisted Biomanufacturing and Nanomanufacturing”, Institute of Laser Engineering, Beijing University of Technology, July 2013.
69. “Micro and Nano-printing of 3D Designer Scaffolds for Tissue Engineering”, Department of Biomedical Engineering, Tsinghua University, July 2013.
70. “3D Bioprinting for Cell Interaction with Microenvironments by Design”, Department of Physics, University of California, San Diego, October 2013.
71. “3D Bioprinting: Materials, Fabrication, and Tissue Engineering,” Johnson and Johnson (Janssen Research & Development, LLC), May 2014.
72. “3D Bioprinting: Materials, Fabrication, and Tissue Engineering,” Sichuan University, July 2014
73. “A microfabrication platform for direct printing vascularized functional tissue constructs”, National Institute of Biomedical Imaging and Bioengineering, Bethesda, MD, July 2014.
74. “3D Bioprinting: A Disruptive Technology for Engineering and Medicine”, College of Engineering, University of Alaska, August 2014.
75. “3D Bioprinting: An Enabling Technology for Cardiovascular Tissue Engineering”, School of Medicine, UC San Diego, Feb. 2015.
76. “Micro and Nanoscale 3D Bioprinting: Materials, Fabrication, and Tissue Engineering,” (Distinguished Seminar) University of California at Davis, March 12, 2015
77. “Light-Assisted 3D Bioprinting of Micro- and Nano-scale Functional Biomaterials,” Fudan University (China), July 3, 2015
78. “Nano and Microscale Rapid 3D Bioprinting for Precision Tissue Engineering”, Genomics Institute of the Novartis Research Foundation, July 2015.
79. “Nano and Microscale Rapid 3D Printing for Functional Biomaterials”, Mechanical Engineering Department, University of California at Berkeley, August 2015
80. “Nano and Microscale Rapid 3D Printing for Regenerative Medicine”, Yangming University, Taiwan, November 2015
81. “Rapid 3D Bioprinting: an Enabling Technology for Precision Medicine”, Bioengineering Department, Rice University, Feb 22, 2016.
82. “Rapid 3D Bioprinting: an Enabling Technology for Creating Functional Tissue Models”, Janssen Research & Development (Johnson and Johnson), March 2, 2016.
83. “3D Bioprinting: Interplay of Materials and Mechanics for Precision Tissue Engineering”, Mechanical and Aerospace Engineering Department, UCSD, April 22, 2016.
84. “Rapid 3D Bioprinting for Functional Scaffolds and Tissue Models”, Rady Children’s Hospital, May 20, 2016
85. “3D Bioprinting: Interplay of Materials and Mechanics for Precision Tissue Engineering”, School of Mechanical and Automobile Engineering, Beijing Institute of Technology, June 27, 2016.
86. “Rapid 3D Bioprinting for Precision Medicine”, School of Medicine, Zhejiang University, July 11, 2016
87. “Rapid 3D Bioprinting for Functional Scaffolds and Precision Tissue Models”, Distinguished Seminar, Eli and Edythe Broad CIRM Center for Regenerative Medicine and Stem Cell Research, University of Southern California, September 6, 2016.

88. **"**3D Bioprinting for Functional *in vitro* Tissue Models", Center for Drug Discovery Innovation, UCSD, October 2016.
89. "3D Printing of Functional Scaffolds and Precision Tissue Models", Department of Biomedical Engineering, University of Alabama, Birmingham, October 2016
90. "Rapid 3D Printing of Functional Scaffolds and Precision Tissue Models", Department of Mechanical Engineering and Materials Science, Duke University, October 2016
91. "Interplay of Materials and Mechanics in Rapid 3D Printing of Precision Tissues", Distinguished Seminar, Department of Medical Engineering, California Institute of Technology, November 2016
92. "Rapid 3D Bioprinting for Microphysiological Systems", UC San Diego Moores Cancer Center, Dec. 8, 2016.
93. "Rapid 3D Bioprinting for Precision Tissue Engineering", Department of Biomedical Engineering, University of Southern California, Jan. 27, 2017.
94. "Rapid 3D Printing of Functional Scaffolds and Precision Medicine Applications," Department of Mechanical Engineering, State University of New York at Stony Brook, June 26, 2017.
95. "Rapid 3D Printing of Soft Materials for Precision Tissue Models", Department of Mechanical Engineering, MIT, Sept. 26, 2017.
96. Distinguished Seminar, "Light-based Rapid 3D Printing, an Enabling Technology for Soft and Precision Biomaterials", BU Photonics Center, Boston University, Sept. 28, 2017.
97. "3D Bioprinting", UCSD Inside Innovation Seminar Series, April 17, 2018
98. "Light-based Rapid 3D Printing: an Enabling Technology for Precision Tissue Engineering", School of Engineering and Applied Science, Harvard University, April 20, 2018.
99. Distinguished Seminar, "Rapid 3D Bioprinting: An Enabling Platform for Microphysiological Systems", Frontiers in Cardiovascular Science, Stanford Cardiovascular Institute, Stanford University, May 28, 2018.
100. "Rapid 3D Bioprinting: An Enabling Platform for Microphysiological Systems", Center for Biofabrication, Tsinghua University, July 3, 2018.
101. "Rapid 3D Bioprinting: An Enabling Platform for Microphysiological Systems", Scintillon Institute, August 10, 2018.
102. "Rapid 3D Bioprinting for Precision Tissue Engineering", Bioengineering Department, Northeastern University, August 27, 2018.
103. "Rapid 3D Bioprinting: An Enabling Platform for Precision Tissue Engineering", Biomedical Engineering Department, Tufts University, Nov. 2, 2018.
104. "Modulating Physical, Chemical, and Biological Properties via 3D Bioprinting for Precision Tissue Engineering", Bioengineering Department, UC San Diego, Jan 11, 2019.
105. "Using 3D Bioprinting to Make Functional Human Tissues", UC San Diego Osher Institute, April 3, 2019.
106. "Light-based Rapid 3D Bioprinting for Precision Tissue Engineering and Regenerative Medicine", IEEE San Francisco Bay Area Nanotechnology Council, Feb. 5, 2020
107. "Rapid 3D Bioprinting for Regenerative Medicine: A Mechanical Engineer's Perspectives", Mechanical Engineering Department, Johns Hopkins University, September 17, 2020.
108. "Rapid 3D Bioprinting for Precision Tissue Engineering", Engineering Department, University of Cambridge, Nov. 2020.
109. "Rapid 3D Bioprinting for Precision Tissue Engineering", Department of Biomedical Engineering, Georgia Institute of Technology & Emory University School of Medicine, March 19, 2021.

110. “3D Bioprinting to Modulate Chemical, Mechanical, and Biological Properties of Engineered Tissues”, Chemical and Biomolecular Engineering Department, UC Irvine, April 30, 2021.
111. “Rapid Bioprinting for 3D Tissue Models”, Center for Perinatal Discovery, UCSD School of Medicine, Sept. 1, 2021
112. “Rapid 3D bioprinting: from human tissue regeneration to coral reef repair”, UC San Diego Osher Institute, Jan 18, 2022.
113. “Rapid 3D Bioprinting for Tissue Engineering and Regenerative Medicine”, Tech4Health Institute and Department of Biomedical Engineering, New York University, May 26, 2023
114. “Rapid 3D Bioprinting for Tissue Engineering and Regenerative Medicine”, Institute of Materials Science and Technology, Technical University of Vienna, Austria, June 30, 2023
115. “Rapid 3D Bioprinting of Engineered Tissues with Digital Control of Material Properties”, Joint MateriAIZ Seminar Series, Arizona State University and the University of Arizona, Oct 20, 2023.
116. “Rapid 3D Bioprinting towards Clinical Applications”, US Veterans Health Administration (VHA) Monthly Series webinars, April 24, 2024.
117. “Bioprinting Innovations for Tissue Engineering and Regenerative Medicine”, Terasaki Institute, September 18, 2024

Other Public Talks

1. “Designer Biomaterials for Tissue Engineering”, Graduate Student Council, UCSD Jacobs School of Engineering, July 2011.
2. “3D Bioprinting: from Tissue Engineering to Personalized Medicine”, UCSD Alumni Weekend, May 2013
3. “Micro and Nano-scale Bioprinting”, KPCC's Crawford Family Forum - NEXT: The brave new world of 3D bioprinting. (KPCC is the largest NPR affiliate in Southern California. This talk show is for KPCC's science series, NEXT: Science-People-Tomorrow) (10/2013)
4. “Bioprinting of 3D Scaffolds for Tissue Engineering”, Bose-IEM Technology Forum, Jan. 2014
5. “NanoEngineering at UCSD”, Make it in America Conference, San Diego, Nov. 2014.
6. “Applications and Breakthroughs in Tissue Engineering and Bioprinting – What’s Next?” Rock Stars of Innovation Summit, San Diego, June 2015.
7. “Nano and Microscale Rapid 3D Bioprinting for Precision Tissue Engineering”, an invited Discovery Lecture to about 194 High School students and teachers participating in the COSMOS program at UCSD, July 2015.
8. Panelists – “Innovator’s Spotlight: On the Cutting Edge of Transformative Tech Trends”, 10th New Product Innovation and Development: A Frost & Sullivan Executive MindXchange, San Diego, Jan 13, 2016.
9. “3D Printing and Bioprinting”, UCSD Bioengineering summer workshops for high school students, July 3, 2020.
10. “3D Bioprinting for Regenerative Medicine”, Revelle College Freshman Honors Seminar, Nov. 28, 2023.

Students and Visiting Scholars

Ph.D. in Progress

1. Emmie Yao (PhD student, NanoEngineering, UCSD, 2023-present, NSF GRF fellow)
2. Lin (Betty) Huang (PhD student, NanoEngineering, UCSD, 2023-present)
3. Toby Meng-Saccoccio (PhD student, NanoEngineering, UCSD, 2024-present)
4. Ashley Altera (PhD student, NanoEngineering, UCSD, 2025-present, DOD NDSEG fellow)

M.S. in Progress

1. Nancy Zhang (2025-present)
2. Chuheng Tang (2025-present)
3. Christian Croxton (2025-present)

Current Postdocs

1. Cheng Lyu (2023-present)
2. Jiaao Guan (2023-present)
3. Jacob Schimelman (2023-present)
4. Yazhi Sun (2025-present)
5. Ting-yu Lu (2025-present)

Postdoc and Project Scientist Supervisions Completed and New Position

1. Li-Hsin Han (2009-2010), Associate Professor at Drexel University.
2. Jin Woo Lee (2009-2012) Associate Professor at Gachon University (Korea).
3. Pranav Soman (2009-2013), Professor at Syracuse University.
4. Xin Qu (2011-2014), Principal Scientist in Novartis Medical Research Institute.
5. Wei Zhu (2016-2018), CTO, CELLINK
6. Michelle Ma (2018-2019), Scientist, Illumina.
7. Claire Yu (2016-2020), Senior Research Scientist, Vertex Pharmaceuticals.
8. David Berry (7/2016-6/2021), Assistant Professor, UCSD Dept of Orthopaedic Surgery.
9. Shanting You (1/2020-8/2022), Assistant Professor, University of Science and Technology of China.
10. Xiaocheng Wang (7/2022-6/2023), Associate Professor, Anhui Medical University.
11. Min Tang (8/2022-6/2023), Associate Professor, Shanghai University of Traditional Chinese Medicine.
12. Daniel Wangpraseurt (8/2020-7/2024, Assistant Project Scientist), Associate Research Scientist, Scripps Institute of Oceanography, UCSD.

Ph. D. Supervisions Completed

1. Shifeng Li (PhD in Mechanical Engineering, 2002-2004), "Development of Microfluidic Systems for Biological Applications and Their Transport Issues", August 2004, UT-Austin, currently Senior Director, Head of R&D Engineering at Genapsys.
2. Senthil Theppakuttai (PhD in Mechanical Engineering, 2002-2006), "Laser Micro/Nano Scale Processing of Glass and Silicon", May 2006, UT-Austin, R & D Manager at SV Probe, Inc.
3. Dongbing Shao (PhD in Mechanical Engineering, 2003-2006), Sub-wavelength Optical Phenomena and Their Applications in Nano-fabrication, August 2006, UT-Austin, currently Senior Engineer/Scientist at IBM T. J Watson Research Center.
4. Yi Lu (PhD in Mechanical Engineering, 2002-2006), "Micro/Nano Fabrication of Polymeric Materials by DMD-based Micro-Stereolithography and Photothermal Imprinting", December 2006, UT-Austin, currently Program Manager at Facebook, Inc.
5. Arvind Battula (PhD in Mechanical Engineering, 2003-2007), "Optical Near-field Effects for Submicron Patterning and Plasmonic Optical Devices, August 2007, UT-Austin, Head of Data Science at Quantum Energy Partners.
6. Carlos Aguilar (PhD in Biomedical Engineering, 2004-2008), "Synthesis, Characterization and Integration of Piezoelectric Zinc Oxide Nanowires", December 2008, UT-Austin, currently Associate Professor at the University of Michigan, Ann Arbor.

7. David Fozdar (PhD in Mechanical Engineering, 2005-2009), “Modulating Cell-Surface Interactions: Nanopatterned Features Affect the Behavior of Neurons and Preadipocytes”, May 2009, UT-Austin, currently ASIP Structural Engineer at Boeing.
8. Li-Hsin Han (PhD in Mechanical Engineering, 2003-2009), “Light Driven Microactuators: Design, Fabrication, and Mathematical Modeling”, July 2009, UT-Austin, currently Associate Professor at Drexel University.
9. Wei Wang (PhD in Mechanical Engineering, 2006-2010), “Plasmonic Properties of Subwavelength Structures and Their Applications in Optical Devices”, November 2010, UT-Austin, currently Senior Director at China Power Investment Corp.
10. Shaomin Wu (PhD in Materials Sciences and Engineering, 2006-2010), “Optical Phenomena of Plasmonic Nanostructures and Their Applications in Energy Conversion”, July 2010, UT-Austin, currently Senior Engineer at Microsoft.
11. Jamil Wakil (PhD in Mechanical Engineering, 2005-2010), “Thermal and Mechanical Analysis of Interconnect Structures in 3D Stacked Packages”, May 2010, UT-Austin, Thermal Architect at HP
12. Wangde Zhang (PhD in Bioengineering, 2007-2012), “Investigation of Cell Environment Interaction *in vitro* Using a Femtosecond Laser”, July 2012, UCSD, currently VP at Bank of America, Merrill Lynch, New York City.
13. Kolin Hribar (PhD in Nanoengineering, 2011-2015), “Light-Assisted Biopatterning of Hydrogels for Investigating Cell Interactions within their Microenvironment”, July 2015, UCSD, currently CEO of Cybre Biotech, Inc.
14. Wei Zhu (PhD in Nanoengineering, 2012-2016), “3D Printing of Functional Biomaterials for Tissue Modeling”, August 2016, UCSD, currently CTO at CELLINK, Inc.
15. John Warner (PhD in Nanoengineering, 2010-2016), “3D printing of Static and Dynamic Biomaterial Scaffolds for Tissue Engineering”, September 2016, UCSD, currently Scientist at BlueNalu, Inc.
16. Justin Liu (PhD in Materials Sciences and Engineering, 2012-2017), “Rapid 3D Bioprinting of Cardiac Tissue Models”, December 2017, UCSD, currently Group Leader at Intel.
17. Xuanyi (Michelle) Ma (PhD in Bioengineering, 2013-2018), “Rapid 3d Bioprinting of Biomimetic Liver Tissues for Modeling Healthy and Disease States *in vitro*”, August 2018, UCSD, currently Scientist at Illumina.
18. Pengrui Wang (PhD in Materials Sciences and Engineering, 2014-2019), “Modulating Physical and Chemical Properties of Biomaterials in Rapid 3D Printing”, May 2019, currently Innovation Scientist at Beyond Meat, Inc.
19. Shangting You (PhD in Nanoengineering, 2015-2019), “Manipulating Light-Matter Interactions in Photopolymerization-based Microscale 3D Printing”, December 2019, Assistant Professor, University of Science and Technology of China.
20. Zack Zhong (PhD in Nanoengineering, 2017-2021), “3D Bioprinting of Ocular Stem Cells”, June 2021, currently Scientist at Lyell Immunopharma.
21. Kathleen Miller (PhD in Nanoengineering, 2016-2021), “3D Bioprinting of Cardiac Micro-tissues”, December 2021. Currently Scientist at 10x Genomics.
22. Min Tang (PhD in Nanoengineering, 2017-2022), “Investigating Glioblastoma Microenvironment and Cellular Interactions with 3D Bioprinted Tumor Models”, July 2022. Currently Associate Professor, Shanghai University of Traditional Chinese Medicine.
23. Henry Hwang (PhD in Nanoengineering, 2015-2022), “Digital Light Processing Based 3D Printing for Microphysiological Systems Applications”, July 2022. Currently Scientist at Vizgen.
24. Jiaao Guan (PhD in Electrical and Computer Engineering, 2018-2023), “Intelligent Bioprinting for Structure and Mechanical Property Modulation”, May 2023; AI Engineer at CELLINK.

25. Wisarut Kiratitanaporn (PhD in Bioengineering, 2018-2023), “3D Bioprinting and Materials Development for Musculoskeletal Tissue Engineering Applications”, Research Associate at Cincinnati Children's Hospital.
26. Jacob Schimelman (PhD in Nanoengineering, 2017-2023): “Engineering Polymeric Scaffolds for Studying Neural Tissue Development, Pathology, and Repair”, Sept 2023, Postdoc at UCSD.
27. Yi Xiang (PhD in Nanoengineering, 2019-2025): “High-Fidelity 3D Bioprinting for Complex In Vitro Models”, June 2025, Scientist at Vitra Labs, Inc.
28. Yazhi Sun, (PhD in Nanoengineering, 2020-2025): “Bioprinted Photosynthetic Living Materials”, August 2025, postdoc at UCSD
29. Tingyu Lu, (PhD in Materials Science and Engineering, 2021-2025): “Advancing In Vitro Tissue Modeling Through Bioprinted Biomaterial Platforms”, August 2025, postdoc at UCSD.

M.S. Supervisions Completed

1. Senthil Theppakuttai, 1999-2000, ISU IE, continued for PhD study.
2. Vijay Kancharla, 2000-2001, ISU IE, Engineer at IPG Photonics, Inc.
3. Shifeng Li, 2000-2001, ISU IE, continued for PhD study.
4. Wei Zheng, 2000-2001, ISU IE, Sr. Electrical Engineer at Boston Scientific.
5. Yi Lu, 2001-2002, UT ME, continued for PhD study.
6. Hyun-wook Kang, 2003-2004, UT ME, Assistant Prof, Pukyong National University (Korea).
7. David Fozdar, 2003-2004, continued for PhD study.
8. Carlos Aguilar, 2004-2005, UT ME, continued for PhD study.
9. Matthew Hense, 2005-2006, UT ME, Engineer at Technip.
10. Hongdae Moon, 2005-2006, UT ME.
11. Wande Zhang, 2008-2009, UT BME, continued for PhD study.
12. Wei Wang, 2008-2009 UT ME, continued for PhD study.
13. John Warner, 2011-2012, UCSD NE, continued for PhD study.
14. Peter Chung, 2011-2012, UCSD NE, continued for PhD study.
15. Justin Liu, 2011-2012, UCSD MSE, continued for PhD study.
16. Kolin Hribar, 2011-2012, UCSD NE, continued for PhD study.
17. Wei Zhu, 2012-2013, UCSD NE, continued for PhD study.
18. Xuanyi (Michelle) Ma, 2013-2014, UCSD BioE, continued for PhD study.
19. Kyle Meggs, 2014-2015, UCSD NE, now at Google.
20. Pengrui Wang, 2014-2015, UCSD MSE, continued for PhD study.
21. Yew Leong, 2015-2016, UCSD NE.
22. Shanting You, 2015-2016, UCSD NE, continued for PhD study.
23. Henry Hwang, 2015-2016, UCSD NE, continued for PhD study.
24. Kathleen Miller, 2016-2017, UCSD NE, continued for PhD study.
25. Jiaao Guan, 2017-2018, UCSD ECE, continued for PhD study.
26. Min Tang, 2017-2018, UCSD NE, continued for PhD study.
27. Jacob Schimelman, 2017-2018, UCSD NE, continued for PhD study.
28. Wisarut Kiratitanaporn, 2018-2019, UCSD BE, continued for PhD study.
29. Yi Xiang, 2019-2020, UCSD NE, continued for PhD study.
30. Leilani Kwe, 2020-2021, UCSD ChemE, Intel.
31. Yazhi Sun 2020-2021, UCSD NE, continued for PhD study.
32. Michelle Bautista-Layton, 2020-2021, UCSD NE.
33. Ting-yu Lu, 2021-2022, UCSD MatSE, continued for PhD study.
34. Lin Huang, 2023-2024, UCSD NE, continued for PhD study.
35. Emmie Yao, 2023-2024, UCSD NE, continued for PhD study.

36. Toby Meng-Saccoccio, 2024-2025, UCSD NE, continued for PhD study.
37. Ashley Altera, 2024-2025, UCSD NE, continued for PhD study.

Undergraduate Student Researchers (and graduate school)

Eddie Degracia (9/02-12/02)
Clarissa Lui (6/03-12/03, Cornell)
Aaron Hulse (9/03-5/04, UT Austin)
Shaz Viljee (9/03-12/03, UT Austin)
Priyanshu Gupta (7/04-5/05, Stanford)
Gerry Suhali (5/05-5/06)
Chris Kuryak (4/06/-8/06, MIT)
Darren Cooper (4/06/-8/06)
Jennifer Tobias (4/06/-8/06)
Chris Javadi (5/06/-12/06)
Nicholas Mitchell (10/06-12/07, MIT)
Antonio Osorio (10/06-12/07, Michigan)
Hai Nguyen (1/07-12/08, UT Austin)
Brandon Beberwyck (5/07-5/09, UC Berkeley)
Lucy Lu (8/08-5/10)
Marc Gonzalez (1/09-5/09)
Max Darnell (5/09-5/10, Harvard)
Keith Yu (10/10-6/14)
Sam Huang (01/11-6/13)
Kyle Megs (7/11-6/14, UCSD)
April Pereira (6/12-6/13, UCSD)
Matthew Tom (07/12-6/13, UCSD)
Nicole Lim (09/12-6/13, Northwestern)
Brian Chiem (02/13-06/13)
Kevin Crowley (06/13-12/13)
Yew Leong (04/13-06/15, UCSD)
Helen Bae (Summer 2013, Harvard)
Padraig Buckley (10/13-12/14)
Jana Zaidan (01/14-09/14)
Hong Zhang (01/14-06/15, John Hopkins)
Leon Zhou (02/14 – 06/14)
Kate Newcomer (03/14-06/14)
Ash Garland (03/14-06/14)
Bernardo Arevalo (05/15-12/14)
Alex Yang (10/14 – 06/15, Google)
Grace Whang (09/14 – 6/17, UCLA)
Heng Meng (10/14 - 12/14)
Putthawan Iamsirithaworn (12/14 – 5/2015)
Cheuk Sun Lai (03/15-6/17, Rice Univ)
Natalie Lawrence (03/15-6/18, UCSD)
Jesse Zhou (03/15-5/16)
Christian Gutierrez (10/15-6/16)
Takeyah Campbell (06/15-08/15, from Howard, UCSD STARS REU program)
Lauren Lopez (9/15-6/17)
Amy Moran (10/15-6/19, Stanford))
Grace Victorine (1/16-6/17)
Andrew Li (4/16-6/19, Microsoft)
Edward Huang (7/16-12/16)
Haixu Shen (3/16-6/18, NWU)
Anna Koroleva (4/16-6/18, UCSD)
Crystal Avila (6/16-8/16 from UC Davis)
Josue Campo (6/16-8/16 from SDSU)
Weizhe Xu (5/16-6/18, UW)
Jacob Stupin (2/2017-6/18, UCSD)
Alexandria Hairabedian (2/2017-6/19, UCSD)
Jeffrey Alido (2/2017-6/20, BU)
Xueyi Wan (2/17-6/19, UCSD)
Annie Vesey (6/17-8/17, from Stanford, UCSD NSF REU of Biomaterials, Apple)
Maria Mesina (6/17-8/17, from UC Merced, UCSD NSF REU of SDNI)
Deepak Lakshmipathy (10/17-6/19, UI Med sch)
Trevor Tam (1/2018-6/21, UCSD)
Frank He (1/18-6/20, UCSD)
Leilani Kwe (4/18-6/20, UCSD, Intel)
Xinyue Ma (4/18-6/20, Dental School))
Xiaoao Shi (8/18-6/21, U Chicago)
Nelson Juarez (6/18-8/18, Cebtro de Estudios Universitarios, UCSD ENLACE Program)
Bryan Soriano (6/18-8/18, UC Merced, UCSD STARS Program)
Joanne Hwang (6/18-8/18, Natl Tsing Hua Univ, UCSD International Student Research, UIUC)
Brian Xi (9/18-6/20, RSRI, U Chicago)
Luna Xia (10/18-6/20, Columbia U)
Luwen Chen (2/19-6/21, UC Berkeley)
Samuel Figueroa (06/-08/19, CAMP program)
Ameen Muhammad (06/19-08/19, from Howard Univ, UCSD STARS REU program, AA)
Amaris Paramo (06/19-08/19, from Butte Community College, SDNI REU program)
Tso-Yu Chang (6/19-8/19, Natl Tsing Hua Univ, UCSD International Student Research Program)
Trevor Fried (8/19-6/21, UCSD)
Emmie Yao (8/19-6/23, UCSD)
Zhitian Shi (8/19-6/22, U of Minnesota)
Jacob Pustelnik (11/19-6/22, UC Davis)

Jerry Wu (11/19-6/22, Princeton) Kyle Mumm (11/19-6/22, UVA)
Matthew Moldthan (06/20-08/20, from Cal State U Northridge, UCSD STARS program)
Yizhi Yuan (6/20-12/22, Qualcomm) Mary Melarkey (9/20-6/24, RSRI, UC Davis)
Di Yu (4/21-12/22, Johns Hopkins) Alison Lao (4/21-6/23, Rice)
Maya Bocanegra (06/21-08/21, from Los Angeles Valley College, UCSD STARS REU program)
Sophie Pearson (6/21-12/22, Univ of Utah) Celine Tung (9/21-6/24, UCSF Dental School)
Jasmine Le (9/21-6/25, RSRI) Aniket Dhar (9/21-6/23, Columbia Univ)
Nancy Zhang (2/22-6/24, UCSD) Erin Shen (3/22-6/24, Best Senior Award, Rice)
Audrey Lee (5/22-8/22) Tian Gao (6/22-6/23)
Gilda Castellanos (6-8/22 from Cal State Univ San Marcos, UCSD STARS program)
Isabel Flores (8/22-6/24) Malleeka Suy (8/22-6/24)
Rachel Chickini (9/22-6/23) Riley Liu (1/23-12/24, GA Tech)
Grace Lu (1/23-6/26) Sophie Brown (1/23-6/26)
Rodrigo Gómez Núñez (6/23-8/23, ENLACE) Evelyn Magaña Leyva (6/23-8/23, ENLACE)
Emma Berman (6/23-6/26, UC Berkeley) Amelia Burns (6/23-8/23, Caltech)
Jayden Chaloux (6-8/23, REM, UCLA) Krish Narotam (10/23- present)
Michael Julian (1/24- present) Saidi Garcia (Cal State San Marcos, 6-8/24)
Bhavya Ostawal (10/24-6/25) Rajat Kharel (1/25-6/25)
Katarina Ercegovac (2/25-present) Alexander Park (6/25-present)
Emilee Thipphavong (9/25-present) Yiwen Zhao (1/26 – present)
Keira Leistikow (1/26 - present) Amber Sun (1/26 - present)

Teaching and Course Development

1. IE 248 – “Introduction to Manufacturing Processes and Specifications” (Iowa State, junior level, taught in Spring 2000 and 2001).
2. IE548X – “Introduction to Micro-fabrication and Micro-systems” (Iowa State, graduate level, initiated and taught in Fall 2000 and 2001).
3. ME339 - “Heat Transfer” (UT Austin, junior level core course, taught in Fall 2002, Spring/Fall 2003, Fall 2004, Spring 2005, Spring/Fall 2006, Spring/Fall 2007).
4. ME381R - “Nano/Micro-Electro-Mechanical Systems (NEMS/MEMS)” (UT Austin, graduate level, initiated and taught in Spring 2002, 2003, 2004, and 2006).
5. CH 393L – “Nanoscience and Nanotechnology” (UT Austin, graduate level, initiated, co-instructor and team-taught in Spring 2003).
6. NANO 206 - “Nanomanufacturing” (UCSD, graduate level, initiated and taught every year since Fall 2011).
7. NANO 112 - “Synthesis and Fabrication of Nanoengineering Systems” (UCSD, undergraduate core course, initiated and taught every year from Spring 2012 to Spring 2020).
8. NANO 150 - “Mechanics of Nanomaterials” (UCSD, undergraduate course, taught in Winter 2013).
9. NANO 101 - “Introduction to Nanoengineering” (UCSD, undergraduate course, taught in Winter 2015 and 2016).
10. CMM 250: Core Course in Stem Cell Biology and Medicine (co-lecturer with other UCSD faculty, every Winter quarter, 2014-2018).
11. CENG 101B - “Heat Transfer” (UCSD, undergraduate core course, taught every Spring since 2023.

Department / University Services

1. Computer Resources Committee, Industrial and Manufacturing System Engineering Department, Iowa State University (1999-2001)
2. Thermal/Fluid Area Doctoral Qualifying Examination Chair (Spring and Fall 2003, Spring 2006), Member (2002-2010), UT Mechanical Engineering Department
3. Graduate Studies Committee, UT Mechanical Engineering (2002-2010)
4. Graduate Studies Committee, UT Biomedical Engineering (2002-2010)
5. International Graduate Student Admission Committee, UT Biomedical Engineering Department (2002-2005)
6. Faculty Recruit Committee, UT Mechanical Engineering Department (2003-2006)
7. Committee member, Doctoral Portfolio Program in Nanotechnology at UT Austin (representing the Mechanical Engineering Department) (2003-2010)
8. Member, Thermal/fluid Area Faculty Search Sub-committee, UT Mechanical Engineering Department (2004-2006)
9. Member, Thermal/fluid Area Strategic Plan Development Committee, UT Mechanical Engineering Department, 2005-2006
10. Faculty Marshall, Graduate School Commencement, 5/2005, 5/2007.
11. Recruiting Committee, UT-Austin and UT Medical Branch MD/PhD program, 2006
12. Member, Outstanding Thesis/Dissertation Award Committee, UT Austin 2005, 2007
13. Chair, Micro and Nano-engineering Strategic Plan Development Committee, UT Mechanical Engineering Department, 2005-2006
14. Seminar coordinator of the Thermal/Fluid Area, UT Mechanical Engineering Department, Spring 2007.
15. Graduate Studies Committee, UT Materials Science and Engineering (2007-2010)
16. Faculty Marshall, Cockrell School of Engineering Commencement, 12/2008.
17. Chair, NE Department Graduate Affairs Committee, UCSD, 2010-2014
18. Chair (2014-2019) and Member (2010-present), NE Department Executive Council, UCSD
19. Member, NE Department Newsletter Committee, UCSD, 2010-2011
20. Chair or member of Ad-Hoc Committees, NE Department faculty promotion review committee, UCSD, 2010-present.
21. Member, Excellence/Diversity Faculty Search Committee, Jacobs School of Engineering (JSOE), UCSD 2012-2013
22. Member, JSOE Strategic Plan for Graduate Program, UCSD, 2012-2013.
23. Chair, Faculty Search Committee, 2014-2015.
24. Vice Chairman, NE Department, UCSD, 2014-2019
25. Member, JSOE Master's Growth Strategy Committee, UCSD, 2015
26. Member, Committee for the Global Faculty Search in Precision Medicine (sub-committee for Omics Sensors, Devices and Imaging Committee, VCHS of UCSD, 2015
27. Member, NE Industrial Advisor Board (IAB) Committee, 2015-2019
28. Executive committee member, UCSD SDNI, 2015-present
29. Member, Faculty Search Committee, 2016-2017.
30. Member, UCSD Siebel Scholars Selection Committee, 2019
31. Search committee for the Director of the Institute of Engineering in Medicine (IEM), 2019.
32. Sub-committee Chair (Research), JSOE Strategic Plan Development Committee, 2019.
33. Member, Dean’s Faculty Council, Jacobs School of Engineering, 2019-2023
34. Chairman, NE Department, UCSD, 2019-2023
35. UCSD Council of Chairs, 2019-2023
36. Member, NE Space and Facility Committee, 2019-2023.
37. JSOE Kun Zhang Endowed Chair Professor evaluation committee, 2020.

38. JSOE Divisional Budget Planning Task Force, 2020
39. UCSD CIRM Training Grant Steering Committee, 2022
40. Member, UCSD Siebel Scholars Selection Committee, 2022
41. UCSD Annual New Student Welcome Convocation, September 2022.
42. UCSD Doctoral Commencement Department Representative, 2023
43. JSOE Space Management Committee, 2023-2026
44. UCSD Medical Scientist (MD/PhD) Training Program (MSTP) Admissions Committee, 2023-24
45. UCSD Senate Divisional Representative Assembly, alternate representative, 2024-2026
46. CNE Department AICHE Reception Committee, Fall 2024.