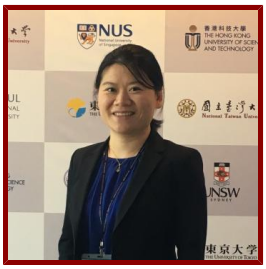
Stanford



Fang Chen (Rosy)

Postdoctoral Scholar, Ophthalmology

Bio

BIO

Dr. Chen is a postdoctoral scholar in the Department of Ophthalmology at Stanford University. Dr. Chen completed her Ph.D. in Materials Science and Engineering at UCSD. During her Ph.D., Dr. Chen worked on the development of ultrasound-based contrast agents and theranostic nanoparticles for regenerative medicines in treating heart diseases. Dr. Chen's research is of broad interest, for example, she also worked on cytotoxicity and adsorption of various nanomaterials. Dr. Chen has published 17 peer-reviewed papers and 2 chapters. She also contributed more than 17 presentations to professional conferences and has 2 patent. To recognize her accomplishments in research and mentorship, Dr. Chen has been awarded the Chancellor's Research Excellence Scholarships (CRES) and the MATS Dissertation Year Fellowship by UCSD.

Dr. Chen's current research topic focuses on corneal regeneration by hydrogel development and stem cell encapsulation. She is also a research scientist at the VAPA under the supervision of Dr. Myung. Dr. Chen also serves as a reviewer for Acta Biomaterialia, Results in Materials, and Journal of Biomaterials Application.

HONORS AND AWARDS

- MATS Dissertation Year Fellowships, UCSD (2019)
- Rising Stars Women in Engineering, Asian Deans' Forum 2019 (2019)
- Chancellor's Research Excellence Scholarship, UCSD (2018)
- Nomination of Schmidt Science Fellows Program, UCSD (2018)
- Travel Award: 256th ACS National Meeting & Exposition, GSA (2018)
- Travel Award: Xiangjiang Symposium for Global Young Scholars, CSU (2017)
- Alumni Association Scholarship, Southeast University (2007)
- Provincial Outstanding Student Leader, Jiangsu Province, China (2007)
- Outstanding Student Leader, Southeast University (2006)
- Outstanding Student Leader, School of Mater. Sci. & Eng. of Southeast University (2006)
- 10th 'All-in-one Card' Scholarship, China Merchants Bank Nanjing Branch (2005)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, ACS (2016 - present)

PROFESSIONAL EDUCATION

- Ph.D., UC San Diego , Materials Science & Engineering (2019)
- Master, Shanghai Institute of Ceramics, Chinese Academy of Sciences , Materials Science (2012)
- Bachelor, Southeast University , Materials Science & Engineering (2008)

STANFORD ADVISORS

- David Myung, Postdoctoral Faculty Sponsor

PATENTS

- "United States Non-contact measurements of fluids, particles and bubbles"
- Jesse Jokerst, Fang Chen, Junxin Wang. "United States Patent 16072813 A wearable sensor, and method, to monitor anti-coagulation therapy", UCSD, Jan 31, 2019

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Corneal regeneration via hydrogel-based cell scaffold and cell encapsulation

Publications

PUBLICATIONS

- **Fusogenic liposome-enhanced cytosolic delivery of magnetic nanoparticles** *RSC ADVANCES*
  Chen, F., Bian, M., Nahmou, M., Myung, D., Goldberg, J. L.
  2021; 11 (57): 35796-35805
- **Gold nanoparticles to enhance ophthalmic imaging.** *Biomaterials science*
  Chen, F., Si, P., de la Zerda, A., Jokerst, J. V., Myung, D.
  2020
- **Simultaneous Interpenetrating Polymer Network of Collagen and Hyaluronic Acid as an In Situ-Forming Corneal Defect Filler.** *Chemistry of materials : a publication of the American Chemical Society*
  Chen, F., Le, P., Lai, K., Fernandes-Cunha, G. M., Myung, D.
  2020; 32 (12): 5208-5216
- **Bio-orthogonally crosslinked hyaluronate-collagen hydrogel for suture-free corneal defect repair.** *Biomaterials*
  Chen, F. n., Le, P. n., Fernandes-Cunha, G. M., Heilshorn, S. C., Myung, D. n.
  2020; 255: 120176
- **Increasing the Efficacy of Stem Cell Therapy via Triple-Function Inorganic Nanoparticles** *ACS NANO*
  Chen, F., Zhao, E., Hableel, G., Hu, T., Kim, T., Li, J., Gonzalez-Pech, N., Cheng, D. J., Lemaster, J. E., Xie, Y., Grassian, V. H., Sen, G. L., Jokerst, et al
  2019; 13 (6): 6605–17
- **Cellular toxicity of silicon carbide nanomaterials as a function of morphology** *BIOMATERIALS*
  Chen, F., Li, G., Zhao, E., Li, J., Hableel, G., Lemaster, J. E., Bai, Y., Sen, G. L., Jokerst, J. V.
  2018; 179: 60–70
- **Multifunctional nanomedicine with silica: Role of silica in nanoparticles for theranostic, imaging, and drug monitoring** *JOURNAL OF COLLOID AND INTERFACE SCIENCE*
  Chen, F., Hableel, G., Zhao, E., Jokerst, J. V.
  2018; 521: 261–79
- **Organosilica Nanoparticles with an Intrinsic Secondary Amine: An Efficient and Reusable Adsorbent for Dyes** *ACS APPLIED MATERIALS & INTERFACES*
  Chen, F., Zhao, E., Kim, T., Wang, J., Hableel, G., Reardon, P., Ananthakrishna, S., Wang, T., Arconada-Alvarez, S., Knowles, J. C., Jokerst, J. V.
  2017; 9 (18): 15566–76
- **Exosome-like silica nanoparticles: a novel ultrasound contrast agent for stem cell imaging** *NANOSCALE*
  Chen, F., Ma, M., Wang, J., Wang, F., Chern, S., Zhao, E., Jhunjhunwala, A., Darmadi, S., Chen, H., Jokerst, J. V.
  2017; 9 (1): 402–11
- **Chitosan enclosed mesoporous silica nanoparticles as drug nano-carriers: Sensitive response to the narrow pH range** *MICROPOROUS AND MESOPOROUS MATERIALS*

Chen, F., Zhu, Y.
2012; 150 (1): 83–89

- **In Situ-Forming Collagen-Hyaluronate Semi-Interpenetrating Network Hydrogel Enhances Corneal Defect Repair.** *Translational vision science & technology*
  Chen, F., Mundy, D. C., Le, P., Seo, Y. A., Logan, C. M., Fernandes-Cunha, G. M., Basco, C. A., Myung, D.
  2022; 11 (10): 22
- **Nanomedicine and drug delivery to the retina: current status and implications for gene therapy.** *Naunyn-Schmiedeberg's archives of pharmacology*
  Tawfik, M., Chen, F., Goldberg, J. L., Sabel, B. A.
  2022
- **In Situ-forming Collagen Hydrogels Crosslinked by Multifunctional Polyethylene Glycol as a Matrix Therapy for Corneal Defects: 2-Month Follow-Up In Vivo.** *Cornea*
  Logan, C. M., Fernandes-Cunha, G. M., Chen, F., Le, P., Mundy, D., Na, K. S., Myung, D.
  2022
- **Fusogenic liposome-enhanced cytosolic delivery of magnetic nanoparticles.** *RSC advances*
  Chen, F., Bian, M., Nahmou, M., Myung, D., Goldberg, J. L.
  2021; 11 (57): 35796-35805
- **A Simple Inner-Stopper Guarded Trephine for Creation of Uniform Keratectomy Wounds in Rodents.** *Journal of ophthalmic & vision research*
  Le, P. B., Chen, F., Myung, D.
  2021; 16 (4): 544-551
- **A Simple Inner-Stopper Guarded Trephine for Creation of Uniform Keratectomy Wounds in Rodents** *JOURNAL OF OPHTHALMIC & VISION RESEARCH*
  Le, P. B., Chen, F., Myung, D.
  2021; 16 (4): 544-551
- **Supramolecular host-guest hyaluronic acid hydrogels enhance corneal wound healing through dynamic spatiotemporal effects.** *The ocular surface*
  Fernandes-Cunha, G. M., Jeong, S. H., Logan, C. M., Le, P., Mundy, D., Chen, F., Chen, K. M., Kim, M., Lee, G., Na, K., Hahn, S. K., Myung, D.
  2021
- **Bio-orthogonally Crosslinked Matrix Therapies for Corneal Defect Repair**
  Myung, D., Chen, F., Fernandes-Cunha, G., Le, P., Hull, S., Heilshorn, S.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **In vitro characterization of a novel in situ-forming semi-interpenetrating polymer network of crosslinked collagen and glycosaminoglycans for corneal defect repair**
  Mundy, D., Chen, F., Le, P., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **Collagen gels crosslinked by photoactivation of riboflavin for corneal defect repair**
  Seo, Y., Fernandes-Cunha, G., Chen, F., Le, P., Logan, C., Mundy, D., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **In situ-forming semi-interpenetrating network hydrogels for corneal regeneration: in vivo biological response**
  Chen, F., Le, P., Fernandes-Cunha, G., Mundy, D., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **In situ forming collagen-PEG hydrogel as a matrix therapy for corneal defects: 2 month in vivo response**
  Rogers, G., Chen, F., Le, P., Mundy, D., Logan, C., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **Magnetic nanoparticles for subcellular organelle manipulation**
  Bian, M., Chen, F., Nahmou, M., Myung, D., Goldberg, J. L.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2021
- **3D Printable, Modified Trephine Designs for Consistent Anterior Lamellar Keratectomy Wounds in Rabbits.** *Current eye research*
  Chen, F., Buickians, D., Le, P., Xia, X., Montague-Alamin, S. Q., Blanco Varela, I. B., Mundy, D. C., Logan, C. M., Myung, D.

2021: 1–10

- **Bioengineered, In Situ-Crosslinked Collagen Gels for Suture-Free Stromal Defect Reconstruction of the Cornea**
  Myung, D., Djalilian, A. R., Heilshorn, S., Chen, F., Le, P., Hull, S., Fernandes-Cunha, G., Na, K.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020

- **Optimization of an in situ-forming interpenetrating polymer network of collagen and hyaluronic acid hydrogel independently and simultaneously crosslinked by click chemistries**
  Le, P., Chen, F., Cunha, G., Lai, K., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020

- **In situ-forming bio-orthogonally crosslinked collagen-hyaluronate co-polymeric hydrogel to treat deep corneal stromal defects: in vivo biological response**
  Chen, F., Le, P., Cunha, G., Myung, D.
  ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2020

- **Stem Cell Tracking with Nanoparticle-Based Ultrasound Contrast Agents.** *Methods in molecular biology (Clifton, N.J.)*
  Chen, F. n., Jokerst, J. V.
  2020; 2126: 141–53

- **In situ-forming collagen hydrogel crosslinked via multi-functional PEG as a matrix therapy for corneal defects.** *Scientific reports*
  Fernandes-Cunha, G. M., Chen, K. M., Chen, F. n., Le, P. n., Han, J. H., Mahajan, L. A., Lee, H. J., Na, K. S., Myung, D. n.
  2020; 10 (1): 16671

- **Non-invasive Staging of Pressure Ulcers Using Photoacoustic Imaging.** *Wound repair and regeneration : official publication of the Wound Healing Society [and] the European Tissue Repair Society*
  Hariri, A., Chen, F., Moore, C., Jokerst, J. V.
  2019

- **Listening for the therapeutic window: Advances in drug delivery utilizing photoacoustic imaging.** *Advanced drug delivery reviews*
  Moore, C., Chen, F., Wang, J., Jokerst, J. V.
  2019

- **Gadolinium Doping Enhances the Photoacoustic Signal of Synthetic Melanin Nanoparticles: A Dual Modality Contrast Agent for Stem Cell Imaging** *CHEMISTRY OF MATERIALS*
  Lemaster, J. E., Wang, Z., Hariri, A., Chen, F., Hu, Z., Huang, Y., Barback, C. V., Cochran, R., Gianneschi, N. C., Jokerst, J. V.
  2019; 31 (1): 251–59

- **Photoacoustic Imaging Quantifies Drug Release from Nanocarriers via Redox Chemistry of Dye-Labeled Cargo.** *Angewandte Chemie (International ed. in English)*
  Jeevarathinam, A. S., Lemaster, J. E., Chen, F. n., Zhao, E. n., Jokerst, J. V.
  2019

- **A Mechanistic Investigation of Methylene Blue and Heparin Interactions and Their Photoacoustic Enhancement** *BIOCONJUGATE CHEMISTRY*
  Wang, J., Jeevarathinam, A., Humphries, K., Jhunjhunwala, A., Chen, F., Hariri, A., Miller, B. R., Jokerst, J. V.
  2018; 29 (11): 3768–75

- **Optics-Free, Non-Contact Measurements of Fluids, Bubbles, and Particles in Microchannels Using Metallic Nano-Islands on Graphene** *NANO LETTERS*
  Dhong, C., Edmunds, S. J., Ramirez, J., Kayser, L. V., Chen, F., Jokerst, J. V., Lipomi, D. J.
  2018; 18 (8): 5306–11

- **Development of a Trimodal Contrast Agent for Acoustic and Magnetic Particle Imaging of Stem Cells** *ACS APPLIED NANO MATERIALS*
  Lemaster, J. E., Chen, F., Kim, T., Hariri, A., Jokerst, J.
  2018; 1 (3): 1321–31

- **Photoacoustic Imaging for Noninvasive Periodontal Probing Depth Measurements** *JOURNAL OF DENTAL RESEARCH*
  Lin, C. Y., Chen, F., Hariri, A., Chen, C. J., Wilder-Smith, P., Takesh, T., Jokerst, J. V.
  2018; 97 (1): 23–30

- **Photoacoustic Imaging of Human Mesenchymal Stem Cells Labeled with Prussian Blue-Poly(L-lysine) Nanocomplexes** *ACS NANO*
  Kim, T., Lemaster, J. E., Chen, F., Li, J., Jokerst, J. V.
  2017; 11 (9): 9022–32

- **A Nanoscale Tool for Photoacoustic-Based Measurements of Clotting Time and Therapeutic Drug Monitoring of Heparin.** *Nano letters*
  Wang, J., Chen, F., Arconada-Alvarez, S. J., Hartanto, J., Yap, L. P., Park, R., Wang, F., Vorobyova, I., Dagliyan, G., Conti, P. S., Jokerst, J. V.
  2016; 16 (10): 6265-6271

PRESENTATIONS

- Triple-functional nanomedicine increases stem cell therapy efficacy in ischemia reperfusion injury mice hearts - Graduate Society of NanoEngineers Seminar, UCSD
- Triple-functional nanomedicine increases stem cell therapy efficacy in ischemia reperfusion injury mice hearts - Chancellor’s Research Excellence Scholarships (CRES) Symposium, UCSD
- Engineering cells with multifunctional nanomaterials to improve stem cell therapy efficacy in myocardial infarcted mice - 16th International Nanomedicine & Drug Delivery Symposium (9/2018)
- Discoid silica nanoparticles for stem cells tracking by ultrasound imaging (8/2018)
- Tunable and repeatable dye adsorption/desorption via organosilica nanoparticles with an intrinsic amine (8/2018)
- Morphology-dependent cytotoxicity of SiC nanomaterials to human mesenchymal stem cells - 256th National Meeting of the American Chemical Society, Boston (8/2018)
- Increasing stem cells therapy efficacy with engineered multi-functional nanoparticles - Xiangjiang Symposium for Global Young Scholars in Materials Science, Changsha, China (12/2017)
- Measuring heparin activity with a nanoparticle-functionalized catheter - 253st National Meeting of the American Chemical Society, San Francisco (4/2017)
- Increasing stem cells retention and survivability by engineering with magnetic porous nanoparticles - 253st National Meeting of the American Chemical Society, San Francisco (4/2017)
- Effect of hydrophobicity on the ultrasound contrast of silica nanoparticles - 253st National Meeting of the American Chemical Society, San Francisco (4/2017)
- Tracking and aiding the survival of stem cells by indocyanine green- and insulin growth factor-loaded mesoporous cellular foam - The 1st SABPA Frontiers in Therapeutics and Diagnostics Forum (2/2017)
- Echogenicity of mesoporous and nonporous silica nanoparticles, Oral Presentation - 251st National Meeting of the American Chemical Society, San Diego (3/2016)
- Tracking and aiding the survival of stem cells by indocyanine green- and insulin growth factor-loaded mesoporous cellular foam - 251st National Meeting of the American Chemical Society, San Diego (3/2016)
- Ultrasound signal of mesocellular foam and mesoporous nanoparticles, Poster Presentation - 251st National Meeting of the American Chemical Society, San Diego (3/2016)