



## Shih-Po Su

Postdoctoral Scholar, Ophthalmology

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#### BIO

Dr. Shih-Po Su is a Postdoctoral Research Fellow in the Department of Ophthalmology at Stanford University. He earned his Ph.D. in Biomedical Engineering from National Yang Ming Chiao Tung University (NYCU), Taiwan, in 2024. His doctoral research focused on the development of advanced optical imaging systems, including a three-dimensional near-infrared fluorescence and photoacoustic vascular imaging platform for preclinical applications.

Dr. Su has over a decade of experience in biomedical imaging, integrating optical system design, image analysis, and in vivo disease modeling. His research interests center on the interface of optical engineering and translational medicine, particularly in retinal ganglion cell (RGC) imaging and neuroprotective strategies for glaucoma. At Stanford, he is extending his expertise to short-wave infrared (SWIR/NIR-II) imaging and in vivo retinal functional imaging to establish sensitive biomarkers for neurodegeneration.

His recent work has advanced optical imaging and NIR-II contrast agents, including the co-development of polymer-dot probes for three-dimensional tumor and bone imaging (Chemical Science, 2022; Advanced Healthcare Materials, 2021) and an ultrabright polymer-dot platform for rotational stereo imaging (Advanced Healthcare Materials, 2024). He also designed integrated small-animal imaging systems combining bioluminescence tomography and ultrasound, as well as rotational stereo NIR-II fluorescence imaging (Optics Express, 2024; Journal of Biomedical Optics, 2023; Biosensors, 2022).

Dr. Su has received multiple international recognitions, including the Taiwan Science and Technology Hub@Stanford Postdoctoral Fellowship (2024), First Prize in the NYCU Annual Thesis Competition (2023), the Future Tech Award (MOST, 2022), and the MOST Pilot Scholarship Program (2019). His long-term goal is to develop regenerative medicine-based imaging and therapeutic platforms to address unmet clinical needs in neurodegenerative diseases and vision restoration.

#### HONORS AND AWARDS

- Honorary Member, The Phi Tau Phi Scholastic Honor Society of the Republic of China (2024/03)
- Taiwan Science and Technology Hub@Stanford Postdoctoral Fellowship, Taiwan ST Hub@Stanford (2024/02)
- First prize, 2023 Annual Thesis Competition on English Oral Presentation, National Yang Ming Chiao Tung University (2023/06)
- MOST Scholarship Pilot Program, Ministry of Science and Technology, MOST (2019/08)
- NEW DEANTRONICS LTD. excellent scholarship, NEW DEANTRONICS LTD. (2018/07)
- College Student Research Creativity Award, Ministry of Science and Technology, MOST (2017/07)

## PROFESSIONAL EDUCATION

- Doctor of Philosophy, National Yang Ming Chiao Tung University (2024)
- Ph.D., National Yang Ming Chiao Tung University , Biomedical engineering (2024)

## STANFORD ADVISORS

- Yang Hu, Postdoctoral Faculty Sponsor

## Publications

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### PUBLICATIONS

- **Imaging of Staphylococcus aureus Infections and Biofilms Using a Selective Covalent Probe for the Unique Serine Hydrolase FphE.** *Angewandte Chemie (International ed. in English)*  
Woods, E. C., Upadhyay, T., Park, K. W., Su, S. P., Xiao, Z., Rao, J., Valdez, T. A., Jo, J., Bogyo, M.  
2026: e9575966
- **Imaging of Staphylococcus aureus infections and biofilms using a selective covalent probe for the unique serine hydrolase FphE.** *bioRxiv : the preprint server for biology*  
Woods, E. C., Upadhyay, T., Park, K. W., Su, S. P., Xiao, Z., Rao, J., Valdez, T. A., Jo, J., Bogyo, M.  
2026
- **Chemiluminescent probes for imaging cysteine cathepsin activity.** *Bioorganic & medicinal chemistry letters*  
Zhu, J., Gutkin, S., Chen, S., Su, S. P., Phan, H., Shabat, D., Bogyo, M.  
2025: 130480
- **A Caspase-1-cathepsin AND-Gate Probe for Selective Imaging of Inflammasome Activation.** *ACS chemical biology*  
Chen, S., Goncin, U., Zhu, J., Su, S. P., Czyzyk, T. A., Miller, C. O., Sadabad, R. K., Bogyo, M.  
2025
- **A caspase-1-cathepsin AND-gate probe for selective imaging of inflammasome activation.** *bioRxiv : the preprint server for biology*  
Chen, S., Goncin, U., Zhu, J., Su, S. P., Czyzyk, T. A., Miller, C. O., Sadabad, R. K., Bogyo, M.  
2025
- **Ultrabright Dibenzofluoran-Based Polymer Dots with NIR-IIa Emission Maxima and Unusual Large Stokes Shifts for 3D Rotational Stereo Imaging.** *Advanced healthcare materials*  
Chowdhury, P., Lu, Z. Y., Su, S. P., Liu, M. H., Lin, C. Y., Wang, M. W., Luo, Y. C., Lee, Y. J., Chiang, H. K., Chan, Y. H.  
2024; 13 (20): e2400606
- **The Emergence of Tumor-Initiating Cells in an Advanced Hypopharyngeal Tumor Model Exhibits Enhanced Angiogenesis and Nuclear Factor Erythroid 2-Related Factor 2-Associated Antioxidant Effects.** *Antioxidants & redox signaling*  
Lin, M. Y., Wang, C. Y., Chan, Y. H., Su, S. P., Chiang, H. K., Yang, M. H., Lee, Y. J.  
2024
- **Development of an integrated dual-modality 3D bioluminescence tomography and ultrasound imaging system for small animal tumor imaging.** *Optics express*  
Su, S. P., Yang, Y. Z., Chiang, H. K.  
2024; 32 (4): 5607-5620
- **Dual-Modality Bioluminescence and Ultrasound 3D 360-Degree Imaging System for Small Animal Tumor Imaging Using Homemade Transducers**  
Su, S., Chiang, H.  
edited by Boehm, B., Bottenus, N.  
SPIE-INT SOC OPTICAL ENGINEERING.2024
- **A Novel Injection Protocol Using Voluven®-Assisted Indocyanine Green with Improved Near-Infrared Fluorescence Guidance in Breast Cancer Sentinel Lymph Node Mapping-A Translational Study.** *Annals of surgical oncology*  
Hsieh, Y. C., Guo, K. W., Wang, M. W., Su, S. P., Syu, Y. H., Huang, C. S., Chan, Y. H.  
2023; 30 (13): 8419-8427

- **Realization of NIR-II 3D whole-body contour and tumor blood vessels imaging in small animals using rotational stereo vision technique.** *Journal of biomedical optics*  
Su, S. P., Lee, Y. C., Lin, S. L., Li, Y. X., Lin, M. Y., Chan, Y. H., Lee, Y. J., Yang, M. H., Chiang, H. K.  
2023; 28 (9): 094807
- **Effect of carbon spacer length on the antibacterial properties of zwitterionic poly(sulfobetaine) type copolymeric brushes and their application in wound healing.** *Biomaterials science*  
Dhingra, S., Su, S. P., Chan, Y. H., Saha, S.  
2023; 11 (12): 4308-4326
- **Rational Design of Asymmetric Polymethines to Attain NIR(II) Bioimaging at >1100 nm.** *Journal of the American Chemical Society*  
Pan, H. M., Wu, C. C., Lin, C. Y., Hsu, C. S., Tsai, Y. C., Chowdhury, P., Wang, C. H., Chang, K. H., Yang, C. H., Liu, M. H., Chen, Y. C., Su, S. P., Lee, et al  
2023; 145 (1): 516-526
- **TADF-based NIR-II semiconducting polymer dots for in vivo 3D bone imaging.** *Chemical science*  
Hsu, K. F., Su, S. P., Lu, H. F., Liu, M. H., Chang, Y. J., Lee, Y. J., Chiang, H. K., Hsu, C. P., Lu, C. W., Chan, Y. H.  
2022; 13 (34): 10074-10081
- **Development of Stereo NIR-II Fluorescence Imaging System for 3D Tumor Vasculature in Small Animals.** *Biosensors*  
Su, S. P., Lin, S. L., Chan, Y. H., Lee, Y. J., Lee, Y. C., Zeng, P. X., Li, Y. X., Yang, M. H., Chiang, H. K.  
2022; 12 (2)
- **Molecular Design of Ultrabright Semiconducting Polymer Dots with High NIR-II Fluorescence for 3D Tumor Mapping.** *Advanced healthcare materials*  
Li, Y. X., Su, S. P., Yang, C. H., Liu, M. H., Lo, P. H., Chen, Y. C., Hsu, C. P., Lee, Y. J., Chiang, H. K., Chan, Y. H.  
2021; 10 (24): e2100993
- **Small-animal 360-deg fluorescence diffuse optical tomography using structural prior information from ultrasound imaging.** *Journal of biomedical optics*  
Lo, P. A., Su, S. P., Chiang, H. K.  
2020; 25 (3): 1-11
- **3D Fluorescence Tomography Combined with Ultrasound Imaging System in Small Animal Study**  
Su, S., Chiang, H.  
edited by Lin, K. P., Magjarevic, R., DeCarvalho, P.  
SPRINGER INTERNATIONAL PUBLISHING AG.2020: 166-173