JINGYI LUAN
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RESEARCH INTEREST

Research focus: Innovative design and synthesis of functional nanomaterials as toolbox to overcome scientific and technological barriers in ultrasensitive and multiplexed protein detection.

EDUCATION AND WORKING EXPERIENCE

Postdoctoral Research fellow, 2021-now
Harvard University, Wyss Institute for Biologically Inspired Engineering Boston, USA

Research Scientist 2020-2021
Auragent Bioscience, LLC St. Louis, USA

PhD, Mechanical Engineering & Materials Science 2014-2020
Washington University in St. Louis St. Louis, USA
Thesis title: Ultrasensitive Biodetection based on Plasmonically-active Materials.
Advisor: Prof. Srikanth Singamaneni

Visiting Scholar, 2012-2013
Electrical Engineering and Computer Sciences Berkeley, USA
University of California, Berkeley

Bachelor of Engineering, Electrical and Electronic Engineering 2009-2013
Xi'an Jiaotong University Xi'an, CN

PEER-REVIEWED PUBLICATIONS

First author paper:

1. Wang, Z.; **Luan, J. (Co-first author)**; Seth, A; Liu, L.; You, M.; Singamaneni, S., Minimally invasive and ultrasensitive monitor of protein biomarkers in interstitial fluid using microneedle patch. ***Nature Biomedical Engineering*** 5, page 64-76 (2021).

2. **Luan, J.**; Seth, A; Gupta, R; Wang, Z.; Derami, H.; Rathi, P; Cao, S.; Singamaneni, S., Ultrabright Plasmonic-fluor as a Cross-platform Nanolabel for Femtomolar Detection of Bioanalytes. ***Nature Biomedical Engineering*** 2020, 4, 518–530.

3. **Luan, J.**; Morrissey, J.; Wang, Z.; Derami, H.; Liu, K-K.; Cao, S.; Jiang, Q.; Wang, C.; Kharasch, E.; Naik, R.; Singamaneni, S., Add-on Plasmonic Patch as a Universal Fluorescence Enhancer. ***Light: Science & Applications*** 2018, 7, 29.

4. Liang, C.; **Luan, J. (Co-first author)**; Wang, Z.; Gupta R.; Cao, S.; Sun, H.; Kharasch, E. D.; Morrissey, J. J.; Singamaneni, S., Gold nanorod Size-dependent Fluorescence Enhancement. ***ACS Applied Material and Interface*** 2021, 13, 9, 11414–11423.

5. **Luan, J.**; Xu, T.; Morrissey, J. J.; Kharasch, E. D.; Singamaneni, S., Environmental Stability of Plasmonic Biosensors based on Natural vs. Artificial Antibody. ***Analytical Chemistry*** 2018, 90, 13, 7880-7887.

6. **Luan, J.**; Hu, R.; Tadepalli, S.; Morrissey, J. J.; Kharasch, E. D.; Singamaneni, S., Amplification of Refractometric Biosensor Response through Biomineralization of Metal–Organic Framework Nanocrystals. ***Advanced Materials Technologies*** 2017**,** *2* (7).

7. **Luan, J.**; Liu, K.-K.; Tadepalli, S.; Jiang, Q.; Morrissey, J. J.; Kharasch, E. D.; Singamaneni, S., PEGylated Artificial Antibodies: Plasmonic Biosensors with Improved Selectivity. ***ACS Applied Materials & Interfaces*** 2016**,** *8* (36), 23509-23516.

Co-author paper:

8. Xiong, R.; **Luan, J**.; Kang, S.; Ye, C.; Singamaneni, S.; Tsukruk, V. V., Biopolymeric photonic structures: design, fabrication, and emerging applications. ***Chemical Society Reviews*** 2020, 49(3), 983-1031.

9. Tian, L.; **Luan, J.**; Liu, K.-K.; Jiang, Q.; Tadepalli, S.; Gupta, M. K.; Naik, R. R.; Singamaneni, S., Plasmonic Biofoam: A Versatile Optically Active Material. ***Nano Letters*** 2016**,** *16* (1), 609-616.

10. Ye, D.; **Luan, J;** Pang, H.; Yang, Y.; Nazeri, A.; Robin, J.; Chen, H., Characterization of focused ultrasound-mediated brainstem delivery of intranasally administered agents. ***Journal of Controlled Release*** 2020, 328, 276-285.

11. Gupta, R.; **Luan, J**.; Chakrabartty, S.; Scheller, E. L.; Morrissey, J. J.; Singamaneni, S., Refreshable Nanobiosensor based on Organosilica Encapsulation of Biorecognition Elements. ***ACS Applied Materials & Interfaces*** 2020, 12, 5420−5428.

12. Gupta, P.; **Luan, J.;** Wang, Z.; Cao, S.; Naik, R.; Singamaneni, S., Add-On Plasmonic Patch for On-demand Electromagnetic Hotspots. ***ACS Applied Materials & Interfaces*** 2019**,** 11, 37939−37946.

13. Wang, C.; **Luan, J.**; Tadepalli, S.; Liu, K.-K.; Morrissey, J. J.; Kharasch, E. D.; Naik, R. R.; Singamaneni, S., Silk-Encapsulated Plasmonic Biochips with Enhanced Thermal Stability. ***ACS applied materials & interfaces*** 2016**,** *8* (40), 26493-26500.

14. Wang, C.; Tadepalli, S.; **Luan, J.**; Liu, K. K.; Morrissey, J. J.; Kharasch, E. D.; Naik, R. R.; Singamaneni, S., Metal-Organic Framework as a Protective Coating for Biodiagnostic Chips. ***Advanced Materials*** 2017, *29* (7).

15. Wang, C.; Sun, H.; **Luan, J.**; Jiang, Q.; Tadepalli, S.; Morrissey, J. J.; Kharasch, E. D.; Singamaneni, S., Metal-Organic Framework Encapsulation for Biospecimen Preservation. ***Chemistry of Materials*** 2018, 30, 4, 1291-1300.

16. Tadepalli, S.; Yim, J.; Madireddi, K.; **Luan, J.**; Naik, R. R.; Singamaneni, S., Gold Nanorod-Mediated Photothermal Enhancement of the Biocatalytic Activity of a Polymer-Encapsulated Enzyme. ***Chemistry of Materials*** 2017, *29* (15), 6308-6314.

17. Tian, L.; Jiang, Q.; Liu, K.-K.; **Luan, J.**; Naik, R. R.; Singamaneni, S., Bacterial Nanocellulose-Based Flexible Surface Enhanced Raman Scattering Substrate. ***Advanced Materials Interfaces*** 2016**,** *3* (15), 1600214.

18. Cao, S.; Tang, R.; Sudlow, G.; Wang, Z; Liu, K.-K.; **Luan, J.**; Tadepalli, S.; Achilefu, S.; Singamaneni, S., Red Blood Cell Mimicking Silk Microcapsules. ***ACS Applied Material and Interface*** 2019, 11, 5499−5508.

19. Jiang, Q.; Deoukchen, G.; Tadepalli, S.; Liu, K,.-K.; Kwon, H.; **Luan, J.**; Min, Y.; Jun, Y.-S.; Singamaneni, S., Photothermally Active Reduced Graphene Oxide/Bacterial Nanocellulose Composites as Biofouling-Resistant Ultrafiltration Membranes. ***Environmental science & technology*** 2019, 53, 412−421.