

Yu Long

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EDUCATION

- 08/2018-present **University of California-Berkeley**
Major: Mechanical Engineering, Ph.D. expected GPA: 3.85/4.00
Advanced to candidacy at 05/04/2020, expected to graduate in 05/2022
Master of Science (12/18/2020)
- 08/2014-07/2018 **Tsinghua University**
Major: Material Science and Engineering, B.E. GPA: 93/100 (Rank: 1/106)

RESEARCH EXPERIENCES

- 11/2019-present **Molecular Foundry, Lawrence Berkeley National Laboratory (LBNL)**
Graduate Student Researcher, Co-advisor: *Dr. Tracy Mattox*
■ Self-healable and ion-conducting hydrogel for supercapacitors, strain sensors and actuators;
■ Self-healable hydrogel for Li⁺ batteries.
2 conference publications in IEEE MEMS (oral presentation)
- 08/2018-present **University of California-Berkeley, Berkeley Sensor & Actuator Center (BSAC)**
Graduate Student Researcher, Lab chemical & safety manager, Advisor: *Prof. Liwei Lin*
■ Disposable and customizable paper-based strain and acoustic pressure sensor.
■ Polymer-based moisture AC current generator.
■ A self-healing hydrogel for sensors, actuators, supercapacitors and Li⁺ batteries.
■ A self-healing ionogel with high Seebeck coefficient for thermoelectricity energy harvesters.
4 conference publications in IEEE MEMS; 2 journal publications; 1 US patent.
- 06/2017-09/2017 **Stanford University**
Undergraduate Student Researcher, Advisor: *Prof. Zhenan Bao*
■ Positive temperature coefficient polymer as flexible temperature sensors that are robust under vacuum and radiation.
1 oral presentation and 1 academic poster presentation
- 09/2016-07/2018 **Tsinghua University**
Undergraduate Student Researcher, Advisor: *Prof. Hongwei Zhu*
■ Flexible and wearable temperature and humidity simultaneous sensors based on graphene.
■ Graphene and PDMS porous composites for strain sensing.
3 journal publications

WORK EXPERIENCES

- 05/2021-08/2021 **CTO Office, Applied Materials**
College Intern, "Rainbow" Team (μLED development)
■ Develop waveforms for quantum dot (QD) inks on the RICOH Gen 5 jetting station;
■ Conduct print tests on pixel panels using QD inks.

PUBLICATIONS

1. **Y. Long**, P. He, Z. Shao, Z. Li, H. Kim, A. M. Yao, Y. Peng, R. Xu, C. H. Ahn, S.-W. Lee, J. Zhong*, and L. Lin*, "Moisture-induced Autonomous Surface Potential Oscillations for Energy Harvesting," *Nature Communications*, **2021**, *12*, 5287.
2. Z. Li, **Y. Long**, J. Zhong*, "Stability and decay of surface electrostatic charges in liquids." *Nano Energy*, **2020**, *81*, 105618.
3. X. Zhao, K. Zhou, Y. Zhong, P. Liu, Z. Li, J. Pan, **Y. Long**, M. Huang, A. Barakat, H. Zhu*. "Hydrophobic ionic liquid-in-polymer composites for ultrafast, linear response and highly sensitive humidity sensing." *Nano Research*, **2021**, *14*, 1202–1209.
4. **Y. Long**, P. He, R. Xu, T. Hayasaka, Z. Shao, J. Zhong, L. Lin*. "Molybdenum-Carbide-Graphene Composites for Paper-Based Strain and Acoustic Pressure Sensors." *Carbon*, **2020**, *157*, 594-601.
5. Y. Liu, L. Zhang, W. Min, Y. Zhong, M. Huang, **Y. Long**, H. Zhu*. "Bandgap-Tunable Double Perovskite Thin Films by Solution Processing." *Materials Today*, **2019**, *28*, 25-30.
6. X. Zhao, Z. Deng, **Y. Long**, B. Feng, X. Jiang, X. Liu, Y. Zhong, S. Zou, Z. Zhen, S. Lin, H. Hu, J. Li, G. Zhao, L. Liu, G. Zou, H. Zhu*. "Multifunctional Sensing Platform with Pulsed-Laser-Deposited Silver Nanoporous Structures."

Sensors & Actuators: A. Physical, **2019**, 293, 136-144.

7. **Y. Long**, X. Zhao, X. Jiang, L. Zhang, H. Zhang, Y. Liu, H. Zhu*. "A porous graphene/polydimethylsiloxane composite by chemical foaming for simultaneous tensile and compressive strain sensing." *FlatChem*, **2018**, 10, 1-7.
8. X. Zhao, **Y. Long**, T. Yang, J. Li, H. Zhu*. "Simultaneous High Sensitivity Sensing of Temperature and Humidity with Graphene Woven Fabrics." *ACS Applied Materials & Interfaces*, **2017**, 9, 35, 30171-30176.
9. **Y. Long***, D. Li, D. Chen. "Influence of square wave anodization on electronic properties and structures of the passive films on Ti in sulfuric acid solution." *Applied Surface Science*, **2017**, 425, 83-94.
10. D. Li*, **Y. Long**, P. Liang, D. Chen. "Effect of micro-particles on cavitation erosion of Ti6Al4V alloy in sulfuric acid solution." *Ultrasonics Sonochemistry*, **2017**, 36, 270-276.

CONFERENCES

1. **Y. Long**, P. He, Y. Peng and L. Lin. "A High Seebeck Coefficient Thermoelectric Generator Based on a Self-healing Ionogel." Proceedings of 35th IEEE Micro Electro Mechanical Systems Conference, accepted, Tokyo, Japan, Jan. 2022.
2. **Y. Long**, P. He, F. Sui and L. Lin. "Jellyfish-like Hydrogels for Transparent, Self-healing and Ultra-stretchable Sensors and Actuators." Proceedings of 33rd IEEE Micro Electro Mechanical Systems Conference, pp. 172-175, Vancouver, Canada, Jan. 2020. (*Oral presentation; Awarded with Travel Grant*)
3. P. He, **Y. Long**, R. Xu, G. Lan and L. Lin. "Self-healing, highly-stretchable, and ion-conducting hydrogel electrolyte for flexible microsupercapacitors." Proceedings of 33rd IEEE Micro Electro Mechanical Systems Conference, pp. 239-242, Vancouver, Canada, Jan. 2020. (*Oral presentation; Outstanding Student Paper Award Finalist; Awarded with Travel Grant*)
4. **Y. Long**, X. Zang, J. Zhong, R. Xu, T. Hayasaka and L. Lin. "A Paper-based Disposable Strain Sensor by Direct Laser Printing." Proceedings of 32nd IEEE Micro Electro Mechanical Systems Conference, pp. 815-818, Seoul, Korea, Jan. 2019.

PATENTS

"Reconfigurable soft lithium-ion battery" – US patent 63223781 – Date of patent: July 21, 2021.

HONORS & AWARDS (SELECTED)

2020	Frank and Margaret Lucas Scholarship Fund
2020	Outstanding Student Paper Award Finalist (33rd IEEE MEMS Conference)
2019	Henry Lurie Family Fellowship
2018	Harry Stuart Derby and Alice Urquhart Derby Scholarship
2018	Excellent Graduate Student
2018	Excellent Graduation Thesis

RELATED COURSES

Polymer Science and Technology; Integrated-Circuit Devices; Introduction to MEMS (Microelectromechanical Systems); Advanced Special Topics in Energy Science and Technology; Introduction to Nanotechnology and Nanoscience; Process Technology of Solid-State Materials Devices; Properties of Electronic Materials.

SKILLS & RESEARCH INTERESTS

- Research topics: advanced electronics; sensors; energy harvesters; polymer; self-healing materials.
- Skills:
 - Materials Fabrication: polymer synthesis, inkjet printing, laser fabrication, chemical vapor deposition, plasma, spin-coating, electro-spinning *et al.*
 - Materials Characterization: SEM, TEM, XRD, XPS, DSC, TGA, FT-IR, NMR, UV-vis *et al.*
 - Device Measurement: electrochemical analysis, mechanical and electrical property measurements.
 - Data Analysis and Programming: java, Python.
 - Software: Microsoft Office, Photoshop, Matlab, Origin *et al.*