Assistant Professor ZENG, SONGSHAN

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Academic Qualification

Ph.D. in Materials Science, University of Connecticut, 2018
M.S.in Materials Physics and Chemistry, Sun Yat-sen University, 2012
B.S.in Materials Physics, Sun Yat-sen University, 2009

Teaching Area

Materials Science

Research Area

Smart materials, Biomimetic materials, Stretchable/flexible photonics/electronics, Structural color,
Wrinking instability

Working Experience

Assistant Professor, MIMSE, Macau University of Science and Technology, Macau, China, 2022 - present
Postdoc, The Chinese University of Hongkong, Hongkong, China, 2021 - 2022
Postdoc, University of Connecticut, US, 2018 - 2020

Academic Publication (Selected)

Zeng, S.; Yang, Z.; Hou, Z.; Park, C.; Jones, M.; Ding, H.; Shen, K.; Smith, A.; Wang, B.; Jiang, H.; Sun, L. Dynamic multi-functional devices enabled by ultrathin metal nanocoatings with optical/photothermal and morphological versatility. **PNAS 2022**, 119 (4), e2118991119.

Zeng, S.; Zhang, D.; Huang, W.; Wang, Z.; Freire, S.; Yu, X.; Smith, A.; Huang, E.; Nguon, H.; Sun, L. Bio-inspired Sensitive and Reversible Mechanochromisms via Strain-dependent Cracks and Folds. **Nature Communications 2016**, 7:11802. DOI: 10.1038/ncomms11802.

Zeng, S.; Li, R.; Freire, S.; Garbellotto, V.; Huang, E.; Smith, A.; Hu, C.; Tait, W.; Bian, Z.; Zheng, G.; Zhang, D.; Sun, L. Moisture-Responsive Wrinkling Surfaces with Tunable Dynamics. **Advanced Materials 2017**, 29, 1700828.

Zeng, S.; Smith, A.; Shen, K.; Sun, L. Smart soft materials with multi-scale architecture and dynamic surface topographies. **Account of Materials Research, 2022**, 3, 11, 1115–1126

Zeng, S.[#]; Shen, K.[#]; Liu, Y.; Chooi, A.; Smith, A.; Zhai, S.; Chen, Z.; Sun, L. Dynamic Thermal Radiation Modulators via Mechanically Tunable Surface Emissivity. **Materials Today 2021**, 45, 44-53

Zeng, S.; Li, R.; Tait, W.; Zhang, M.; Zhu, M.; Chov, N.; Xu, G.; Zhang, D.; Sun, L. Spontaneous Formation of Wrinkle-driven Tubular Structure as a Versatile Platform for Adaptive 3D Stretchable Electronics. **Materials Horizons 2020**, 7, 2368-2377.

Zeng, S.; Sun, H.; Park, C.; Zhang, M.; Zhu, M.; Chov, N.; Li, E.; Smith, A.; Xu, G.; Li, S.; Hou, Z.; Li, Y.; Wang, B.; Zhang, D.; Sun, L. Multi-stimuli responsive chromism with tailorable mechanochromic sensitivity for versatile interactive sensing under ambient conditions. **Materials Horizons 2020**, 7,164-172.

Zeng, S.; Liu, Y.; Li, S.; Shen, K.; Hou, Z.; Chooi, A.; Smith, Andrew.; Chen, Z.; Sun, L. Smart laser-writable micropatterns with multi-scale photo/moisture reconstructible structure. **Advanced Functional Materials 2020**. 31. 2009481

Zeng, S.; Shen, K.; Li, S.; Li, R.; Hou, Z.; Zhang, X.; Tait, W.; Kajiwara, T.; Takahara, A.; Smith, A.; Jones, M.; Zhang, D.; Sun, L. Tailoring multi-stimuli responsive micropatterns activated by various mechanical modes. **Advanced Functional Materials 2021**, 31, 2100612.

Wu, C.[#]; **Zeng, S.**[#]; Wang, Z.; Wang, F.; Zhou, H.; Zhang, J.; Ci, Z.; L Sun. Efficient Mechanoluminescent Elastomers for Dual-Responsive Anticounterfeiting Device and Stretching/Strain Sensor with Multimode Sensibility. **Advanced Functional Materials 2018**. 28. 1803168.

Patents

Sun, L.; **Zeng, S.;** Zhang, D. Stimuli Responsive Materials, Methods of Making, and Methods of Use Thereof. U.S. Patent No. 10,828,876. (**Approved non-provisional patent**)

Sun, L.; **Zeng, S.;** Zhang, D. Moisture Responsive Materials and Methods of Making. U.S. Patent No. 10,950,146. (**Approved non-provisional patent**)

Sun, L.; Zeng, S.; Shen, K. Stretchable thermal radiation modulation system via mechanically tunable emissivity. U.S. Patent No. 11,718,078. (**Approved non-provisional patent**)

Sun, L.; **Zeng, S.** Multi-responsive Chromic Systems Made by 3D Integration and Multi-responsive devices. U.S. Provisional Patent Application No. 62/772,800

Sun, L.; **Zeng, S.;** Zhang, D.; Li, R. Shape adaptive wrinkle-driven 3D tubular structure for stretchable interactive electronics U.S. Patent Application Publication No. US 2021/0053329, publication date: February 25, 2021. (**Converting into non-provisional patent**)

Sun, L.; **Zeng, S.;** Chen, Z.; Liu, Y. Method of Forming Micro-patterned Surface Using Dynamic Laser on Multi-scale Opto and Moisture Responsive Structure and a Multi-layer Film Useful in Such Method. U.S. Provisional Patent Application No. 63/089,746, application date: October 09, 2020. (**Converting into non-provisional patent**)

Student Awards

Chinese Government Award for Outstanding Self-financed Students Abroad (2018)

Samuel J. Huang Graduate Student Research Award (June 2016)

University of Connecticut Doctoral Dissertation Fellowship (2016 Fall)