

Rui Shi

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Qualifications

Doctorate, Microfluidics and nanofluidics, The University of Hong Kong

Master, Power engineering, Wuhan University

Bachelor, Energy Power System and Automation, Wuhan University

Employment

Division of Science, Engineering and Health Studies (SEHS)

College of Professional and Continuing Education (CPCE)

4 Mar 2024 → present

Research outputs

All-Aqueous Soft Milli-swimmers

Zhou, C., Tang, X., Shi, R., Liu, C., Zhu, P. & Wang, L., 7 Aug 2024, In: ACS Applied Materials and Interfaces. 16, 31, p. 41450-41460 11 p.

A three-dimensional liquid diode for soft, integrated permeable electronics

B. Zhang, J. Li, J. Zhou, L. Chow, G. Zhao, Y., Huang, Z. Ma, Q. Zhang, Y. Yang, CK. Yiu, J. Li, F. Chun, X. Huang, Y. Gao, P. Wu, S. Jia, H. Li, D. Li, Y. Liu, K. Yao, R. Shi, Z. Chen, BL. Khoo, W. Yang, F. Wang, Z. Zheng, Z. Wang, X. Yu*, 2024, In: Nature.

Battery-free, wireless, and electricity-driven soft swimmer for water quality and virus monitoring

D. Li, J. Zhou, Z. Zhao, X. Huang, H. Li, Q. Qu, C. Zhou, K. Yao, Y. Liu, M. Wu, J. Su, R. Shi, Y. Huang, J. Wang, Z. Zhang, Y. Liu, Z. Gao, W. Park, H. Jia, X. Guo, J. Zhang, P. Chirarattananon, L. Chang*, Z. Xie*, X. Yu*, 2024, In: Science advances. 10, 2

Passive Sweat Extraction and Power Activation for Real-Time Sweat Monitoring

Huang, X., Xu, G., Shi, R., Yang, Y. & Yu, X., 2024, *Proceedings of the 3rd IEEE International Conference on Micro/Nano Sensors for AI, Healthcare and Robotics, NSENS 2024*. Institute of Electrical and Electronics Engineers Inc., p. 99-102 4 p. (Proceedings of the 3rd IEEE International Conference on Micro/Nano Sensors for AI, Healthcare and Robotics, NSENS 2024).

Triboelectric Nanogenerator Enabled Sweat Extraction and Power Activation for Sweat Monitoring

G. Xu, X. Huang, R. Shi, Y. Yang, P. Wu, J. Zhou, X. He, J. Li, Y. Zen, Y. Jiao, B. Zhang, J. Li, G. Zhao, Y. Liu, Y. Huang, M. Wu, Q. Zhang, Z. Yang*, X. Yu*, 2024, In: Advanced Functional Materials. 34, 9

Intelligent Soft Sweat Sensors for the Simultaneous Healthcare Monitoring and Safety Warning

Huang, X., Liu, Y., Park, W., Li, J., Ma, J., Yiu, CK., Zhang, Q., Li, J., Wu, P., Zhou, J., Zeng, Y., He, X., Li, J., Wong, TH., Yao, K., Zhao, L., Gao, Y., Shi, R., Li, H., Li, M., Li, D., Zhao, Z.*, Li, Y.*, Li, H.*, Yu, X.*, 2023, In: Advanced healthcare materials.

Mechanoreceptor inspired electronic skin for multi-modal tactile information decoding

Gao, Y., Zhang, B., Liu, Y., Yao, K., Huang, X., Li, J., Wong, TH., Huang, Y., Li, J., Zhou, J., Wu, M., Li, H., Gao, Z., Park, W., Yiu, CK., Jia, H., Shi, R., Li, D., Yu, X.*, 2023, In: Advanced Materials Technologies.

Skin-Integrated Wireless Odor Message Delivery Electronics for the Deaf-blind

W. Park, Y. Liu, Y. Jiao, R. Shi, J. Nan, CK., Yiu, X. Huang, Y. Chen, W. Li, Y. Gao, Q. Zhang, D. Li, S., Jia, Z. Gao, W., Song, M. MH. Lam, Z. Dai*, Z. Zhao*, Y. Li*, X. Yu*, 2023, In: ACS Nano.

Soft, Miniaturized, Wireless Olfactory Interface for Virtual Reality

Liu, Y., Yiu, CK., Zhao, Z., Park, W., Shi, R., Huang, X., Zeng, Y., Wang, K., Wong, TH., Jia, S., Zhou, J., Gao, Z., Zhao, L., Yao, K., Li, J., Sha, C., Gao, Y., Zhao, G., Huang, Y., Li, D., Guo, Q., Li, Y.* , Yu, X.* , 2023, In: Nature Communications.

Stretchable Magnesium-Air Battery Based on Dual Ions Conducting Hydrogel for Intelligent Biomedical Applications

Huang, X., Liu, Y., Park, W., Zhao, Z., Li, J., Lim, CK, Wong, TH., Yiu, CK., Gao, Y., Zhou, J., Li, H., Zhao, L., Li, J., Zhang, B., Huang, Y., Shi, R., Li, D., Mo, J., Wang, J., Zhang, C.* , Li, Y.* , Wang, Z.* , Yu, X.* , 2023, In: InfoMat.

Stretchable, skin-conformable neuromorphic system for tactile sensory recognizing and encoding

Wu, M., Zhuang, Q., Yao, K., Li, J., Zhao, G., Zhou, J., Li, D., Shi, R., Xu, G., Li, Y., Zheng, Z.* , Yang, Z.* , Yu, J.* , Yu, X.* , 2023, In: InfoMat.

Thin, soft, 3D printing enabled crosstalk minimized triboelectric nanogenerator arrays for tactile sensing

Li, J., Liu, Y., Wu, M., Yao, K., Huang, X., Gao, Z., Gao, Y., Huang, X., Wong, TH., Zhou, J., Li, D., Li, H., Li, J., Huang, Y., Shi, R., Yu, J.* , Yu, X.* , 2023, In: Fundamental Research.

Thin, soft, skin-integrated electronics for real-time and wireless detection of uric acid in sweat

Hu, Y., Wang, L., Li, J., Yang, Y., Zhao, G., Liu, Y., Huang, X., Wu, P., Zhang, B., Jiao, Y., Wu, M., Jia, S., Zhang, Q., Xu, G., Shi, R., Li, D., Li, Y., Peng, Z.* , Yu, X.* , 2023, In: International Journal of Smart and Nano Materials.

Ultrasensitive Detection of SARS-CoV-2 by Flexible Metal Oxide Field-Effect Transistors

Hou, S., Wu, M., Li, H., Gong, H., Gao, Z., Shi, R., Huang, X., Li, D., Huang, J.* , Yu, J.* , Yu, X.* , 2023, In: Advanced Functional Materials.

Ultrathin, soft, bioresorbable organic electrochemical transistors for transient spatiotemporal mapping of brain activity

Wu, M., Yao, K., Huang, N., Li, H., Zhou, J., Shi, R., Li, J., Huang, X., Li, J., Jia, H., Gao, Z., Wong, TH., Li, D., Hou, S., Liu, Y., Zhang, S., Song, E.* , Yu, J.* , Yu, X.* , 2023, In: Advanced Science.

Wireless, battery-free, multifunctional integrated bioelectronics for respiratory pathogens monitoring and severity evaluation

H. Li, H. Gong, TH. Wong, J. Zhou, Y. Wang, L. Lin, Y. Dou, H. Jia, X. Huang, Z. Gao, R. Shi, Y. Huang, Z. Chen, W. Park, J. Li, H. Chu, S. Jia, H. Wu, M. Wu, Y. Liu, D. Li, J. Li, G. Xu, T. Chang, B. Zhang, Y. Gao, J. Su, H. Bai, J. Hu, CK. Yiu, C. Xu, W. Hu* , J. Huang* , L. Chang* , X. Yu* , 2023, In: Nature Communications.

Transient, Implantable, Ultrathin Biofuel Cells Enabled by Laser-Induced Graphene and Gold Nanoparticles Composite

HUANG, X., Li, H., Li, J., Huang, L., Yao, K., Yiu, C. K., Liu, Y., Wong, T. H., Li, D., Wu, M., Huang, Y., Gao, Z., Zhou, J., Gao, Y., Li, J., Jiao, Y., Shi, R., Zhang, B., Hu, B. & Guo, Q. & 3 others, Song, E., Ye, R. & Yu, X., Apr 2022, In: Nano Letters.

Bandage Based Energy Generators Activated by Sweat in Wireless Skin Electronics for Continuous Physiological Monitoring

Liu, Y., Huang, X., Zhou, J., Li, J., Nejad, SK. Yiu, C., Li, H., Wong, T., Park, W., Yao, K., Zhao, L., Shi, R., Wang, Y., Dai, Z., Yu, X.* , 2022, In: Nano Energy.

Bio-inspired ultra-thin microfluidics for soft sweat-activated batteries and skin electronics

Wu, M., Shi, R., Zhou, J., Wong, T., Yao, K., Li, J., Huang, X., Li, D., Gao, Y., Liu, Y., Hou, Yu, J.* , Yu, X.* , 2022, In: Journal of Materials Chemistry A.

Encoding of tactile information in hand via skin-integrated wireless haptic interface

Yao, K., Zhou, J., Huang, Q., Wu, M., Yiu, CK., Li, J., Huang, X., Li, D., Su, J., Hou, S., Liu, Y., Huang, Y., Tian, Z., Li, J., Li, H., Shi, R., Zhang, B., Zhu, J., Wong, TH., Jia, H., Gao, Z., Gao, Y., Zhou, Y., Park, W., Song, E., Han, M., Zhang, H., Yu, J.* , Wang, L.* , Li, WJ.* , Yu, X.* , 2022, In: Nature Machine Intelligence.

Implantable Electronic Medicine Enabled by Bioresorbable Microneedles for Wireless Electrotherapy and Drug Delivery
Huang, Y., Li, H., Hu, T., Li, J., Yiu, C.K., Zhou, J., Li, J., Huang, X., Yao, K., Qui, X., Zhou, Y., Li, D., Zhang, B., Shi, R., Liu, Y., Wong, T.H., Wu, M., Jia, H., Gao, Z., Zhang, Z., He, J., Zheng, M., Song, E., Wang, L., Xu, C.*, Yu, X.* , 2022, In: Nano Letters.

Progress in all-aqueous droplets generation with microfluidics: Mechanisms of formation and stability improvements
Zhou, C., Zhu, P., Tian, Y., Shi, R., Wang, L., 2022, In: Biophysical Reviews.

Ultra-thin, Soft, Garment Embedded, Energy-Dense Sweat Activated Batteries in Wearable Electronics for Continuous Sweat Monitoring

Huang, X., Liu, Y., Zhou, J., Nejad, S.K., Wong, T.H., Huang, Y., Li, H., Yiu, C., Park, W., Li, J., Su, J., Zhao, L., Yao, K., Gao, Z., Wu, M., Li, D., Shi, R., Yu, X.* , 2022, In: npj Flexible Electronics.

3D Printed Template-Assisted Bioinspired Microfibers Biosensors

Shi, R., Wang, L.* , 2021.

Bioinspired Fibers with Controlled Wettability: From Spinning to Application

Shi, R., Tian, Y., Wang, L.* , 2021, In: ACS Nano.

High Channel Temperature Mapping Electronics in a Thin, Soft, Wireless Format for Non-Invasive Body Thermal Analysis

Park, W., Yiu, C., Liu, Y., Wong, T.H., Huang, X., Zhou, J., Li, J., Yao, K., Huang, Y., Li, H., Li, J., Jiao, Y., Shi, R., Yu, X.* , 2021, In: Biosensors. 11, 11, 10.3390/bios11110435 .

Microfluidic generation of ATPS droplets by transient double emulsion technique

Zhou, C., Zhu, P., Han, X., Shi, R., Tian, Y., Wang, L., 2021, In: Lab on a Chip.

Hourglass-Shaped Microfibers

Shi, R., Tian, Y., Zhu, P., Tang, X., Tian, X., Zhou, C. & Wang, L., 1 Jul 2020, In: ACS Applied Materials and Interfaces. 12, 26, p. 29747-29756 10 p.

Hourglass-Shaped Microfibers

Shi, R., Tian, Y., Zhu, P., Tang, X., Tian, X., Zhou, C., Wang, L.* , 2020, In: ACS Applied Materials & Interfaces.

Microfluidic-generated Concave Cavity-Microfibers for Water Collection

Shi, R., 2019.

A wearable electrochemical platform for non-invasive pH monitoring

Shi, R., Tian, Y., Zhu, P., Tang, X., Tian, X., Zhou, C., Wang, L.* , 2018.

Microfluidic generation of aqueous two-phase-system (ATPS) droplets by oil-droplet choppers

Zhou, C., Zhu, P., Tian, Y., Tang, X., Shi, R., Wang, L., 2017, In: Lab on a Chip.

Activities

Speaker of Research Seminar of the Research Centre for Green Energy, Transport and Building (RCGETB) & Research Centre for Advanced Design, Materials and Manufacturing Technologies (RCADMM)

Shi, R. (Participant)

27 Mar 2024

The 2021 International Workshop on Bionic Engineering (IWBE 2021)

Shi, R. (Participant)

16 Sept 2021 → 17 Sept 2021

Projects

Machine Learning-Driven Multimodal Epidermal Electronics for Sweatomics Analysis and Healthcare Management

Shi, R. (PI)

21/06/24 → 21/12/25