Zheheng (Proton) Song

Suzhou, China Email: zhehengsong@gmail.com Seeking for a full-time PhD

EDUCATION

Soochow University, FUNSOM – Suzhou, China (Bachelor) **September 2016 – June 2020**
Nano science & technology (211 & Double First-Class university projects) GPA: 3.6/4.0
Soochow University, FUNSOM – Suzhou, China (Master) **September 2020 – June 2023**
Physics (211 & Double First-Class university projects) GPA: 3.7/4.0

RESEARCH & PROJECTS

Academic Research

1. High-performance perovskite light-emitting diodes for better illumination. 2018.06-2019.09
2. Solar-driven photothermal PEDOT:PSS hydrogel for its fabrication and characterization. (Supervisors: Baoquan Sun) 2020.09-2022.03
3. Hydrovoltaic effect for energy harvesting (Supervisors: Baoquan Sun) 2020.10-
   - Hydrovoltaic effect of polyaniline.
   - Wafer-scale silicon nanowires devices for seawater desalination and hydrovoltaic effect.
   - Centimeter-level thick silicon nanopores structure fabrication by metal-assistant catalyzed etching.

Industrial Projects

- Projects assigned by Shanghai beionmed Corporation (Funds: 0.2 million RMB) 2021.10-2022.10
  - ✓ **Disposable reproductive cell float-glass counting pool (designing and nanofabrication)**
  - ✓ **Multi-well array biological enzyme for antigen detection (nanofabrication)**

LANGUAGE & AWARDS

Language: English (**IELTS 6.5** & all-English teaching & CET-6); Chinese (native)

Awards:

- University overseas exchange scholarship 2017, 2018
- Exchange scholarship in **Hongkong University** 2018
- Scholarship on social contribution 2019
- Postgraduate scholarship 2020
- Special prize for **"Challenging Cup"** 2021
- Prize for **"Internet+"** Student Competition 2021
- Energy Conservation and Emission Reduction Competition 2022

SKILLS & EXTRACURRICULAR ACITIVITIES

Computer Skills

- EDA (L-EDIT), 3D Modeling (Blender, C4D, Solidworks), 2D Illustration (Illustration, Photoshop, Flash)
- Video-editing (PR, DaVinci), Script/coding (Python, basic HTML language), COSMOL (Liquid flow)

Data Processing

- Python (Pandas, Numpy, Matplotlib), R Language, MATLAB, Origin

Experiment Skills

- Independent investigation and research for engineering target projects
- Direct laser writing (Mask fabrication), Photolithography, Reactive ion etching, Nanoimprint
- XPS, UPS, Raman, SEM, KPFM, and other sorts of electronic and optical characterization instruments

Tutor Assistant

- Cold Spring Harbor (Asia) 2017.10
- Renewable energy and technology (Professor: Baoquan Sun) 2021, 2022
- Scanning electron microscopy student manager (Carl Zeiss: **supra55 and G500**) 2020-2022

Extracurricular Activities

- Assigned by the **Suzhou government** to assist **German and Canada students** living in China 2019.08
- **Swiss SIKA Corporation** (China) for internship 2020.03
- **Laboratory safety student manager** in college 2021-
- Published **more than 50 tutorials about 3D modeling** (Blender scientific illustration) and arrested 3000+ followers on Wechat 2021-
- Duty for postgraduate **online website maintenance** 2021-
- Hobby: Long-distance running, reading books (more than 40+ per year), Zettelkasten

PBULICATIONS & PATENTS

1. **Zheheng Song**‡, Can Ge‡, Yuhang Song, Zhewei Chen, Beibei Shao, Xianrong Yuan, Jiangyu Chen, Duo Xu, Tao Song, Jian Fang*, Yusheng Wang*, Baoquan Sun*. Synergistic Solar-driven Freshwater Generation and Electricity Output Empowered by Wafer-scale Nanostructured Silicon. **Angewandte Chemie International Edition (under reviewing)-First author**
2. Can Ge‡, **Zheheng Song**‡, Yu Yuan, Beibei Song, Song Ren, Wei Wei, Haoyue Zhao, Baoquan Sun*, Jian Fang*. Solar steam generation by porous conducting polymer hydrogel. **Solar Energy** 2022, 240, 237-245. 10.1016/j.solener.2022.05.038**)-First author**
3. Beibei Shao, **Zheheng Song**, Xin Chen, Yanfei Wu, Yajuan Li, Caicheng Song, Fan Yang, Tao Song, Yusheng Wang*, Shuit-Tong Lee*, Baoquan Sun*. Bioinspired Hierarchical Nanofabric Electrode for Silicon Hydrovoltaic Device with Record Power Output. **ACS Nano** 2021, 15, 7472-7481. 10.1021/acsnano.1c00891**)-Assisting writing and experienment**
4. Xin Chen, Conghui Jiang, Yuhang Song, Beibei Shao, Yanfei Wu, **Zheheng Song**, Tao Song, Yusheng Wang*, Baoquan Sun*. Integrating hydrovoltaic device with triboelectric nanogenerator to achieve simultaneous energy harvesting from water droplet and vapor. **Nano Energy** 2022, 100, 107495.10.1016/j.nanoen.2022.107495
5. Beibei Shao, Yanfei Wu, **Zheheng Song**, Haiwei Yang, Xin Chen, Yatao Zou, Jiaqing Zang, Fan Yang, Tao Song, Yusheng Wang*, Mingwang Shao*, Baoquan Sun*. Freestanding silicon nanowires mesh for efficient electricity generation from evaporation-induced water capillary flow. **Nano Energy** 2022, 94, 106917. 10.1016/j.nanoen.2022.106917
6. Yanfei Wu, Beibei Shao, **Zheheng Song**, Yajuan Li, Yatao Zou, Xin Chen, Jiangtao Di, Tao Song, Yusheng Wang, Baoquan Sun*. A Hygroscopic Janus Heterojunction for Continuous Moisture-Triggered Electricity Generators. **ACS Applied Materials & Interfaces** 2022, 14, 19569-19578. 10.1021/acsami.2c02878
7. Pandeng Li, Jin Fang, Yusheng Wang, Sergei Manzhos, Lei Cai, **Zheheng Song**, Yajuan Li, Tao Song, Xuechun Wang, Xia Guo, Maojie Zhang*, Dongling Ma*, Baoquan Sun*. Synergistic Effect of Dielectric Property and Energy Transfer on Charge Separation in Non-Fullerene-Based Solar Cells. **Angewandte Chemie International Edition** 2021, 60, 15054-15062. 10.1002/anie.202103357
8. Beibei Shao, Yanfei Wu, Xin Chen, **Zheheng Song**, Yajuan Li, Zhiwei Hong, Fan Yang, Tao Song, Yusheng Wang*, Baoquan Sun*. Electron-Selective Passivation Contacts for High-Efficiency Nanostructured Silicon Hydrovoltaic Devices. **Advanced Materials Interfaces** 2021, 8, 2101213. 10.1002/admi.202101213
9. Yajuan Li, Yanfei Wu, Beibei Shao, **Zheheng Song**, Yusheng Wang, Jian Qiao, Jiangtao Di, Wei Wei, Tao Song, Baoquan Sun*. Asymmetric Charged Conductive Porous Films for Electricity Generation from Water Droplets via Capillary Infiltrating. **ACS Applied Materials & Interfaces** 2021,

13, 17902-17909. 10.1021/acsami.0c21935

10. Ya Li, Zhewei Chen, Dong Liang, Jiaqing Zang, **Zheheng Song**, Lei Cai, Xuechun Wang, Yushen g Wang, Pandeng Li, Xingyu Gao, Zhongsheng Ma, Xinju Mu, Abdelhamid EI-Shaer, Liming Xie, Wenming Su, Tao Song*, Baoquan Sun*. Coffee-Stain-Free Perovskite Film for Efficient Printed Light-Emitting Diode. **Advanced Optical Materials** 2021, 9, 2100553. 10.1002/adom.202100553

Patents

1. A new method for PEDOT:PSS hydrogel and its preparation and application. (Soochow Universit y). **CN113651978A**, 2021.11.16.
2. A wafer-scale silicon nanowire array based on solar evaporator synergy for fresh water and power generation. (Soochow University). **CN202211008365.X**, 2022.08.23.