

Hao Guo

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EDUCATION

Master of Physical Chemistry

June 2019

College of Science, Shanghai University

Thesis: "The Macro and Micro Multi-scale Structural Design and Production Based on Inkjet 3D Printing Technology."

Supervisor: Jianhui Fang

Bachelor of Polymer Material Processing and Mold

June 2016

School of Materials Science and Engineering, Zhengzhou University

Thesis: "Design and development of a vacuum hot-pressing apparatus"

Supervisor: Guoqiang Zheng

RESEARCH EXPERIENCE

Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences

Assistant Research Fellow

June 2019 – Present

Key Laboratory of Multifunctional Nanomaterials and Smart Systems

- Introduced freezing and sublimation to direct inkjet printing processes to realize small feature size.
- Simulated the deposition and sublimation processes of the printed droplets on a low-temperature substrate.
- Designed and fabricated a flat slit extrusion head to prepare long-range directed graphene oxide liquid crystals (GOLC).
- Created a 3D printing strategy based on stacking GOLC to prepare lightweight lamellar graphene aerogels (LGA).
- Explored the electromagnetic interference shielding and piezoresistive sensor applications of LGA.

Graduate Research Assistant

March 2017–June 2019

Printable Electronics Research Center

- Created a binder system based on water and ethanol to print high-resolution metal macro- and microstructure.
- Simulated the deposition and spread of the printed droplets on a metal powder surface.

PUBLICATIONS

- [1] **H. Guo**, L. Zhao, B. Qian, R. Wang, Q. Wu, T. Hua, J. Qin, L. Li, X. Shi. (2022) Direct Inkjet 3D Printing Microwires with Small Feature Size by Freezing, Sublimation, and Evaporation Induced Colloidal Nanoparticles Self-Assembly Mechanism. *Advanced Materials Technologies*. n/a(n/a), 2201132.
- [2] **H. Guo**, T. Hua, J. Qin, Q. Wu, R. Wang, B. Qian, L. Li, X. Shi. (2022) A New Strategy of 3D Printing Lightweight Lamellar Graphene Aerogels for Electromagnetic Interference Shielding and Piezoresistive Sensor Applications. *Advanced Materials Technologies*. 7 (9), 2101699.
- [3] T. Hua, **H. Guo**, J. Qin, Q. Wu, L. Li, B. Qian. (2022) 3D Printing Lamellar Ti₃C₂T_x MXene/Graphene Hybrid Aerogels for Enhanced Electromagnetic Interference Shielding Performance. *RSC Advances*. 12 (38), 24980. (**Co-first author**)
- [4] Q. Wu, **H. Guo**, T. Hua, L. Zhao, L. Li, B. (2021) Preparation of Graphene Oxide Liquid Crystals with Long-Range Highly-Ordered Flakes Using a Coat-Hanger Die. *RSC Advances*. 11 (25), 15085. (**Co-first author**)
- [5] Z. Huang, Y. Tang, **H. Guo**, X. Feng, T. Zhang, P. Li, B. Qian, Y. Xie. (2020) 3D Printing of Ceramics and Graphene Circuits-On-Ceramics by Thermal Bubble Inkjet Technology and High Temperature Sintering. *Ceramics International*. 46 (8), 10096.

ADDITIONAL SKILL

- 3D printing: Inkjet 3D Printing, Direct Ink Writing, Micro-stereolithography, Fused deposition modeling.
- Microfluidic, MEMS fabrication.
- 3D CAD software: SolidWorks, Pro/E.
- FEA software: COMSOL, Ansys Workbench.
- Data processing software: MATLAB, Origin.
- Individual and team work ability.