

KE ZHONG

Department of Materials Science and Engineering
Southern University of Science and Engineering, P.R. China
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EDUCATION

Southern University of Science and Technology (SUSTech)

Shenzhen, China

Expect B.S. in Materials Science and Engineering

Sept. 2016 – Jun. 2020

- GPA: 3.82/4.00 (rank 2/44); Major GPA: 3.91/4.00
- Selected to MIT-SUSTech joint program (top 4 students from eight different departments)

Massachusetts Institute of Technology (MIT)

Cambridge, USA

Special Student in Mechanical Engineering

Jan. – Jun. 2019

- GPA: 5.0/5.0
- Relevant courses: Thermal-Fluids Engineering I, Biological Instrumentation and Measurement

The University of British Columbia (UBC)

Vancouver, Canada

Summer program in Chemical and Biological Engineering

Jul. – Aug. 2018

- GPA: A+
- Relevant courses: Introduction to Chemical and Biological Engineering

PUBLICATIONS

1. Jiaze Li, Yuan Qiao, Tingting Pan, **Ke Zhong**, Jiaying Wen, Shanshan Wu, Fengyu Su, Yanqing Tian, “Amphiphilic Fluorine-containing Block Copolymers as Carriers for Hydrophobic PtTFPP for Dissolved Oxygen Sensing, Cell respiration monitoring and In Vivo Hypoxia Imaging with High Quantum Efficiency and Long Lifetime”, *Sensors*, 18(11), 3752 (2018) DOI: 10.3390/s18113752.
2. Yuan Qiao, Tingting Pan, Jiaze Li, Cheng Yang, Jiaying Wen, **Ke Zhong**, Jiawei Jiang, Shanshan Wu, Fengyu Su, Yanqing Tian, “Extracellular Oxygen Sensors Based on PtTFPP and Four-Arm Block Copolymers”, *Applied Sciences*, 9, 4404 (2019) DOI: 10.3390/app9204404
3. Tingting Pan, Cheng Yang, Jiaze Li, Jiawei Jiang, Jiaying Wen, Zijin Wang, **Ke Zhong**, Yanqing Tian, Meiwan Chen, “High-throughput Extracellular pH Monitoring and Antibiotics Screening by Polymeric Fluorescent Sensor with LCST Property”, *Methods*, 168, 51-61 (2019) DOI: 10.1016/j.ymeth.2019.04.017

RESEARCH EXPERIENCE

SUSTech (Department of Materials Science and Engineering)

Shenzhen, China

Research Assistant to Professor Yanqing Tian

Project I: Amphiphilic Block Copolymers as Carriers for Hydrophobic PtTFPP

May – Sept. 2018

- Designed amphiphilic multi-arm polymers to enable the applications of the hydrophobic oxygen sensor in aqueous solution with high quantum efficiency of 22% and lifetime as long as 76 μ s
- Applied the oxygen sensor to *E. coli* and mammalian cells in oxygen consumption monitoring and proved its non-toxicity
- Achieved *in vivo* hypoxia imaging with a tumor-bearing nude mouse

Project II: Fibrous Graft Polymers for Oxygen Sensing and Imaging

Jul. 2019 – Present

- Optimized the electrospinning conditions for polycaprolactone incorporated with Rhodamine and oxygen sensor to obtain nanofiber mimicking extracellular matrix (ECM)
- Promoted further application of the oxygen sensor on tumor cell imaging and the potential for developing real-time oxygen distribution on tumor

Experimental Skills

- Synthesize functional polymers by Ring Open Polymerization and prepare fibrous polymer by electrospinning
- Characterize materials properties with XRD, ^1H -NMR, UV-Vis, spectrofluorophotometer, DLS, SEM and AFM

Massachusetts Institute of Technology (Department of Mechanical Engineering)

Cambridge, USA

Research Assistant to Professor Xuanhe Zhao

Wearable Optical Contact Lenses for Monitoring Glucose in Tears via A Smartphone

Jan. – May 2019

- Developed smart contact lenses to detect glucose with high sensitivity with the potential to replace current glucose detection technology related to medical diagnostics of diabetes
- Realized non-invasive and real-time glucose monitoring by analyzing RGB value using a smartphone

SELECTED AWARDS AND HONORS

- Louis N. Tuomala Award of MIT (awarded for outstanding performance in Thermal Fluids Engineering) 2019
- First-class Outstanding Student Scholarship (top 3%) 2019
- Second-class Outstanding Student Scholarship 2018
- Third-class Outstanding Student Scholarship 2017

INTERNSHIP EXPERIENCE

- Shenzhen Nanke Kangda Technology Co., Ltd.** Shenzhen, China
Development of Low Cost and High Performance Anisotropic Conductive Adhesive Jul. – Aug. 2019
- Optimized the metal plating methods and conditions to obtain polystyrene microspheres with high conductivity and uniform morphology
 - Drastically reduced the cost of anisotropic conductive adhesive per unit compared to the commercial product

ADDITIONAL INFORMATION

Extracurricular Experiences

- Vice president of SUSTech Tennis Club (coordinated 2018 Tennis Tournament of SUSTech and tennis experience activities for more than 40 club members; assisted with routine training for more than 20 students. [Sept. 2017- Jul. 2018])

Interests

- Tennis (Team captain of SUSTech; won second place in mixed doubles at Guangdong University Tennis Tournament [2017]; CTA Level I Tennis Coaches Certificate)

Others

- TOEFL: 107 (Reading 28; Listening 29; Speaking 23; Writing 27)
- GRE: 329 (Verbal 160 [86%]; Quantitative 169[95%])

REFERENCE

Prof. Yanqing Tian (Research Supervisor)

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Prof. Nicholas Xuanlai Fang

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Prof. Chuanfei Guo

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