DONGHUA UNIVERSITY ENGLISH-TAUGHT MASTER'S DEGREE PROGRAMS

College of Materials Science and Engineering

NAME OF THE PROGRAM

Materials Process Engineering

材料加工工程

RESEARCH DIRECTIONS:

- High-performance fibers 高性能纤维
- Composite materials 复合材料
- Low-dimensional materials 低维材料
- Bio-friendly materials 生物友好材料

TYPE OF THE DEGREE: Academic Degree

DEGREE CONFERRED: Master of Engineering

SCHOOLING: 3 years

1、BRIEF INTRODUCTION

The College of Materials Science and Engineering (CMSE) of Donghua University was founded in 1994, originating from the first program of chemical fibers in P.R. China initiated by Prof. Qian Baojun and Prof. Fang Borong back in 1954. CMSE currently offers four National First-Class Undergraduate Majors (Polymer Materials and Engineering, Composite Materials and Engineering, Inorganic Non-metallic Materials Engineering, and Functional Materials (New Energy and Optoelectronic Materials)), College of Modern Industry on Advanced Materials, two first-level discipline Ph.D. programs (Materials Science and Engineering, Chemistry), as well as two Doctor of Engineering programs (Materials and Chemical Engineering, Energy and Power). There are 21 national, provincial, and ministerial scientific research bases affiliated to CMSE, including the State Key Laboratory for Modification of Chemical Fibers and Polymer Materials (SKLFPM), the Key Laboratory of High-Performance Fibers and Product of Ministry of Education (B), and Engineering Research Center of Advanced Glass Manufacturing Technology of Ministry of Education. The SKLFPM and the Engineering Research Center of Advanced Glass Manufacturing Technology of Ministry of Education were both awarded "Excellent" in the national evaluation in 2018. The discipline of Materials Science and Engineering is selected in China's "Double World-Class Project" and ranked Top 1‰ disciplines in the world by Essential Science Indicators (ESI).

CMSE is proud of its strong and dynamic faculty team of 161members (including 65 professors and 48 associate professors), among whom there are over 30 national talents, including 2 academicians of the Chinese Academy of Sciences and Chinese Academy of Engineering and 11 Chief Scientists of the China National Key R&D Programs. CMSE faculty has been appointed as the member of the Academic Degree Committee of the State Council of China, the deputy director of Material Division of Teaching Steering Committee of Ministry of Education, the vice chairman of Chinese Materials Research Society and so on. CMSE has successively won more than 30 national honors such as the Advanced Group of the National Education System, the National Worker Pioneer, and the National Model Party Branch. In year 2023, there are 2731students in CMSE, with 1040 undergraduates and 1691graduates. With several decades' excellence in both research and teaching, CMSE is grateful to have over 14,000 alumni so far, pioneered by Prof. Stephen Z. D. Cheng (member of the United States National Academy of Engineering), Prof. Ji Guobiao (academician of the Chinese Academy of Engineering), Prof. He Mingyuan (academician of the Chinese Academy of Sciences) and Prof. Zhu Meifang (academician of the Chinese Academy of Sciences).

CMSE is national leader in chemical fiber research and has played an important role in the development of the chemical fiber industry in China. With the "Four Orientations" as the motto, CSME has successfully resolved numerous key technical issues to address major national needs, such as the realization of the homemade strategic materials (e.g., viscose-based carbon fiber and aramid fiber) and the development of the advanced glass materials successfully applied in the ***. Our research on functional polyester fibers and other commodity fibers has made great contributions to the transformation and upgrading of China's chemical fiber industry, which accounts for 70% of the world's total output. CMSE

also took the lead in establishing the National Advanced Functional Fiber Innovation Center and the Civil Aviation Composite Material Collaborative Innovation Center for projects related to China's major strategies, such as the domestic large aircraft C919, Yangtze River Delta, and the Belt and Road Initiative. In addition, CMSE set up the world's first fiber innovation award and launched “Advanced Fiber Materials", a high-quality international journal focused on fiber materials. So far, the discipline has won the three major national awards for as many as 18 times, whose achievements and patent conversion benefit fiber materials-related industries with an annual output value of trillions of RMB.

In the new era, with a long-standing commitment to high-quality education and cutting-edge scientific research, CMSE aims to become a distinctive, embracive, and high-level research-oriented college. Faced with the world’s latest challenges, major national needs, and the unique development characteristics of the local materials industry in the Yangtze River Delta, CMSE is dedicated to active engagement and significant advance in the following five core fields: (i) high-performance fibers and composite materials; (ii) functional fibers and smart materials; (iii) biological fibers and health materials; (iv) advanced glass and ceramic materials; (v) low-carbon technology and energy materials. CMSE will strive to support top faculty, talents, research, and innovation, with the ultimate goal of building a world-class materials science and engineering college with Chinese characteristics.

2、PROGRAM OBJECTIVES

This major mainly aims at recruiting international students with educational backgrounds in materials, chemical engineering, biology, textiles, and other fields, which focusing on the frontiers of international disciplines, closely combining the characteristics and advantages of the discipline, improving the Chinese level by offering Chinese language courses, providing progressiveness and cutting-edge professional courses to help students mastering the basic knowledge of the discipline, and improving students' practical and innovative abilities with the help of key platforms, projects and teams, aiming to cultivate students with solid and broad basic theories and systematic in-depth expertise, a grasp of the latest developments in the discipline, the ability to independently engage in scientific research and make creative achievements in specialized fields with a broad international perspective.

3、CURRICULUM

1. The 1st & 2nd semesters: courses study
2. November of the 3rd semester: thesis proposal submission and report
3. March of the 6th semester: thesis draft and Pre-defense
4. March of the 6th semester: concealed evaluation on the thesis
5. May of the 6th semester: oral defense on thesis

Main Courses

1. Solar Cells and Photovoltaic Materials 太阳能电池与光伏材料 (Credit 2)

This course aims to introduce students to the basic working principles and design of solar cells, combined with the current battery manufacturing process and the upcoming improvement process, in order to provide students with a comprehensive understanding of solar cells and photovoltaic materials. Students are required to have relevant basic knowledge of thermodynamics and semiconductor physics.

2. Material Physics and Chemistry 材料物理与化学 (Credit 3)

Periods of our civilization have names associated with materials – stone age, bronze age, iron age and the silicon age. Materials impact all aspects of human's daily life and will continue to do so in the future. The more we understand materials, the more we imagine the future with fantastic devices and advancements enabled by more powerful materials. This course will focus on the most technologically important materials being utilized and developed by scientists and engineers and educate students on the basic principles necessary for understanding structure-property relations in those materials, with emphasizing the physical and chemical origins of material properties. Meanwhile, it will provide with a brief introduction to many of the characterization methods that students will heavily rely on in their future research. The course requires prior knowledge of physics, chemistry, and engineering.

3. Fiber processing technology 纤维加工工艺 (Credit 2)

Through this course, international students can master the process of fiber forming such as melt spinning, wet spinning, dry spinning, and electrospinning, as well as the applicability and characteristics of various forming processes. They can understand the process and engineering control factors that affect fiber structure during the fiber forming process, and thus have the ability and technology to adjust fiber structure through process and engineering regulation.

4. Selected Topics in Nanotechnology 纳米技术专题讲解 (Credit 2)

Selected topics is nanotechnology is an introductory course designed for graduate students with interest in research areas related to nanotechnology or for those students who wish to gain knowledge and insight about the field. By its nature, nanotechnology is an interdisciplinary field, building on latest progress especially in Physics, Chemistry, Materials Science, Biology, and Engineering. The ability of cross-disciplinary communication is absolutely crucial to achieve progress in the field. Nanotechnology represents one of the fastest growing fields in Science and Technology. Applications of nanotechnology range widely from advanced electronics to energy storage and conversion to biomedical devices. There are no formal course pre-requisites for this course. The physical behavior at the nanometer scale is governed by laws of quantum mechanics, however, in this course the focus is on the applications rather that the governing equations.

5. Introduction to Polymer Science 高分子化学与物理 (Credit 2)

Polymers are widely used materials today, and their dosage has long exceeded that of

traditional metals and other inorganic materials by volume. This course integrates traditional polymer science subjects, with full English classroom teaching, after-school exercises, and relevant literature reading, enabling students to understand the main content of polymer science, understand the basic concepts of polymer science, and the relationship between polymer science and other disciplines and technical fields.

6. Applied Linear Regression 应用线性回归 (Credit 3)

7. Future Materials Salon 未来材料沙龙 (Credit 2)
This course mainly introduces the research status and development trends of popular materials at the forefront of international technology. Looking ahead to materials and technologies that can influence the world in the future. Fully cultivate students' listening, speaking, reading, and writing abilities in technology using English.

8. Materials Characterization and Analysis Techniques 材料的表征和测试分析技术 (Credit 3)
This course combines theoretical courses with experimental courses, teaching various scientific and technological methods used to analyze and characterize various properties of materials (such as mechanics, thermodynamics, structure, morphology), such as infrared absorption spectroscopy, ultraviolet spectroscopy, transmission electron microscopy, thermogravimetric analysis, projection electron microscopy, etc. To enable international students to proficiently master the basic principles, instrument construction, sample preparation methods, operating methods, and main applications of these analytical methods in materials science research, thus laying a solid foundation for future research related to materials science.

9. Introduction to Textile Chemistry 纺织化学（英文） (Credit 2)
This course will cover three overlapping areas: dyeing and finishing chemistry, fiber and polymer chemistry, and a newer area that intersects with materials science and involves the blending of different textile materials..This course will enable students to understand the dyestuff, auxiliary, dyeing printing and finishing theory and technology.
In this course, students will be required to apply the principles of surface chemistry to processes, such as dyeing and finishing.

10. Textile Manufacturing Technology 纺织工艺理论 (Credit 3)

11. Biomaterials 生物材料学 (Credit 2)

12. Textile Physics 纺织物理 (Credit 3)

13. Composite Materials 复合材料学 (Credit 3)
Composite materials are the advanced materials used in industries. Basic understanding of composite materials is crucial for us to learn more advanced knowledge in composite engineering, materials science and many other related areas. This course serves as an

advanced course for M.S. students in any textile and materials related fields to establish a basic understanding of composite materials and the science governing the behavior of these materials.

14. Industrial Textiles 产业纺织品 (Credit 3)

15. Fiber Science 纤维科学 (Credit 2)

16. Clothing Comfort 服装舒适性 (Credit 2)
Master the relevant theoretical foundation of clothing comfort, master the testing and evaluation techniques of clothing comfort, be able to apply the theoretical knowledge of clothing comfort, analyze problems in the field of clothing comfort, and apply the theoretical knowledge of clothing comfort to guide clothing design. Ability to apply theoretical knowledge of clothing comfort to evaluate the comfort function of clothing.

Notice: One needs to obtain 20CPs from compulsory courses and 14CPs from elective courses. These 34CPs should in general be acquired in the 1st year.

Requirements for Thesis Work and Publication of Academic Results

The requirements for graduate students' thesis implemented with reference to the policy for students with equivalent academic qualifications in China.

4、SUPERVISOR INFORMATION

The list of Tutors

1. High-performance fibers 高性能纤维
陈银军 Chen Yinjun、 贾 超 Jia Chao、 廖耀祖 Liao Yaozu、 刘庚鑫 Liu Gengxin、
潘绍武 Pan Shaowu、 汪庆卫 Wang Qingwei

2. Composite materials 复合材料
陈银军 Chen Yinjun、 缪月娥 Miu Yuee、 汪庆卫 Wang Qingwei、杨升元 Yang Shengyuan
张礼颖 Zhang Liying

3. Low-dimensional materials 低维材料
朱美芳 Zhu Meifang、 陈志钢 Chen Zhigang、 廖耀祖 Liao Yaozu、 李小鹏 Li Xiaopeng
刘庚鑫 Liu Gengxin、罗楚养 Luo Chuyang、杨升元 Yang Shengyuan、张幼维 Zhang Youwei

4. Bio-friendly materials 生物友好材料
朱美芳 Zhu Meifang、 陈志钢 Chen Zhigang、 费 翔 Fei Xiang、 贾 超 Jia Chao
李小鹏 Li Xiaopeng、 孟 楠 Meng Nan、 门永军 Men Yongjun、 潘绍武 Pan Shaowu
乌 婧 Wu Jing、 杨曙光 Yang Shuguang、 张幼维 Zhang Youwei、张礼颖 Zhang Liying
周莹杰 Zhou Yingjie

朱美芳

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Zhu Meifang

Professor, Doctoral supervisor

Ph.D.,Donghua University

Research Area

1. Nanocomposite materials and intelligent materials
2. Functional fibers and polymers
3. Bio fibers

Representative work

1. Fuyao Liu, Qianqian Wang, Gongxun Zhai, Hengxue Xiang, Jialiang Zhou, Chao Jia*, Liping Zhu, Qilin Wu, Meifang Zhu*,Continuously processing waste lignin into high-value carbon nanotube fibers, Nature Communications 2022, 13, 5755.*

2. Guoyin Chen, Kai Hou, Nuo Yu, Peiling Wei, Tao Chen, Caihong Zhang, Shun Wang, Hongmei Liu, Ran Cao*, Liping Zhu, Benjamin S. Hsiao, Meifang Zhu*, Temperature-adaptive hydrogel optical waveguide with soft tissue-affinity for thermal regulated interventional photomedicine, Nature Communications 2022, 13, 7789.*

3. Yu Yan, Jia Guosheng, Zhao Liang, Xiang Hengxue, Hu Zexu, Xu Guiyin, Zhu Meifang, Flexible and heat-resistant polyphenylene sulfide ultrafine fiber hybrid separators for high-safety lithium-ion batteries, Chemical Engineering Journal, 2023, 452(Part_1), 139112.*

陈志钢

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研究领域：新型光热转换材料的开发及其在癌症诊疗方面的应用，高效光热转换材料和织物的制备及其在太阳能海水淡化中的应用，光致变色新型织物的构筑及其在智能可穿戴设备中的应用

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Chen Zhigang

Professor, Doctoral supervisor

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Research Area

1. Novel photothermal nanoagents: design, synthesis and the application in the imaging and therapy of tumors

2. Novel photothermal materials and fabrics for solar-driven seawater desalination

3. Light-triggered reversible color switching for rewritable smart fabrics

Representative work

1. Bo Zhu, Zixiao Liu, Ye Peng, Daniel K. Macharia, Nuo Yu, Meifang Zhu, Zhigang Chen. Solar-driven watersteam/brine production and brine-driven electricity generation by photothermal fabric coupled with osmotic membrane. Nano Energy, 2023, 117, 108844.*

2. Nuo Yu, Pu Qiu, Qian Ren, Mei Wen, Peng Geng, Daniel K. Macharia, Meifang Zhu, Zhigang Chen. Transforming a Sword into a Knife: Persistent Phototoxicity Inhibition and Alternative Therapeutical Activation of Highly-Photosensitive Phytochlorin. ACS Nano, 2021, 15, 19793-19805.*

3. Zixiao Liu, Zhan Zhou, Naiyan Wu, Ruiqi Zhang, Bo Zhu, Hong Jin, Yumei Zhang, Meifang Zhu, Zhigang Chen. Hierarchical Photothermal Fabrics with Low Evaporation Enthalpy as Heliotropic Evaporators for Efficient, Continuous, Salt-Free Desalination. ACS Nano, 2021, 15, 13007.*

陈银军

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Chen Yinjun

Professor, Doctoral supervisor

Ph.D.,PSL Research University

Research Area

1. Stimuli responsive polymer materials
2. Dynamic covalent chemistry
3. Smart fibers
4. Fiber materials with high performance

Representative work

1. Yinjun Chen, Huiyi Zhang, Soumabrata Majumdar, Rolf A.T.M. van Benthem, Johan P. A. Heuts, Rint P. Sijbesma*, Dynamic polyamide-imide network via imide-amide exchange. Macromolecules, 2021, 54, 9703−9711.*

2. Yinjun Chen, Gabriel Sanoja and Costantino Creton; Mechanochemistry unveils stress transfer during sacrificial bond fracture of tough multiple network elastomers; Chem. Sci., 2021, 12, 11098-11108.*

3. Yinjun Chen, C. Josh Yeh, Yuan Qi, Rong Long, Costantino Creton, From force-responsive molecules to quantifying and mapping stresses in soft materials. Sci. Adv. 2020, 6, eaaz5093.*

费翔

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Fei Xiang

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Ph.D., Fudan University

Research Area

1. Biomedical Fibers for Tissue Engineering

Representative work

1. Zhang Q.; Zhu J.; Liu H.; Fei X.; Zhu M.* Magneto-Mechano-Electric Cascade Stimulation System Accelerates Wound Healing Constructed by Biodegradable Magnetoelectric Nanofibers. Adv. Funct. Mater. 2023, 2309968*

2. Wang R.; Lu J.; Yin J.; Chen H.; Liu H.; Xu F.; Zhang T.; Xu R.; Li C.; Wu Y.; Wu Q.; Fei X.; Zhu M.*; Shen L.*; Ge J.* A TEMPOL and Rapamycin Loaded Nanofiber-Covered Stent Favors Endothelialization and Mitigates Neointimal Hyperplasia and Local Inflammation. Bioact. Mater. 2023, 19, 666.*

3.*Liu H.; Wang R.; Zhao Y.; Chen H.; Wang J.; Xiao J.; Wang X.; Fei X.*; Zhu M.* Interfacial-Crystallization-Constructed Fractal Nanofiber-Based Bio-Platforms Enable Highly Effective Culture of Three-Dimensional Stem Cell Spheroids. ACS Appl. Mater. Interfaces 2023, 15, 33480.*

贾超

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Jia Chao

Associate Professor, Doctoral supervisor

Ph.D., Beijing Institute of Technology

Research Area

1. Ceramic fibers
2. Biomass fibers
3. Functional fibers

Representative work

1. Jia, C.#; Li, L.#; Liu, Y.#; Fang, B.; Ding, H.; Song, J.; Liu, Y.; Xiang, K.; Lin, S.; Li, Z.; Si, W.; Li, B.; Sheng, X.; Wang, D.; Wei, X.; Wu, H.* Highly Compressible and Anisotropic Lamellar Ceramic Sponges with Superior Thermal Insulation and Acoustic Absorption Performances. Nature Communications, 2020, 11, 3732.*

2. Jia, C.#; Chen, C.#; Kuang, Y.#; Fu, K.; Wang, Y.; Yao, Y.; Kronthal, S.; Hitz, E.; Song, J.; Xu, F.; Liu, B.; Hu, L. From Wood to Textiles: Top-Down Assembly of Aligned Cellulose Nanofibers. Advanced Materials, 2018, 30, e1801347.*

3. Liu, F.#; Wang, Q.; Zhai, G.; Xiang, H.; Zhou, J.; Jia, C.*; Zhu, L.; Wu, Q.; Zhu, M.* Continuously Processing Waste Lignin into High-Value Carbon Nanotube Fibers. Nature Communications, 2022, 13, 5755.*

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Liao Yaozu
Professor, Doctoral supervisor
Ph.D.,Tongji University

Research Area

1. Conducting polymer fibers
2. Porous organic polymers
3. Energy storage and conversion materials

Representative work

1. Chen‡, He Liu‡, Xinyiming Lin, Xianming Mei, Wei Lyu, Yaozu Liao*, Competitive Proton Trapping Strategy Enhanced Anti-freezing Organohydrogel Fibers for High Strain-sensitivity Wearable Sensors, Materials Horizons 2023, 10, 3569-3581.*

2. Xinghao Li, Yong-Lei Wang, Jin Wen, Linlin Zheng, Cheng Qian, Zhonghua Cheng, Hongyu Zuo, Mingqing Yu, Jiayin Yuan, Rong Li, Weiyi Zhang, Yaozu Liao*, Porous organic polycarbene nanotrap for efficient and selective gold stripping from electronic waste, Nature Communications 2023, 14, 263.*

3. Weiyi Zhang#, Hongyu Zuo#, Zhonghua Cheng, Yu Shi, Zhengjun Guo, Nan Meng, Arne Thomas*, Yaozu Liao*, Macroscale conjugated microporous polymers: controlling versatile functionalities over several dimensions, Advanced Materials 2022, 34, 2104952.*

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Li Xiaopeng
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Research Area

1. Hydrogen energy

Representative work

1. In-situ reconstructed Ru atom array on α-MnO2 with enhanced performance for acidic water oxidation, Nature Catalysis, 2021, 4(12), 1012-1023.

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Liu Gengxin
Professor, Doctoral supervisor
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Research Area

1. Polymer rheology

Representative work

1. Micronewton shear rheometer performing SAOS using 2 mg of sample Journal of Rheology, 67 (1), 207-218, (2023) ; Pinching dynamics of telechelic associating and coupling polymers Macromolecules, 55 (16), 7059-7070, (2022).

2. Diameter and elasticity governing the relaxation of soft-nanoparticles in bulk Macromolecules, 54 (17), 8077-8087, (2021) .

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Luo Chuyang
Associate Professor, Doctoral supervisor
Ph.D., Beihang University

Research Area

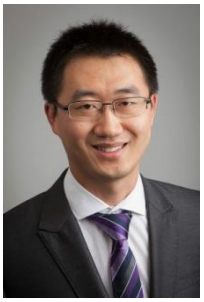
1. Mechanics of Composite Materials

Representative work

1. Yangpeng Zhuang, Ran Bi, Jiemin Zhu, Chuyang Luo, Yanyuan Liang, Liying Zhang. Multiscale ablation mechanism and performance of 2.5D Si3N4-f/SiBN-CMCs under continuous-wave laser irradiation[J]. Journal of the European Ceramic Society, 2023, 43(11):4706-4716.*

2. Shengda Jiang, Chuyang Luo, Peng Zhang, Jianwen Bao, Peipei Cai, Xufeng Xia. Thermo-mechanical properties of RTM-made carbon fiber/polyimide composite attaching collar under transient heating [J]. Chinese Journal of Aeronautics, 2023, 36(3): 393–405.*

3. Chuyang Luo, Shuai Wang, Weidong Li, Liying Zhang, Lijian Pan. Mechanical properties of composite T-joints subjected to laser ablation [J]. Composite Structures, 2022, 294(2): 115791.*



门永军

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Men Yongjun

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Research Area

1. Agro materials

Representative work

1. *ACS Nano 2019, 13, 12767-12773；Nano Letters 2018, 18, 2081-2085；Nature chemistry 2017 9, 480-486.*

缪月娥

副研究员，博士生导师

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Miu Yuee

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Research Area

1. Functional Polymer Nanofiber Composites

Representative work

1. Wei Zong, Haiqi Gao, Yue Ouyang, Kaibin Chu, Hele Guo, Leiqian Zhang, Wei Zhang, Ruwei Chen, Yuhang Dai, Fei Guo, Jiexin Zhu, Zhenfang Zhang, Chumei Ye, Yue-E Miao, Johan Hofken, Feili Lai*, and Tianxi Liu*. Bio-inspired aerobichydrophobic Janus interface on partially carbonized iron heterostructure promotes bifunctional nitrogen fixation. Angew. Chem. Int. Ed. 2023, 62, e202218122.*

2. S. J. Zheng, L. L. Mo, K. Chen, A. L. Chen, X. Zhang, X. S. Fan, F. L. Lai, Q. C. Wei, Y. E. Miao, T. X. Liu*, Yan Yu*. Precise Control of Li+ Directed Transport via Electronegative Polymer Brushes on Polyolefin Separators for Dendrite-Free Lithium Deposition. Adv. Funct. Mater. 2022, 32, 2201430.*

3. Y. Ouyang, W. Zong, X. B. Zhu, L. L. Mo, G. J. Chao, W. Fan, F. L. Lai, Y. E. Miao, T. X. Liu, Yan Yu*. A Universal Spinning-Coordinating Strategy to Construct Continuous Metal-Nitrogen-Carbon Heterointerface with Boosted Lithium Polysulfides Immobilization for 3D-Printed Li-S Batteries. Adv. Sci. 2022, 2203181.*

孟楠
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Meng Nan
Assistant Professor, Master supervisor
Ph.D., Queen Mary University of London
Research Area
1. Dielectric and porous organic polymers
Representative work
1. Progress in Materials Science 2023, 138, 101161; Journal of Materials Chemistry C 2022, 10, 15367; Nature communications 2019, 10, 4535.

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教授，博士生导师
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Wang Qingwei
Professor, Doctoral supervisor
Ph.D.,Donghua University
Research Area
1. Advanced glass and glass fiber
Representative work
1. Liu Jin, Wang Qingwei, Zhang Huanyao,et al. Recycling
2. Wang Qingwei, Zhang Qichang, Luo Lida, Yan Tan, Liu Jin, Ding Linfeng, Jiang Weizhong. Effects of high-temperature treatment and iron reduction index on tensile strength of basalt continuous fiber. Journal of Non-Crystalline Solids, 2021,564 (1) :120836 of arsenic residue and waste soda-lime silicate glass via vitrification. Journal of Non-Crystalline Solids, 2023, 609:122300. https://doi.org/10.1016/j.jnoncrysol.2023.122300
3. Shi Wangming, Ding Mengzhao, Luo Lida, Ding Linfeng, Li Hong, Wang Qingwei, Effects of reducing atmosphere and iron content on UV transmission property of alkali-silicate and alkali-borosilicate glasses. Journal of Non-Crystalline Solids, 2023,604 (1) :122135

潘绍武

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Pan Shaowu

Professor, Doctoral supervisor

Ph.D., Tongji University

Research Area

1. Functional fiber materials and smart sensors

Representative work

1. Mechanocombinatorially Screening Sensitivity of Stretchable Strain Sensors. Advanced Materials, 2019, 31, 1903130.

2. Mechanically Interlocked Hydrogel-Elastomer Hybrids for On-Skin Electronics. Advanced Functional Materials, 2020, 30, 1909540.

3. Smart fibers for energy conversion and storage. Chemical Society Reviews, 2021, 50, 7009.

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Research Area

1. Environmentally-friendly materials
2. Biobased fibers and materials
3. Biodegradable fibers and materials

Representative work

1. Chen, J. L.; Wu, J.; Sherrell, P. C.; Chen, J.; Wang, H. P. *; Wang, Y.; Wu, J.*; Koning, C. E.; Wang, H.*, Short-process synthetic strategies of sustainable isohexide-based polyesters towards higher molecular weight and commercial applicability. Green Chemistry 2022. DOI: 10.1039/D2GC02608B*

*2. Zhang, W. X.; Yang, J. P. *, How to Build a Microplastics-Free Environment: Strategies for Microplastics Degradation and Plastics Recycling. Advanced Science 2022, 9 (6). https://doi.org/10.1002/advs.202103764 7.*

*3. Chen, J.; Wu, J. *; Raffa, P.; Picchioni, F.; Koning, C. E., Superabsorbent Polymers: From long-established, microplastics generating systems, to sustainable, biodegradable and future proof alternatives. Progress in Polymer Science 2022, 125, 101475.*

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Research Area

1. Adaptive fiber
2. High-performance separation membrane
3. Fluoropolymer-based functional materials

Representative work

1. Caihong Zhang, Weijie Wang, Pengfei Zhang, Shuguang Yang, Hydrogen-bonding polymer complexation: Coacervation interfered with gelation, Giant, 14, 2023, 100166*

2. Hao Huang, Miranda Trentle, Zexin Liu, Kehui Xiang, William Higgins, Yunbing Wang, Bing Xue, Shuguang Yang,* Polymer Complex Fiber: Property, Functionality and Applications, ACS Appl. Mater. Interfaces 2023, 15, 6, 7639 − 7662.*

3. Feng Lin, Hao Huang, Bing Xue, Shuguang Yang*, Stretchable Optical Diffuser Constructed by Alternate Procedure of Interfacial Complexation and Thermal Crosslinking, Macromol. Rapid Commun. 2022, 2200302.*

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Research Area

1. Electrospinning & Nanofibers

Representative work

1. Energy Environ. Sci., 2019, 12, 2148; Chem. Eng.J., 2021, 410, 128384; J. Mater. Chem. C, 2023, 11, 5796.

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Zhang Youwei

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Ph.D., *Fudan University*

Research Area

1. Bio-friendly antibacterial fiber materials

Representative work

1. Zhang Youwei, Zhu Wenfan, Li Chuang, Yang Lei, Yu Jiao, You Zhengwei. Self-Healing Polyurethane Based on Imidazole-Urea Bond and Cu(II) Coordination Bond. MATERIALS CHINA 2023,42(7):566-573.

2. Pan Yue, Yang Zhao，Linghu Yusong，Zhang Youwei. Structure design and preparation of high refractive index polythioether. SYNTHETIC TECHNOLOGY AND APPLICATION, 2023,38(3):25-32.

3. Zhang Youwei, Wang Yansong, Chen Yuanyu, Yang Zhao, Chen Mingyue, Qin Zongyi. High-refractive index polythiourethane resin based on 2,3-bis((2-mercaptoethyl) thio)-1-propanethiol and 1,3-bis(isocyanantomethyl) cyclohexane using tertiary amine catalyst. JOURNAL OF APPLIED POLYMER SCIENCE, 2021,138(17), e50278

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Research Area

1. CO_2 utilization and functional materials

Representative work

1. X. Ou, X. Zou, Q. Liu, L. Li, S. Li, Y. Cui, Y. Zhou, F. Yan*, A recyclable, fire-resistant, superstrong and reversible ionic polyurea-based adhesive, Chemistry of Materials. 35 (2023) 1218-1228.*

2. Y. Zhou, J. Pan, X. Ou, Q. Liu, Y. Hu, W. Li, R. Wu, J. Wen, F. Yan*, CO2 ionized poly(vinyl alcohol) electrolyte for CO2-tolerant Zn-air batteries, Advanced Energy Materials. 11 (2021) 2102047.*

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Research Area

1. Electromagnetic interference shielding/absorbing materials
2. Smart thermal insulating materials

Representative work

1. Microstructure controllable polyimide/MXene composite aerogels for high-temperature thermal insulation and microwave absorption J. Mater. Chem. C, 2023, 11, 9438.
2. Seed-assisted in situ ZIF-8 growth on carbon nanofibers for enhanced microwave absorption
3. Carbon 214 (2023) 118316.
4. Polyimide composite aerogels towards highly efficient microwave absorption and thermal insulation Composites: Part A 161 (2022) 107112.

In case you experience any problems throughout your studies, please contact student advisors. They are ready to help you personally for all situations you might encounter.

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材料学院楼 The building of college of Materials science and engineering

仪器设备公共平台实验室建有 24 小时开放的仪器设备公共平台，平台拥有大型精密测试仪器(10 万元以上)126 台(套)，所有仪器设备共 5000 余台 (套)，仪器设备总价值约 1.7 亿元
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留学生开展实验 International students conducting experiments

留学生毕业课题组合照 Graduation project group photo of international students

课题组聚餐
Research Group Dinner