Xiaoyan Feng

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EDUCATION

- **South China University of Technology** Guangzhou, China
  Candidate for Master of Material Science and Engineering Sept. 2020 – Jun. 2023 (expected)
  - Major in *Materials and Chemicals*
  - Average mark: 82.4
  - Adviser: Prof. Li Ren
- **Zhejiang University of Science & Technology** Hangzhou, China
  Bachelor of Material Science and Engineering Sept. 2016 – Jun. 2020
  - Major in *Material Science and Engineering*
  - Average mark: 3.61/4.5; Rank: 1/51
  - Major Subjects: Polymer Physics and Chemistry, Materials Characterization, Organic Chemistry, Principles of Chemical Engineering, Fundamentals of Materials Science and Engineering

RESEARCH EXPERIENCE

- **South China University of Technology** Guangzhou, China

  Topic: Carboxybetaine modified microspheres as efficient adsorbents Mar.2021– Jul.2022
  - We improved clinically used hemoperfusion adsorbent by grafting poly (carboxybetaine) (PCBMA) on the surface using atom transfer radical polymerization (ATRP) polymerization.
  - The adsorption effect toward diverse toxins was remarkably improved. The adsorption capacity of bilirubin (BR), p-cresol sulfate (PCS), and indole-3-acetic acid (IAA) was promoted to 3.7, 9.2, and 2.3 times. The removal rate of β2-microglobulin was improved from almost zero to 54%.
  - Molecular dynamics simulations and quantum chemical simulations are also used to investigate the mechanism of adsorption.

  My contribution:
  - Independently design and proposed the whole research and finished an article as first author.
  - Independently accomplished the whole experiments (except for molecule dynamics part), including a series of synthesis, toxin adsorption experiments, biocompatibility experiments and DFT calculation (completed by self-learning).
  - Participation in designing molecular dynamics simulation part.

- **South China University of Technology** Guangzhou, China

  Topic: Polyvinylpyrrolidone modified microspheres as efficient adsorbents Dec.2020 – Feb.2021
  - We improved clinically used blood perfusion adsorbent by grafting polyvinylpyrrolidone (PVP) on the surface by reversible addition-fragmentation chain transfer (RAFT) polymerization, which improved the adsorption effect of bilirubin and biocompatibility.

  My contribution:
  - Synthesis and characterization of PVP monomers
  - Biocompatibility experiments

- **Zhejiang University of Science & Technology** Hangzhou, China

  Topic: drug-loaded nanoparticles improve anti-tumor effect Nov.2019 – Jan.2020
  - We proposed and prepared a drug-loaded nanoparticle loaded with both curcumin and doxorubicin by single emulsification method for improving the therapeutic effect of melanoma.
  - Nanoparticles can effectively improve efficacy and have good stability performance.
  - The uptake of drugs by melanoma cells was effectively improved.

  My contribution:
  - Synthesis and characterization of drug-loaded nanoparticles

- **Zhejiang University of Science & Technology** Hangzhou, China

  Topic: Production process design for 400,000 tons of PET per year Feb.2020 – Jun.2020

  - My graduation project was designing a low-cost and high-quality process line with an annual production capacity of 4000 tons of PET considering annual production volume, production process, production formula, and production equipment.

  My contribution:

  - Raw materials and product scale
  - Production technology evaluation and program selection
  - Process flow design, material and energy accounting
  - Equipment selection and typical equipment design
  - Environmental protection and safety measures
  - Plant layout planning and design
  - Engineering economic evaluation

HONOURS & AWARDS

- **National College Student Biomedical Engineering Innovation Design Competition** Aug.2022
  join a team working on bionic lubricated polymer brush and won the national first prize
- **Guangdong College Student Biomedical Engineering Innovation Design Competition** Jun.2022
  join a team working on bionic lubricated polymer brush and won the Guangdong province second prize
- **First prize scholarship for outstanding students at school level** (2%) 2016-2017, 2017-2018, 2018-2019
- **Zhejiang Provincial Government Scholarship** (2%) 2016-2017, 2017-2018, 2018-2019
- **Triple-A student** 2016-2017, 2017-2018, 2018-2019
- **College-level Goldstone Pride Scholarship** Jun.2018
- **First prize in the National Student English Contest in College-level** Jul.2018

PUBLICATIONS

- Peng Y, **Feng X**, Jiang J, Ren L. Controllable polyvinylpyrrolidone modified Polystyrene divinylbenzene for efficient adsorption of bilirubin and improvement of hemocompatibility. European Polymer Journal. 2022; 170: 111172. (IF=5.5, Q1)
- Feng X, Li J, Peng Y, Zhu L, Ren L. Polystyrene Divinylbenzene Grafted by Zwitterionic Polymer as a High-Performanc e Hemoperfusion Adsorbent for Removal of Multiple Toxins. ACS Applied Materials & Interfaces (to be submitted)
- Patent: A controlled grafting technique to improve the adsorption performance and biocompatibility of polystyrene-divinylbenzene for blood perfusion (to be submitted)

OTHERS

- **Skills**: Organic Synthesis, polymer characterization, bio-related experiment
- **Software**: Gaussian, Gromacs, VMD, Pymol, ORCA, ChemDraw, CAD, Avantage, MestReNova, OMNIC
- **Languages**: TOEFL (94); Mandarin Chinese (native)
- **Interests**: Crafts, Reading, Music