

Junfeng Chen

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Department of Chemistry and Biochemistry
University of South Carolina
Columbia, SC, 29208

Education and Training

Materials Research Laboratory, University of California, Santa Barbara Aug 2020 – July 2024

Postdoctoral Researcher

Advisor: Prof. Craig J. Hawker

Research: *High throughput development of discrete polymer/oligomer biomaterials.*

Department of Chemistry, University of Illinois at Urbana-Champaign Aug 2015 – May 2020

Doctor of Philosophy in Materials Chemistry

Advisor: Prof. Steven C. Zimmerman

Research: *Single-chain polymer nanoparticles as enzyme-mimic catalysts.*

School of Chemistry and Chemical Engineering, Nanjing University Sept 2011- June 2015

Bachelor of Science in Chemistry

Advisor: Prof. Deng-Ke Cao

Research: *Luminescence of organic fluorophores and Iridium complexes.*

Professional Appointments

Department of Chemistry and Biochemistry, University of South Carolina Aug 2024 – present

Assistant Professor (tenure track)

Research Interest

Polymer chemistry, sequence-controlled polymer, high throughput polymer synthesis and characterization, polymer self-assembly/folding, polymer nanoparticles, chemical biology.

Publications

- [16] Qi Hua, Xinyi Chen, **Junfeng Chen**, Nawal M. Alghoraibi, Yoon Lee, Toby J. Woods, Richard T. Haasch, Steven C. Zimmerman, and Andrew A. Gewirth*, Inducing Microstrain in Electrodeposited Pt through Polymer Addition for Highly Active Oxygen Reduction Catalysis. *Under revision.*

- [15] **Junfeng Chen**, Vittal Bhat, and Craig J. Hawker*, High-Throughput Synthesis, Purification, and Application of Alkyne-Functionalized Discrete Oligomers. *J. Am. Chem. Soc.*, **2024**, *146*, 8650–8658.
- [14] **Junfeng Chen**, Aoon Rizvi, Joseph P. Patterson, and Craig J. Hawker*, Discrete Libraries of Amphiphilic Poly(ethylene glycol) Graft Copolymers: Synthesis, Assembly and Bioactivity. *J. Am. Chem. Soc.*, **2022**, *144*, 19466–19474.
- [13] Thao M. Xiong, Edzna S. Garcia, **Junfeng Chen**, Lingyang Zhu, Ariale J. Alzona and Steven C. Zimmerman*, Enzyme-like catalysis by single chain nanoparticles that use transition metal cofactors. *Chem. Commun.*, **2022**, *58*, 985-988
- [12] Ke Li, Ullas Chembazhi, Sarah Krueger, Zachary Dewald, **Junfeng Chen**, Yugang Bai, Dongwook Kim, Philip Kocheril, Professor Jie Chen, Auinash Kalsotra, and Steven C. Zimmerman*, Designing agents that deliver antisense oligonucleotides and target the same disease giving synergistic activity. *Nat. Commun.*, Under revision.
- [11] Xinyi Chen#, **Junfeng Chen**#, Nawal M. Alghoraibi, Danielle A. Henckel, Ruixian Zhang, Uzoma O. Nwabara, Kenneth E. Madsen, Paul J. A. Kenis, Steven C. Zimmerman and Andrew A. Gewirth*, Electrochemical CO₂-to-Ethylene Conversion on Polyamine-Incorporated Cu Electrodes. *Nat. Catal.*, **2021**, *4*, 20-27. (# co-first authorship)
- [10] **Junfeng Chen**, Ke Li, Sarah E. Bonson and Steven C. Zimmerman*, S A Bioorthogonal Small Molecule Selective Polymeric “Clickase”. *J. Am. Chem. Soc.*, **2020**, *142*, 13966-13973.
- [9] **Junfeng Chen**, Edzna S. Garcia and Steven C. Zimmerman*, Intramolecularly Cross-Linked Polymers: From Structure to Function with Applications as Artificial Antibodies and Artificial Enzymes. *Acc. Chem. Res.*, **2020**, *53*, 1244–1256. (ACS Editors' Choice)
- [8] **Junfeng Chen**, Ke Li, Jiseon Shon and Steven C. Zimmerman*, Single-chain nanoparticle delivers a partner enzyme for concurrent and tandem catalysis in cells. *J. Am. Chem. Soc.*, **2020**, *142*, 4565-4569. (Spotlights)
- [7] **Junfeng Chen**, Jiang Wang, Ke Li, Yuhan Wang, Martin Gruebele, Andrew L. Ferguson and Steven C. Zimmerman*, Polymeric “Clickase” accelerates the copper click reaction of small molecules, proteins, and cells. *J. Am. Chem. Soc.*, **2019**, *141*, 9693-9700. (Spotlights)
- [6] **Junfeng Chen**, Jiang Wang, Yugang Bai, Ke Li, Edzna S. Garcia, Andrew L. Ferguson and Steven C. Zimmerman*, Enzyme-like click catalysis by a copper-containing single-chain nanoparticle. *J. Am. Chem. Soc.*, **2018**, *140*, 13695-13702. (Cover and Spotlights)
- [5] Yugang Bai, **Junfeng Chen**, Steven C. Zimmerman*, Designed transition metal catalysts for intracellular organic synthesis. *Chem. Soc. Rev.*, **2018**, *47*, 1811-1821.
- [4] **Jun-Feng Chen**, Dan-Ping Gong, Jing Wen, Haibo Ma, Deng-Ke Cao*, 2-(Anthracenyl)-4,5-bis(2,5-dimethyl(3-thienyl))-1H-imidazole: regulatable stacking structures, reversible grinding- and heating-induced emission switching, and solid-state photodimerization behavior. *Chem. Sci.*, **2016**, *7*, 451-456.
- [3] Dan-Ping Gong, **Jun-Feng Chen**, Yue Zhao, Deng-Ke Cao*, Bisthienylethene Th₂im and its complex (Th₂imH)₂[ReCl₆]: crystalline-phase photochromism, and photochemical regulation of luminescence and magnetic properties. *Dalton Trans.*, **2016**, *45*, 3443-3449.
- [2] Ruo-Hong Wei, **Jun-Feng Chen**, Jia-Qi Feng, Jiong-Sheng Hu, Deng-Ke Cao*, Two heteroleptic Ir(III)–bisthienylethene compounds: syntheses, structures and aggregation-induced luminescence Two heteroleptic Ir(III)–bisthienylethene compounds: syntheses, structures and aggregation-induced luminescence. *RSC Adv.*, **2015**, *5*, 14359-14365.

- [1] Deng-Ke Cao*, Ruo-Hong Wei, Xiao-Xiong Li, **Jun-Feng Chen**, Michael D. Ward, Heteroleptic Ir(III) complexes based on 2-(2,4-difluorophenyl)-pyridine and bithienylethene: structures, luminescence and photochromic properties. *Dalton Trans.*, **2015**, 44, 4289-4296.

Research Skills

Synthesis: general technical skills in the synthesis, purification, and characterization of organic compounds, polymers, and nanoparticles.

Bio-technique: general skills in handling and performing biological experiments and assays on mammalian cells and bacteria.

Instruments and characterization: NMR, Mass-Spec, UV-Vis, FTIR, fluorimeter, GPC, HPLC, TEM, AFM, confocal microscopy, flow cytometry, SPR, DLS, etc.

Computer and graphic software: origin, illustrator, VMD, image-J, etc.

Academic Conference

266 th ACS National Meeting (talk)	Aug 2023
Gordon conference, polymer (poster)	June 2023
Tosoh polymer conference (poster)	June 2022
263 rd ACS National Meeting (talk)	Mar 2022
261 st ACS National Meeting (talk)	Mar 2021
2019 Polymers for Advanced Technologies (PAT) conference (talk)	Aug 2019
256 th ACS National Meeting (poster)	Aug 2018
29 th Chinese Chemical Society Conference (poster)	Aug 2014

Honors and Awards

Heeger Award	Feb 2023
Walter G. Klemperer Dissertation Award	May 2020
Coleman Fellowship	Aug 2018
Eastman Travel Award	Nov 2017
Buhrke Fellowship	Aug 2017
Jiang Wenruo Chemistry Award	Mar 2014
Jiang Wenruo Chemistry Award	Mar 2013
National Elite Plan Award	Oct 2013
Excellent student at Nanjing University	Oct 2012