Yucheng Yuan

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Research Interests: Environment | Energy | Climate | Sustainable Catalysis | Polymer Upcycling | CO_2 Utilization | H_2 storage | Heterogeneous Catalysis | C−H Activation | Nanomaterials

APPOINTMENTS

Texas State University
Assistant Professor, Department of Chemistry and Biochemistry — Aug. 2025 ~ Present
Doctoral Faculty, Materials Science, Engineering, and Commercialization (MSEC) Program — Sep. 2025 ~ Present

EDUCATION AND TRAININGS

Boston College Advisor: Prof. Dunwei Wang	Postdoctoral Researcher	Dec. 2020 ~ May 2025
Brown University Advisor: Prof. Ou Chen	Ph.D. in Chemistry	2015 ~ 2020
Tianjin University Advisor: Prof. Kang Zhao	M.S. in Pharmaceutical Chemistry B.S. in Pharmaceutical Sciences	2012 ~ 2015 2008 ~ 2012

AWARDS AND HONORS

- Knowledge Dissemination Program Award, *Boston College* — 2023 | 2024
- Sigma Xi Award for Excellence in Research, *Brown University* — 2020
- Conference Travel Grant, *Brown University* — 2019
- William R. Potter Chemistry Graduate Student Conference Travel Grants, *Brown University* — 2019
- National Scholarship, 1st level, *Ministry of Education, China* — 2014
- SPST 6th Doctoral Forum, 2nd Prize, *Tianjin University* — 2014
- CASC Scholarship, *Tianjin University* — 2013
- SPST 5th Doctoral Forum, 2nd Prize, *Tianjin University* — 2013
- Siyuan Scholarship, *Tianjin University* — 2009 | 2010 | 2011
- Beiyang Scholarship, *Tianjin University* — 2008

TEACHING

CHEM 2342 Organic Chemistry II	Texas State University	2026

ACTIVITIES AND SERVICES

Attended Conferences and Meetings:

- **Gordon Research Conference on Green Chemistry** 2026
  Poster: Compatibilization of Polyolefin Blends through Acid–Base Interactions
- **30th Annual Green Chemistry and Engineering Conference** 2026
  Invited talk: Compatibilization of Polyolefin Blends through Acid–Base Interactions
- **MSEC Seminar and Commercialization Forum** 2025
  Invited talk: Plastic Upcycling through Post-Polymerization Functionalization
- **Gordon Research Seminar & Conference on Catalysis** 2024
  Poster: High Conversion Propane Dehydrogenation under Ambient Conditions"
- **NECS Spring 2024 Meeting** 2024
  Talk: "High Conversion Propane Dehydrogenation under Ambient Conditions"
- **2024 MRS Fall Meeting** 2024
  Poster presentation for "Meet the New Faculty Candidates"
- **NAM28** 2023
  Poster: "Methane Carboxylation Using Electrochemically Activated CO_2"
- **MIT Polymer Day** 2023
- **2019 MRS Fall Meeting** 2019
  Poster: "Photocatalytic Stereoselective C–C Oxidative Coupling Reactions with Semiconductor Quantum Dots"
- **258th ACS National Meeting** 2019
  Poster: "Cu-Catalyzed Synthesis of CdZnSe–CdZnS Alloy Quantum Dots with Highly Tunable Emission"
- **RI IDeA Symposium** 2019
  Poster: "Design and Synthesis of SERS-Encoded Au NPs as Raman Probes"

Members of
American Chemistry Society (2019 ~ present), *Material Research Society* (2019 ~ present), and *New England Catalysis Society* (2024 ~ present)

Participants in Boston College Protection of Minors Program (2021 ~ 2025)

Representative of Postdocs, *University Board of Trustees Meeting*, Boston College (2024)

Independent Reviewer for
Adv. Funct. Mater. | *Adv. Mater.* | *ACS Appl. Mater. Interfaces* | *ACS Appl. Energy Mater.* | *ACS Catal.* | *ACS Omega* | *ACS Sustain. Chem. Eng.* | *Adv. Opt. Mater.* | *Chem Circularity* | *Chem. Commun.* | *Chem. Eng. J.* | *iScience* | *J. Phys. Chem.* | *Mater. Sci. Semicond.* | *Matter* | *MRS Adv.* | *Nanoscale* | *New J. Chem.* | *Opt. Mater.*

Youth Editorial Board of
Semiconductor Materials and Devices

Co-Advisor of
Society of Plastics Engineers Student Chapter Sep. 2025 ~ Present

PUBLICATIONS (Google Scholar)

Underlining indicates undergraduate and graduate students mentored by me.
**Denotes corresponding authors.*

1. **Yuan, Y.**; He, J.; Ganguly, T.; Zhang, Y.; Rondon, B.; Liu, J.; Wang, M.-C.; Santoro, J.; Wang, J.; Byers, J. A.; Niu, J.*; Zhong, M.*; Wang, D.* Compatibilization of Polyolefin Blends through Acid–Base Interactions, ***J. Am. Chem. Soc.*** 2026,*148*, 5634–5641.
2. Zhang, Y.; Menzel, J. P.; Decavoli, C.; Yan, X.; Naveed, R.; Fei, M.; Wikes, J.; Min Li, **Yuan, Y.** Huang, J.; Pan, X.; Batista, V. S.; Brudvig, G. W.; and Wang, D.* "Solvent-Free Photocatalytic Propane Oxidation to Acetone Using Heterogenized Decatungstate," ***Chem Catal***. 2026, *6*, 101606.
3. **Yuan, Y.**; Zhang, Y.; Menzel, J. P.; Santoro, J.; Dolack, M.; Wang, H.; Batista, V.; Wang, D.* High Conversion Propane Dehydrogenation by Photocatalysis under Ambient Conditions, ***ACS Catal.*** 2024, *14*, 17445–17452.
4. Fei, M.; Williams, B.; Wang, L.; Li, H.; **Yuan, Y.**; Wikes, J. R.; Liu, T.; Mu, Y.; Huang, J.; Nyakuchena, J.; Huang, J.; Li, W.*; Wang, D.* Highly Selective Photocatalytic Methane Coupling by Au-Modified Bi_2WO_6, ***ACS Catal.*** 2024, *14*, 1855–1861.
5. **Yuan, Y.**; Zhang, Y.; Li, H.; Fei, M.; Zhang, H.; Santoro, J.; Wang, D.*, Methane Carboxylation Using Electrochemically Activated Carbon Dioxide, ***Angew. Chem. Int. Ed.*** 2023, *62*, e202305568.
6. Li, H.; Xiong, C.; Ma, L.; Fei, M.; Zhang, H.; Yan, X.; Tieu, P.; **Yuan, Y.**; Zhang, Y.; Nyakuchena, J.; Huang, J.; Pan, X.; Waegele, M. M.; Jiang, D.-E.*; Wang, D.*, Selective Formation of Acetic Acid and methanol by Direct Methane Oxidation Using Rhodium Single-Atom Catalysts, ***J. Am. Chem. Soc.*** 2023, *145*, 11415–11419.
7. Li, H.; Fei, M.; Troiano, J. L.; Ma, L.; Yan, X.; Tieu, P.; **Yuan, Y.**; Zhang, Y.; Pan, X.; Brudvig, G. W.; Wang, D.*, Selective Methane Oxidation by Heterogenized Iridium Catalysts. ***J. Am. Chem. Soc.*** 2023, *145*, 769–773.
8. Zhu, H.; Fan, Z.; Song, S.; Eggert, D.; Liu, Y.; Shi, W.; **Yuan, Y.**; Kim, K.-S.; Grünwald, M.*; Chen, O.*, Dual Atomic Coherence in the Self-Assembly of Patchy Heterostructural Nanocrystals. ***ACS Nano*** 2022, *16* (9), 15053–15062.
9. Wang, J.; **Yuan, Y.**; Schneider, J.; Zhou, W.; Zhu, H.; Cai, T.; Chen, O.*, Quantum Dot-Based Luminescent Solar Concentrators Fabricated through the Ultrasonic Spray-Coating Method. ***ACS Appl. Mater. Interfaces*** 2022, *14* (36), 41013–41021.
10. **Yuan, Y.**; Jin, N.; Dube, L.; Zhu, H.; Chen, O.*, Quantum Dots for Photocatalytic Organic Transformations (Perspective). ***J. Phys. Chem. Lett.*** 2021, *12* (30), 7180–7193.
11. Lv, Y.; **Yuan, Y.**; Hu, N.; Jin, N.; Xu, D.*; Wu, R.; Shen, H.; Chen, O.*; Li, L. S.*, Thick-Shell CdSe/ZnS/CdZnS/ZnS Core/Shell Quantum Dots for Quantitative Immunoassays. ***ACS Appl. Nano Mater.*** 2021, *4* (3), 2855–2865.
12. Liu, Z.; Yang, H.; Wang, J.; **Yuan, Y.**; Hills-Kimball, K.; Cai, T.; Wang, P.; Tang, A.; Chen, O.*, Synthesis of Lead-Free Cs_2AgBiX_6 (X = Cl, Br, I) Double Perovskite Nanoplatelets and Their Application in CO_2 Photocatalytic Reduction. ***Nano Lett.*** 2021, *21* (4), 1620-1627.
13. Fisher, A. W.; Jaeckstein, M. Y.; Gottschling, K.; Heine, M.; Sass, F.; Mangels, N.; Schlein, C.; Worthmann, A.; Bruns, O. T.; **Yuan, Y.**; Chen, O.; Zhu, H.; Ittrich, H.; Nilsson, S. K.; Stefanicka, P.; Ukropec, J.; Balaz, M.; Dong, H.; Sun, W.; Scheja, L.; Heeren, J. Lysosomal Lipoprotein Processing in Endothelial Cells Stimulates Adipose Tissue Thermogenic Adaptation. ***Cell Metab.*** 2021, *33* (3), 547–564.

14. **Yuan, Y.**; Zhu, H.; Hills-kimball, K.; Cai, T.; Shi, W.; Wei, Z.; Yang, H.; Candler, Y.; Wang, P.; He, J.; Chen, O.*, Stereoselective C–C Oxidative Coupling Reactions Photocatalyzed by Zwitterionic Ligand Capped $CsPbBr_3$ Perovskite Quantum Dots. ***Angew. Chem. Int. Ed.*** 2020, *59*, 22563–22569.
15. Cai, T.; Wang, J.; Li, W.; Hills-Kimball, K.; Yang, H,; Nagaoka, Y.; **Yuan, Y.**; Zia, R.; Chen, O.*, Mn^{2+}/Yb^{3+} Codoped $CsPbCl_3$ Perovskite Nanocrystals with Triple-Wavelength Emission for Luminescent Solar Concentrators. ***Adv. Sci.*** 2020, 2001317.
16. Xu, J. X.; **Yuan, Y.**; Zou, S.; Chen, O.; Zhang, D.*, Quantification of the Photon Absorption, Scattering, and On-Resonance Emission Properties of CdSe/CdS Core/Shell Quantum Dots: Effect of Shell Geometry and Volumes. ***Anal. Chem.*** 2020, *92* (7), 5346–5353.
17. Zhu, H.; Cai, T.; **Yuan, Y.**; Wang, X.; Nagaoka, Y.; Zhao, J.; Liu, Z.; Li, R.; Chen, O.*, Pressure-Induced Transformations of Three-Component Heterostructual Nanocrystals with CdS–Au_2S Janus Nanocrystals as Hosts and Small Au Nanoparticles as Satellites. ***ACS Appl. Nano Mater.*** 2019, *2* (11), 6804–6808.
18. Wang, J.; **Yuan, Y.**; Zhu, H.; Cai, T.; Fang, Y.; Chen, O.*, Three-Dimensional Macroporous Photonic Crystal Enhanced Photon Collection for Quantum Dot-Based Luminescent Solar Concentrator. ***Nano Energy*** 2019, *67, 104217*.
19. Yu, C.; Guo, X.; Yin, Z.; Zhao, Z.; Li, X.; Robinson, J.; Muzzio, M.; Barbosa, C.; Shen, M.; **Yuan, Y.**; Wang, J.; Antolik, J.; Lu, G.; Su, D.; Chen, O.; Guduru, P.; Seto, C.* and Sun, S.*, Highly Efficient AuPd Catalyst for Synthesizing Polybenzoxazole with Controlled Polymerization. ***Matter*** 2019, *1*(6), 1631–1643.
20. Xu, J. X.; **Yuan, Y.**; Zou, S.; Chen, O.; Zhang, D*., A Divide-and-Conquer Strategy for Quantification of Light Absorption, Scattering, and Emission Properties of Fluorescent Nanomaterials in Solutions. ***Anal. Chem.*** 2019, *91* (13), 8540–8548.
21. **Yuan, Y.**; Zhu, H.; Wang, X.; Cui, D.; Gao, Z.; Su, D.; Zhao, J.; Chen, O.*, Cu-Catalyzed Synthesis of CdZnSe–CdZnS Alloy Quantum Dots with Highly Tunable Emission. ***Chem. Mater.*** 2019, *31* (7), 2635–2643.
22. **Yuan, Y.**; Zhu, H.; Nagaoka, Y.; Tan, R.; Davis, A. H.; Zheng, W.; Chen, O.*, Reversible Photo-Switching of Dual-Color Fluorescent Mn-Doped CdS–ZnS Quantum Dots Modulated by Diarylethene Molecules. ***Front. Chem.*** 2019, *7*, 145. (Invited to Special Theme of Frontiers in Chemistry: Rising Stars)
23. Zhu, H.; Fan, Z.; **Yuan, Y.**; Wilson, M. A.; Hills-Kimball, K.; Wei, Z.; He, J.; Li, R.; Gruenwald, M.; Chen, O., Self-Assembly of Quantum Dot–Gold Heterodimer Nanocrystals with Orientational Order. ***Nano Lett.*** 2018, *18* (8), 5049−5056.
24. Heine, M.; Fischer, A. W.; Schlein, C.; Jung, C.; Straub, L. G.; Gottschling, K.; Mangels, N.; **Yuan, Y.**; Nilsson, S. K.; Liebscher, G.; Chen, O.; Schreiber, R.; Zechner, R.; Scheja, L.; Heeren, J.*, Lipolysis Triggers a Systemic Insulin Response Essential for Efficient Energy Replenishment of Activated Brown Adipose Tissue in Mice. ***Cell Metab.*** 2018, *28* (4), 644–655.
25. Tan, R.; **Yuan, Y.**; Nagaoka, Y.; Eggert, D.; Wang, X.; Thota, S.; Guo, P.; Yang, H.; Zhao, J.; Chen, O.*, Monodisperse Hexagonal Pyramidal and Bipyramidal Wurtzite CdSe–CdS Core-Shell Nanocrystals. ***Chem. Mater.*** 2017, *29* (9), 4097–4108.
26. Zheng, Z.; Dian, L.; **Yuan, Y.**; Zhang-Negrerie, D.; Du, Y.*; Zhao, K.* $PhI(OAc)_2$-Mediated Intramolecular Oxidative Aryl-Aldehyde Csp^2–Csp^2 Bond Formation: Metal-Free Synthesis of Acridone Derivatives. ***J. Org. Chem.*** 2014, *79* (16), 7451–7458.
27. **Yuan, Y.**; Hou, W.; Zhang-Negrerie, D.; Zhao, K.; Du, Y.*, Direct Oxidative Coupling of

Enamines and Electron-Deficient Amines: TBAI/TBHP-Mediated Synthesis of Substituted Diaminoalkenes under Metal-Free Conditions. ***Org. Lett.*** 2014, *16* (20), 5410–5413.

28. **Yuan, Y.**; Yang, R.; Zhang-Negrerie, D.; Wang, J.; Du, Y.; Zhao, K.*, One-Pot Synthesis of 3-Hydroxyquinolin-2(1*H*)-ones from *N*-Phenylacetoacetamide via $PhI(OCOCF_3)_2$-Mediated α-Hydroxylation and H_2SO_4-Promoted Intramolecular Cyclization. ***J. Org. Chem.*** 2013, *78* (11), 5385–5392. Cited by ***ChemInform*** 2013, *44* (41).
29. Wang, J.; **Yuan, Y.**; Xiong, R.; Zhang-Negrerie, D.; Du, Y.; Zhao, K.*, Phenyliodine Bis(trifluoroacetate)-Mediated Oxidative C–C Bond Formation: Synthesis of 3-Hydroxy-2-oxindoles and Spirooxindoles from Anilides. ***Org. Lett.*** 2012, *14* (9), 2210–2213. Cited by ***ChemInform*** 2012, *43* (35).

PATENTS

1. **Yuan, Y.**; Wang, D.; Niu, J. "Compatibilized Polyolefin Blends" *Patent*, WO2025151788A1.
2. **Yuan, Y.**; Wang, D.; Zhang, Y. "Dehydrogenation Method" *Patent,* US20250223244A1.
3. **Yuan**, **Y.**; Du, Y.; Zhao, K., "A Method for Synthesis of Substituted Diaminoalkenes through C–N Oxidative Coupling" *Chinese Patent*, NO. CN104326966A.