

*Jiun-Wei (Alec) Wu*

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## ***Education***

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***Texas A&M University***

Ph.D., Department of Chemistry

**College Station, Texas**

2018–2023

***National Taiwan University***

B.S., Department of Chemistry

**Taipei City, Taiwan**

2013–2018

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## ***Research Overview***

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**Postdoctoral Research Fellow**

2026–present

*Academia Sinica*, Institute of Chemistry, Advisor: Dr. Hung-Ju Yen

- Development of P-type organic cathode material via machine learning (collaborative project)
  - Designed a synthetic strategy to connect redox-active moieties with structural units for electrochemical optimization.
  - Collected preliminary electrochemical data for as the base of machine learning.

**Postdoctoral Research Fellow**

2023–2025

*Northwestern University*, Department of Chemistry, Advisor: Dr. Julia Kalow

- Photocontrolled polymerization of n-type  $\pi$ -conjugated polymer
  - Synthesized AD- and ADA-type monomers for photopolymerization
  - Investigated the metalation and evaluated polymerization of AD- and ADA monomers.
  - Designed and synthesized the magnesium bromide mediators to modulate the concentration of Grignard monomer to improve the control of photopolymerization.
- Development of neuromorphic devices for artificial intelligence application
  - Designed and synthesized photoswitches-based ionic salt for photoresponsive material in neuromorphic devices
  - Collaborated with multidisciplinary groups to design the organic-based material for neuromorphic device development

**Graduate Research Assistant**

2018–2023

*Texas A&M University*, Department of Chemistry, Advisor: Dr. Quentin Michaudel

Dissertation: Exploiting Sulfur(VI) Fluoride Exchange Click Chemistry for Efficient Synthesis of Degradable Polysulfamides

- Synthesis of unsymmetrical sulfamides and polysulfamides via SuFEx click chemistry.
  - Developed substrate scope of small molecule sulfamides and polysulfamides.
  - Characterized polymers with TGA, DSC, SEC, powder X-ray diffraction, and FTIR.
- SuFEx-based synthesis of polysulfamides using AB-polymerization
  - Designed and developed the synthesis of AB-monomers and the protocol of AB polymerization.
  - Developed the chemical recycling and upcycling method of degrading polysulfamides.
- Elucidating polysulfamide assembly behavior using coarse-grained simulation and experimental spectroscopy

- Synthesized polysulfamides and conducted experimental measurement such as FTIR and powder X-ray diffraction to investigate the hydrogen-bonding interaction.
- Utilized Origin software for XRD pattern deconvolution and FTIR deep analysis.

### Undergraduate Research Assistant

2015–2018

National Taiwan University, Department of Chemistry, Advisor: Dr. Tsung-Shing Wang

- Developed the synthesis of Acinetobactin analogs as a high-selectivity bacterial probe
- Designed an aerobactin conjugate as a new antibiotic toward *Escherichia* and developed the synthetic route

### Publications

(† signifies co-authorship, undergraduate mentee co-authors are underlined)

6) Goins, C. L.; Kurtz, H. E., McAllister, H. P.; Wan, X.; Wu, J. W.; Thomas, C. M.; Khalaj, M. Sklar, J. H, Richards, J. J.; Hersam, M. C; Kalow, J. A. Tuning Ionic Conductivity in Printable hBN and Mg(OH)<sub>2</sub> Ionogels via Doping Azobenzene Surfactant, *manuscript in preparation*.

5) Wu, J. W.; Sklar, J. H.; Kalow, J. A. Kinetic Principles in Controlled Polymerization Design, *manuscript in preparation*.

4) Wu, Z.; Wu, J. W.; Michaudel, Q.; Jayaraman, A. Investigating hydrogen bond-induced self-assembly of polysulfamides using molecular simulations and experiments. *Macromolecule*, **2023**, *56*, 5033–5049.

3) Chattapadhyay, D.; Aydogan, A.; Doktor, K.; Maity, A.; Wu, J. W.; Michaudel, Q. Harnessing Sulfur(VI) Fluoride Exchange Click Chemistry and Photocatalysis for Deaminative Benzylic Arylation. *ACS Catal.* **2023**, *13*, 7263–7268.

2) Wu, J. W.; Kulow, R. W.; Redding, M. J.; Fine, A., Grayson, S. M.; Michaudel, Q. Synthesis of degradable polysulfamides via Sulfur(VI) Fluoride exchange Click Reaction of AB-type Monomers. *ACS Polym. Au* **2023**, *3*, 259–266.

1) Kulow, R. W. †; Wu, J. W. †; Kim, C.; Michaudel, Q. Synthesis of Unsymmetrical Sulfamides and Polysulfamides via SuFEx Click Chemistry. *Chem. Sci.* **2020**, *11*, 7807–7812.

### Presentations

1) Wu, J. W.; Michaudel, Q.; Kalow, J. A.; Accessing underexplored polymer structures via click chemistry-based polymerization, **Chemistry National Meeting**, Taichung, Taiwan, 2026 [Oral]

2) Wu, J. W.; Sklar J. H.; Fuller, E.; Yun, Y. J.; Kalow, J. A, Photocontrolled polymerization of n-type conjugated polymers, **Gordon research conference of photochemistry**, Lewiston, MI, July 2025 [Poster]

3) Wu, J. W.; Fuller, E.; Sklar J. H.; Yun, Y. J.; Kalow, J. A, Photocontrolled polymerization of n-type conjugated polymers, **H.C Brown Lecture**, West Lafayette, IN, Apr 2025 [Poster]

4) **MRSEC Annual meeting**, Evanston, IL, 2024 [Poster]

5) Wu, J. W.; Michaudel, Q. Synthesis of polysulfamides as chemically recyclable or upcyclable analogs of polyureas via Sulfur(VI) Fluoride Exchange (SuFEx) click chemistry. **2023 ACS meeting Spring**, Indianapolis, IN, March 2023. [Oral]

- 6) Wu, J. W.; Kulow, R. W.; Kim, C.; Fine, A.; Michaudel, Q. The Synthesis of Unsymmetrical Sulfamides and Polysulfamides via SuFEx Chemistry. **TexSyn V Chemistry Conference**, Houston, TX, May 2022. [Poster]
- 7) Wu, J. W.; Kulow, R. W.; Kim, C.; Fine, A.; Michaudel, Q. The Synthesis of Unsymmetrical Sulfamides and Polysulfamides via SuFEx Chemistry. **Dow Symposium**, College Station, TX, May 2022. [Poster]
- 8) Wu, J. W.; Michaudel, Q. Accessing the Family of Polysulfamides via SuFEx Chemistry **National Graduate Research Polymer Conference**, virtual, August 2021. [Oral]

### ***Awards***

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Department Postdoc Travel Award (competitive) *Spring 2025*  
Department of Chemistry, Northwestern University

Graduate Travel Award (competitive) *Fall 2022*  
Department of Chemistry, Texas A&M University

### ***Teaching Experience***

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#### **Teaching Assistant**

*General Chemistry Laboratory*, Advisor: Jui-Lin She *2017*

Department of Chemistry, National Taiwan University

*Organic Chemistry Laboratory*, Advisor: Dr. Amber Shaefer *2018–2020*

Department of Chemistry, Texas A&M University

#### **Tutor (Self-Employed)**

Middle School Chemistry, Mathematics, Physics, and Mandarin; AP General Chemistry *2013–2018*

### ***Mentoring Experience***

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Callie Goins, (Northwestern graduate student); Zakary Newman (*Texas A&M University '24*, Current: Graduate Student at University of Pennsylvania); Alexander Fine (*Texas A&M University '23*); Jinqun Suo (*Jilin University '20*, visiting student); Shuan-Min Hung (*National Taiwan University '20*, Current: Graduate Student at Massachusetts Institute of Technology)

### ***Professional Affiliations***

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Vice President, ACS POLY/PMSE student chapter at Texas A&M University *2020–2021*

### ***Technical Skills***

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Organic synthesis; A varieties of characterizations techniques including NMR, LCMS, SEC, DSC, TGA, Rheology (sheering), MALDI, FTIR, UV-Vis, Fluorometer, Potentiostat, and PXRD; Glovebox; Biotage (auto column chromatography); Photosynthesis and Electrosynthesis (Organic)