

Quentin Michaudel

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PROFESSIONAL EXPERIENCE

Assistant Professor

Department of Chemistry, Texas A&M University 2018–present

Department of Materials Science & Engineering, Texas A&M University 2019–present

Interests: Organic Chemistry, Polymer Science, Synthesis, Catalysis,
Conjugated Materials, Sustainability

Postdoctoral Associate

2015–2018

Cornell University, *Advisor:* Professor Brett P. Fors*Research projects:* Photocontrolled polymerizations, biorenewable monomers**Graduate Research Assistant**

2010–2015

The Scripps Research Institute, *Advisor:* Professor Phil S. Baran*Dissertation title:* Oxidation of Complex Molecules: From Nature to the Flask**Visiting Student (Masters' Research)**

Feb–Aug 2009

The Scripps Research Institute, *Advisor:* Professor Phil S. Baran*Dissertation title:* Stereocontrolled Synthesis of Plavix® (Clopidogrel) Metabolites

EDUCATION

The Scripps Research Institute, La Jolla

2010–2015

Ph.D. in Chemistry

École Normale Supérieure de Lyon (France)

2008–2010

M.S. with honors in Chemistry

École Normale Supérieure de Lyon (France)

2007–2008

B.S. with honors in Physics and Chemistry

Lycée Sainte-Geneviève, Versailles (France)

2004–2007

*Preparatory classes in science for competitive entrance exam to
the École Normale Supérieure*

AWARDS

College of Arts and Sciences Early Career Teaching Award

2023

Rising Star for *ACS Polymer Au*

2023

NSF CAREER Award

2022

ACS PMSE Young Investigator Award

2022

Academic Young Investigator's Symposium (ACS, Organic Division)

2022

Emerging Investigator for <i>Polymer Chemistry</i>	2022
Montague-Center for Teaching Excellence Scholars Program	2021
Thieme Chemistry Journals Award	2021
NIH MIRA (R35) Award	2020
Selected to attend the NIH Workshop "New Faculty in Organic and Chemical Biology"	2019
Selected to participate in the Cottrell Scholars Collaborative New Faculty Workshop	2018
SciFinder Future Leaders Award	2015
Bristol-Myers Squibb Graduate Fellowship in Synthetic Organic Chemistry	2014
TSRI Graduate Student Symposium Outstanding Presentation Award	2013
Laureate of Lions Club/CERN Physics Contest	2004

PUBLICATIONS

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

Independent Career

- 26) Wu, Z.; Wu, J. W.; **Michaudel, Q.**;^{*} Jayaraman, A.^{*} Design of Polysulfamide Self-assembly Aided by Molecular Modeling and Simulations. *Macromolecules* **2023**, *56*, 5033–5049.
- 25) Kempel, S. J.;[†] Hsu, T.-W.;[†] Nicholson, J. N.; **Michaudel, Q.**^{*} *cis*-Selective Acyclic Diene Metathesis Polymerization of α,ω -Dienes. *J. Am. Chem. Soc.* **2023**, *145*, 12459–12464. Preprint available: *ChemRxiv. Cambridge: Cambridge Open Engage*: 2023. DOI: 10.26434/chemrxiv-2023-x02qw
- 24) 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. Preprint available: *ChemRxiv. Cambridge: Cambridge Open Engage*: 2023. DOI: 10.26434/chemrxiv-2023-9r9w1
- 23) Wu, J. W.; Kulow, R. W.; Redding, M. J.; Fine, A. J.; Grayson, S. M.; **Michaudel, Q.**^{*} Synthesis of Degradable Polysulfamides via Sulfur(VI) Fluoride Exchange Click Polymerization of AB-type Monomers. *ACS Polym. Au.* **2023**, *3*, 259–266. Invited contribution to the “2023 Rising Stars collection.”
- 22) Hsu, T.-W.;[†] Kempel, S. J.;[†] Felix Thayne, A. P.; **Michaudel, Q.**^{*} Stereocontrolled Acyclic Diene Metathesis Polymerization. *Nat. Chem.* **2023**, *15*, 14–20.
- 21) Hancock, S.;[†] Yuntawattana, N.;[†] Valdez, S.; **Michaudel, Q.**^{*} Expedient Synthesis and Ring-Opening Metathesis Polymerization of Pyridinonornbornenes. *Polym. Chem.* **2022**, *13*, 5530–5535. Invited contribution to “Polymer Chemistry Emerging Investigators Series”
- 20) **Michaudel, Q.**^{*} Kempel, S. J.; Hsu, T.-W.; deGruyter, J. N. *E vs Z* Selectivity in Olefin Metathesis Through Catalyst Design. In *Comprehensive Organometallic Chemistry IV*, 4th ed.; Parkin, G. F. R.; Meyer, K.; O'Hare, D. Eds; Kidlington, UK: Elsevier, 2022, 265–338
- 19) Hsu, T.-W.; Kempel, S. J.; **Michaudel, Q.**^{*} All-*cis* Poly(*p*-phenylene vinylene)s with High Molar Masses and Fast Photoisomerization Rates Obtained through Stereoretentive Ring-

opening Metathesis Polymerization of [2,2]Paracyclophane Dienes with Various Aryl Substituents. *J. Polym. Sci.* **2022**, *60*, 569–578.

- 18) Sousa e Silva, F. C.;[†] Doktor, K.;[†] **Michaudel, Q.*** Modular Synthesis of Alkenyl Sulfamates and β -Ketosulfonamides via Sulfur(VI) Fluoride Exchange (SuFEx) Click Chemistry and Photomediated 1,3-Rearrangement. *Org. Lett.* **2021**, *23*, 5271–5276.
- 17) Kempel, S. J.; Hsu, T.-W.; **Michaudel, Q.*** Stereoretentive Olefin Metathesis: A New Avenue for the Synthesis of All-*cis* Poly(*p*-phenylene vinylene)s and Stereodefined Polyalkenamers. *Synlett* **2021**, *32*, 851–857.
- 16) 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.
- 15) Hsu, T.-W.;[†] Kim, C.;[†] **Michaudel, Q.*** Stereoretentive Ring-Opening Metathesis Polymerization to Access All-*cis* Poly(*p*-phenylenevinylene)s with Living Characteristics. *J. Am. Chem. Soc.* **2020**, *142*, 11983–11987.

Postdoctoral, Graduate, and Master Publications

- 14) Kottisch, V.; O’Leary, J.; **Michaudel, Q.**; Stache, E. E.; Lambert, T. H.; Fors, B. P. Controlled Cationic Polymerization: Single-Component Initiation Under Ambient Conditions. *J. Am. Chem. Soc.* **2019**, *141*, 10605–10609.
- 13) **Michaudel, Q.**; Chauviré, T.; Kottisch, V.; Supej, M. J.; Stawiasz, K. J.; Shen, L.; Zipfel, W. R.; Abruña, H. D.; Freed, J. H.; Fors, B. P. Mechanistic Insight into the Photocontrolled Cationic Polymerization of Vinyl Ethers. *J. Am. Chem. Soc.* **2017**, *139*, 15530–15538.
- 12) Kottisch, V.; **Michaudel, Q.**; Fors, B. P. Photocontrolled Interconversion of Cationic and Radical Polymerizations. *J. Am. Chem. Soc.* **2017**, *139*, 10665–10668.
- 11) Trotta, J. T.; Jin, M.; Stawiasz, K. J.; **Michaudel, Q.**; Chen, W.-L.; Fors, B. P. Synthesis of Methylene Butyrolactone Polymers from Itaconic Acid. *J. Polym. Sci. Part A: Polym. Chem.* **2017**, *55*, 2730–2737.
- 10) **Michaudel, Q.**; Kottisch, V.; Fors, B. P. Cationic Polymerization: From Photoinitiation to Photocontrol. *Angew. Chem. Int. Ed.* **2017**, *56*, 9670–9679.
- 9) Kottisch, V.;[†] **Michaudel, Q.**;[†] Fors, B. P. Cationic Polymerization of Vinyl Ethers Controlled by Visible Light. *J. Am. Chem. Soc.* **2016**, *138*, 15535–15538.
- 8) **Michaudel, Q.**; Fors, B. P. Storing Information at the Molecular Level: Efficient Synthesis of “Barcode” Polymers. *Chem* **2016**, *1*, 23–24.
- 7) Dao, H.; Li, C.;[†] **Michaudel, Q.**;[†] Maxwell, B. D.; Baran, P. S. Direct Hydromethylation of Unactivated Olefins. *J. Am. Chem. Soc.* **2015**, *137*, 8046–8049.

- 6) Teufel, R.; Stull, F.; Meehan, M. J.; **Michaudel, Q.**; Dorrestein, P. C.; Palfey, B.; Moore, B. S. Biochemical Establishment and Characterization of EncM's Flavin-N5-Oxide Cofactor. *J. Am. Chem. Soc.* **2015**, *137*, 8078–8085.
- 5) Shaw, S. A.; Balasubramanian, B.; Bonacorsi, S.; Caceres Cortes, J.; Cao, K.; Chen, B-C.; Dai, J.; Decicco, C.; Goswami, A.; Guo, Z.; Hanson, R.; Humphreys, W. G.; Lam, P. Y. S.; Li, W.; Mathur, A.; Maxwell, B. D.; **Michaudel, Q.**; Peng, L.; Pudzianowski, A.; Qiu, F.; Su, S.; Sun, D.; Tymiak, A. A.; Vokits, B. P.; Wang, B.; Wexler, R.; Wu, D-R.; Zhang, Y.; Zhao, R.; Baran, P. S. Synthesis of Biologically Active Piperidine Metabolites of Clopidogrel: Determination of Structure and Analyte Development. *J. Org. Chem.* **2015**, *80*, 7019–7032.
- 4) **Michaudel, Q.**; Ishihara, Y.; Baran, P.S. Academia–Industry Symbiosis in Organic Chemistry. *Acc. Chem. Res.* **2015**, *48*, 712–721.
- 3) **Michaudel, Q.**; Journot, G.; Regueiro-Ren, A.; Goswami, A.; Guo, Z.; Tully, T. P.; Zou, L.; Ramabhadran, R. O.; Houk, K. N.; Baran, P. S. Improving Physical Properties *via* C–H Oxidation: Chemical and Enzymatic Approaches. *Angew. Chem. Int. Ed.* **2014**, *53*, 12091–12096.
- 2) Teufel, R.;[†] Miyanaga, A.;[†] **Michaudel, Q.**;[†] Stull, F.;[†] Louie, G.; Noel, J. P.; Baran, P. S.; Palfey, B.; Moore, B. S. Flavin-Mediated Dual Oxidation Controls an Enzymatic Favorskii-Type Rearrangement. *Nature* **2013**, *503*, 552–556.
- 1) **Michaudel, Q.**;[†] Thevenet, D.;[†] Baran, P. S. Intermolecular Ritter-Type C–H Amination of Unactivated sp³ Carbons. *J. Am. Chem. Soc.* **2012**, *134*, 2547–2550.

SELECTED PRESENTATIONS

- **Invited Talks**

Polymer Gordon Research Conference, Mount Holyoke, MA	Jun 7, 2023
University of California – Los Angeles	May 10, 2023
University of California – Santa Barbara	May 9, 2023
Stanford University	Apr 26, 2023
University of California – Berkeley	Apr 25, 2023
University of Oregon	Apr 21, 2023
University of Washington	Apr 20, 2023
ACS National Meeting Spring 2023, Indianapolis, IN	Mar 26, 2023
Materia™ Inc., Pasadena, CA	Mar 9, 2023
California Institute of Technology	Mar 8, 2023
Florida State University	Feb 16, 2023
University of Florida	Feb 14, 2023
University of North Carolina – Chapel Hill	Feb 1, 2023
Duke University	Jan 31, 2023
École Normale Supérieure de Lyon	Jan 25, 2023
Université de Lyon 1	Jan 24, 2023
University of Birmingham	Jan 19, 2023
University of Bath	Jan 18, 2023

Massachusetts Institute of Technology	Dec 7, 2022
Boston College	Dec 6, 2022
University of Southern Mississippi	Nov 9, 2022
The Georgia Institute of Technology	Oct 11, 2022
Cornell University	Sep 26, 2022
University of Rochester	Sep 23, 2022
ACS National Meeting Fall 2022, Chicago, IL (2 talks)	Aug 23, 2022
ACS Mena 2022, Doha, Qatar	May 11, 2022
Polymer Technology Industrial Consortium Meeting, Texas A&M, TX	Apr 21, 2022
Macromolecular Summer Seminar Series, University of Florida (virtual)	May 25, 2021
Trinity University	Oct 29, 2020
Society of Plastic Engineers, Texas A&M, TX	Feb 6, 2020
GPC Conference, New Orleans, LA	Jul 10, 2019
SciFinder® Future Leaders in Chemistry	Aug 10-15, 2015
Bristol-Myers Squibb Chemistry Award Symposium	Apr 16, 2015

- **Contributed Presentations**

ISOM-XXIV, Bergen, Norway	July 4, 2023
ACS National Meeting Spring 2023, Indianapolis, IN (2 talks)	Mar 27, 2023
Stereochemistry Gordon Research Conference, Newport, RI	Jul 24-29, 2022
ACS National Meeting Spring 2022, San Diego, CA (2 talks)	Mar 21-22, 2022
ACS National Meeting Fall 2021, Atlanta, GA (2 virtual talks)	Aug 22-25 2021
ACS National Meeting Spring 2021, San Antonio, TX (virtual)	Apr 13, 2021
Stereochemistry Gordon Research Conference, (COVID cancellation)	Jul 2021
ACS National Meeting Spring 2020, (COVID cancellation)	Mar 2020
Polymers for Advanced Technologies Conference, College Station, TX	Aug 9, 2019
Polymer Gordon Research Conference, Mount Holyoke, MA	Jun 9-14, 2019
ACS National Meeting Fall 2018, Boston, MA	Aug 22, 2018
Polymer Gordon Research Conference, Mount Holyoke, MA	Jun 11-17, 2017
ACS National Meeting Fall 2016, Boston, MA	Aug 24, 2016

RESEARCH SUPPORT

External Funding

NSF CAREER (\$713,874): CAREER: Precise Synthesis of Polymers with Tunable Properties Through Stereocontrolled Olefin Metathesis	2023–2028
Department of Energy, Office of Science (\$1,014,866, \$330,000 for the PI): Understanding Structure, Phase Behavior, and Physical Properties of Polysulfamides and Polysulfamates using Simulations, Experiments, and Machine Learning (PI: Arthi Jayaraman, 3 investigators)	2022–2025
FACE Foundation (\$20,000, \$10,000 for the PI): Synthesis of Azo Compounds via 'Electroclick' Chemistry: A Green Approach Toward Therapeutics and Stimuli-Responsive Polymers (PI, with Julien Vantourout)	2022–2024
NIH MIRA R35 for Early Stage Investigators (\$1,813,140): Primary Amines as Versatile Precursors for the Synthesis of Bioactive Molecules and Macromolecular Drug Carriers.	2020–2025
American Chemical Society Petroleum Research Fund, Doctoral New Investigator	2019–2022

(\$110,000): Conductive Polymers with a Twist: New Tools
for the Synthesis and Study of Distorted Graphene Nanoribbons
Welch Foundation Grant (\$195,000): C–C Cross Couplings Enabled
by SuFEx Click Chemistry

2019–2022

TEACHING EXPERIENCE

CHEM 227: Organic Chemistry I

Texas A&M University, Department of Chemistry

CHEM 231: Techniques of Organic Chemistry

Texas A&M University, Department of Chemistry

CHEM 446: Organic Chemistry III

Texas A&M University, Department of Chemistry

CHEM 610: Organic Reactions

Texas A&M University, Department of Chemistry, graduate level

MENTORING

Graduate Students: Avinash Choudhury (2022–present); Srutashini Das (2022–present); Mary Yenca (2022–present); Jake Nicholson (2021–present); An Tran (2021–present); Deepta Chattapadhyay (2020–present); Katarzyna (Kate) Doktor (2019–present), Samuel Kempel (2019–present), Ting-Wei (Tim) Hsu (2019–present), Sarah Hancock (2018–present), Jiun-Wei (Alec) Wu (2018–present)

Master Students: Alexander Holter (2020–2022); Ryan Kulow (2018–2020)

Undergraduate Students: Zakary Newman (TAMU '24, 2023–present), Caroline Gallo (TAMU '25, 2022–present), Emma Trussell (TAMU '23, 2022–present), Rachel Wynn (NSF-REU, Southeastern Oklahoma State University'24, summer 2022), Antoine Gravet (Chimie ParisTech-Université PSL'23, France, 2022), Cate Conway (TAMU '23, 2022–present), Rene Garcia (TAMU '24, 2022), Spencer Li (TAMU '22, 2022), Leonardo Lizardi-Rodriguez (NSF-REU, University of Puerto Rico, Río Piedras '23, summer 2021) Alyssa Felix Thayne (NSF GRFP 2022, TAMU '22, 2021–2022), Alexander Fine (TAMU '23, 2020–2022), Alexandria Arboleda (TAMU '21, 2020–2021), Cortlan Parrish (TAMU '21, 2020–2021), Patrick Williams (TAMU '21, 2020–2021), Luma Al-Mahbobi (TAMU '22, 2019–2020), Sara Valdez (TAMU '20, 2019–2020), Eric Comstock (TAMU '22, 2019–2020), Jinqun Suo (Jilin University'20, China, 2019–2020), Crystal Chi (NSF-REU, Texas A&M Kingsville '20, summer 2019), Guadalupe Florencio (TAMU '20, 2019), Yali Wu (TAMU '20, 2019), Randinu Pulukkody (TAMU '18, 2018–2019), Katie Stawiasz (Cornell University '18, 2016–2018)

SERVICE ACTIVITIES

Advising

Faculty advisor, Texas A&M University ACS POLY/PMSE student chapter 2018–present

Faculty advisor, Aggie ACHIEVE program 2019–present

Reviewing

Referee: *Science*, *Nat. Chem.*, *Nat. Commun.*, *J. Am. Chem. Soc.*, 2015–present

Angew. Chem. Int. Ed., *Chem. Sci.*, *Chem*, *ACS Macro Lett.*, *Macromolecules*,

J. Polym. Sci., Polym. Chem., ACS Catal., Org. Lett., J. Org. Chem., Chem. Eur. J., ChemPhotoChem, Macromol. Rapid Commun.

Conference service

Judge, Doolittle award, PMSE, ACS San Diego	2022
Session chair, ORGN Photochemistry, ACS Atlanta	2021
Session chair, PMSE Young Investigator Symposium, ACS San Diego	2019
Poster judge, POLY Sci-Mix, ACS Boston	2018
Session chair, POLY General Topics, ACS Boston	2018

AFFILIATIONS

Member, ACS, Division of Organic Chemistry	2016–present
Member, ACS, Division of Polymer Chemistry	2016–present
Member, ACS, Division of Polymeric Materials: Science and Engineering	2019–present