

## Dr. Xiaopeng Yu

Postdoctoral Scholar  
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### EDUCATION

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**Cornell University**, Ithaca, NY

Ph.D., Chemistry Feb 2019

Advisor: Geoffrey W. Coates

**Fudan University**, Shanghai, China

B.S., Chemistry, GPA: 3.69/4.00 Aug 2014

### PROFESSIONAL EXPERIENCE

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**Lawrence Berkeley National Laboratory**, Berkeley, CA

Postdoctoral Scholar Feb 2019–Present

Advisor: Nitash P. Balsara

### RESEARCH EXPERIENCE

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**Postdoctoral Scholar**, Lawrence Berkeley National Laboratory Feb 2020–Present

**Research Focus:** Design and synthesis of polymer electrolytes for lithium batteries

**Graduate Research Assistant**, Cornell University. Jun 2014–Feb 2020

**Research Focus:** Design and synthesis of high-performance sustainable polymers

- Designed and synthesized aliphatic polyesters with high glass transition temperatures and elucidated their unexpected structure-property relationship through backbone flexibility analysis
- Developed the first homogeneous catalytic system to prepare poly(propylene ether carbonate) polyols with tunable compositions and rheological properties

### TECHNICAL SKILLS

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- **Air-Free Techniques:** Synthesis of organometallic compounds and polymers using Schlenk line and glovebox
- **High Pressure Apparatus:** Hydrogenation, carbonylation and polymerization reaction using Fisher-Porter bottles and Parr reactors
- **Material Characterization:** NMR, GPC, DSC, DART-MS, MALDI-TOF-MS, GC, GC-MS, FTIR, XRD, Rheometer
- **Catalyst Discovery:** In-depth knowledge in organometallic chemistry, homogeneous catalysis and heterogeneous catalysis; hands-on experience in high-throughput catalyst discovery using Freeslate Core Module 3, Freeslate SPR and related software
- **Instrument Maintenance:** Standard maintenance of GC and DSC; Trained new group members how to use these instruments and develop new methods

### PUBLICATIONS

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- **Yu, Xiaopeng;** Jia, Junteng; Xu, Shu; Lao, Ka Un; Sanford, Maria J.; Ramakrishnan, Ramesh K.; Nazarenko, Sergei I.; Hoye, Thomas R.; Coates, Geoffrey W.; DiStasio Jr., Robert A. Unraveling Substituent Effects on the Glass Transition Temperatures of Biorenewable Polyesters. *Nature Communications* **2018**, *9*, 2880: 1–9.
- **Yu, Xiaopeng;** Coates, Geoffrey W. Bimetallic Cobalt Catalysts for Producing Propylene Oxide/CO<sub>2</sub> Polyols: Precise Control of Copolymer Compositions for Tunable Properties. *Manuscript in preparation*.
- Yan, Wenqing; **Yu, Xiaopeng;** Yan, Tao; Wu, Doufeng; Ning, Erlong; Qi, Yi; Han, Ying-Feng; Li, Qiaowei. A Triptycene-Based Porous Hydrogen-Bonded Organic Framework for Guest Incorporation with Tailored Fitting. *Chemical Communications* **2017**, *53*, 3677-3680

## PRESENTATIONS

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- **Yu, Xiaopeng**; Jia, Junteng; Xu, Shu; Lao, Ka Un; Sanford, Maria J.; Ramakrishnan, Ramesh K.; Nazarenko, Sergei I.; Hoye, Thomas R.; Coates, Geoffrey W.; DiStasio Jr., Robert A. Less is More: An Unexpected Structure-Property Relationship in Furan-Based Sustainable Polymers. *ACS National Meeting*, Boston, MA, August 2018 (oral presentation)
- **Yu, Xiaopeng**; Jia, Junteng; Xu, Shu; Lao, Ka Un; Sanford, Maria J.; Ramakrishnan, Ramesh K.; Nazarenko, Sergei I.; Hoye, Thomas R.; Coates, Geoffrey W.; DiStasio Jr., Robert A. Less is More: An Unexpected Structure-Property Relationship in Furan-Based Sustainable Polymers. *Center for Sustainable Polymers Annual Meeting*, Minneapolis, MN, April 2018 (oral presentation and poster presentation)

## TEACHING EXPERIENCE

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**Mentor**, Undergraduate researcher Jan 2018–Oct 2018

- Designed and supervised a catalyst development project for an undergraduate researcher
- Trained an undergraduate researcher on synthesis and characterization of small molecules and polymers

**Teaching Assistant**, Cornell University Aug 2014–May 2016

- Held office hours (4 hours/week) covering class material and problem-solving strategies to undergraduate students
- Gave detailed advice to students who are interested in doing undergraduate research or applying to graduate schools

## OUTREACH ACTIVITIES

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**4-H Career Explorations workshop on polymer chemistry** June 2016, June 2017 and June 2018

- Introduced the concept of polymer and sustainability to middle school students
- Supervised a group of middle school students (up to 20 people) transforming plastic cups into cleaning solutions

## COLLABORATION EXPERIENCE

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- Collaborated with Prof. Tom Hoye at University of Minnesota on the design and synthesis of renewable monomers
- Collaborated with Prof. Seigei Nazarenko at University of Southern Mississippi on the measurement and analysis of polymers free volumes
- Collaborated with Prof. Robert DiStasio Jr. at Cornell University on the computational analysis of polymers backbone flexibility
- Collaborated with Prof. Marc Hillmyer at University of Minnesota on the design and synthesis of biodegradable elastomers