

# Bo Qiao

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## *Education and Training*

- Post-doctoral Research Associate, Massachusetts Institute of Technology 2017–Present  
**Advisors:** Professor Jeremiah A. Johnson, Professor Yang Shao-Horn  
**Research Area:** Polymer electrolytes for lithium-ion batteries
- Ph. D. Chemistry, Indiana University, Bloomington, Indiana 2012–2017  
**Advisor:** Professor Amar H. Flood  
**Research Area:** Anion supramolecular chemistry, synthetic chemistry
- B. S. Chemistry, Peking University, Beijing, CHINA 2007–2011  
**Advisor:** Professor Dahui Zhao  
**Research Area:** Organic photovoltaic materials
- Advisor:** Professor Xinsheng Zhao  
**Research Area:** Diffusion model of DNA molecules

## *Teaching Experience*

- Associate Instructor for undergraduate classes at Indiana University 2012–2014  
Classes taught: General Chemistry Lab, General Chemistry Discussion,  
Organic Chemistry Lab

## *Awards and Honors*

- Robert & Marjorie Mann Fellowship, Indiana University 2016–2017  
Lynn L. Merritt Award for Excellence in Research, Indiana University 2016  
Associate Instructor Award, Indiana University 2012  
Freshman Scholarship, Peking University 2007

## *Organizing Committees*

- Member of the Organizing Committees of  
the Annual Symposium on Materials Chemistry at Indiana University 2014–2017

## *Publications*

13. **Qiao, B.**; Mohapatra, S.; Lopez, J.; Tataru, R.; Leverick, G. M.; Gomez-Bombarelli, R.; Johnson, J. A.; Shao-Horn, Y. Non-covalent interactions in oligomeric ethylene-oxide electrolytes, *manuscript in preparation*.
12. Huang, M.; Feng, S.; Zhang, W.; Lopez, J.; **Qiao, B.**; Tataru, R.; Giordano, L. Shao-Horn, Y.; Johnson, J. A. Design of S-substituted Fluorinated Aryl Sulfonamide Tagged (S-FAST)

- anions to enable new solvate ionic liquids for battery applications, *Chem. Mater.* **2019**, *31*, 7558–7564.
11. Zhao, W.; **Qiao, B.**; Tropp, J.; Pink, M.; Azoulay, J. D.; Flood, A. H. Linear supramolecular polymers driven by anion-anion dimerization of difunctional phosphate monomers inside cyanostar macrocycles, *J. Am. Chem. Soc.* **2019**, *141*, 4980–4989. (Supplementary cover of the issue)
  10. **Qiao, B.\***; Leverick, G. M.; Zhao, W.; Flood, A. H.; Johnson, J. A.\*; Shao-Horn, Y. Supramolecular recognition of anions enhances conductivity and transference number of lithium in liquid electrolytes, *J. Am. Chem. Soc.* **2018**, *140*, 10932–10936. (Supplementary cover, highlighted in *C&E News* and *JACS Spotlights*.)
  9. Sheetz, E. G.; **Qiao, B.**; Pink, M.; Flood, A. H. Guest-triggered rotamers control stackable macrocycle complexes despite entropy penalty, *J. Am. Chem. Soc.* **2018**, *140*, 7773–7777.
  8. Zhao, W.†; **Qiao, B.†**; Chen, C.-H.; Flood, A. H. High fidelity multi-state switching with anion-anion and acid-anion dimers of organophosphates in cyanostar complexes, *Angew Chem. Int. Ed.* **2017**, *56*, 13083–13087. († equal contribution)
  7. **Qiao, B.**; Hirsh, B. E.; Lee, S.; Pink, M.; Chen, C.-H.; Laursen, B. W.; Flood, A. H. Ion-pair oligomerization of chromogenic triangulenium cations with cyanostar-modified anions controls emission in hierarchical materials, *J. Am. Chem. Soc.* **2017**, *139*, 6226–6233.
  6. **Qiao, B.**; Liu, Y.; Lee, S.; Pink, M.; Flood, A. H. High-yield synthesis and acid-base response of phosphate-templated [3]rotaxanes, *Chem. Commun.* **2016**, *52*, 13675–13678.
  5. **Qiao, B.**; Anderson, J. R.; Pink, M.; Flood, A. H. Size-matched recognition of large anions by cyanostar macrocycles is saved when solvation-bias is avoided, *Chem. Commun.* **2016**, *52*, 8683–8686.
  4. **Qiao, B.**; Sengupta, A.; Liu, Y.; McDonald, K. P.; Pink, M.; Anderson, J. R.; Raghavachari, K.; Flood, A. H. Electrostatic and allosteric cooperativity in ion-pair binding: a quantitative and coupled experiment–theory study with aryl-triazole-ether macrocycles, *J. Am. Chem. Soc.* **2015**, *137*, 9746–9757.
  3. Hirsch, B. E.; McDonald, K. P.; **Qiao, B.**; Tait, S. L.; Flood, A. H. Crystal switching and anion binding in surface monolayers modulated by electric fields from scanning probes, *ACS Nano* **2014**, *8*, 10858–10869.
  2. McDonald, K. P.; **Qiao, B.**; Twum, E. B.; Lee, S.; Gamache, P. J.; Chen, C.-H.; Yi, Y.; Flood, A. H. Chloride-binding poly(methyl methacrylate) copolymers bearing aryl-triazole side chains induce changes in polymer size and enhance salt extraction, *Chem. Commun.* **2014**, *50*, 13285–13288.
  1. Hirsch, B. E. Lee, S.; **Qiao, B.**; Chen, C.-H.; McDonald, K. P.; Tait, S. L.; Flood, A. H. Anion-induced dimerization of 5-fold symmetric cyanostars in 3D crystalline solids and 2D self-assembled crystals, *Chem. Commun.* **2014**, *69*, 9827–9830.

### Oral Presentations

256<sup>nd</sup> ACS National Meeting, Boston, MA  
Invited Seminar, Tsinghua University, Beijing China

August 2018  
December 2017

252 <sup>nd</sup> ACS National Meeting, Philadelphia PA	August 2016
1 <sup>st</sup> Indiana University Three-Minute Thesis Competition, Indiana University	February 2016
1 <sup>st</sup> Annual Symposium on Materials Chemistry, Indiana University	June 2014
Ph. D. Candidacy Seminar, Indiana University	September 2014

*Posters*

Toyota Research Institute Conference, Boston MA	May 2019
Telluride Conference on Molecular Rotors, Motors, and Switches, Telluride CO	June 2018
Toyota Research Institute Conference, Redwood City CA	May 2018
Gordon Research Conference on Artificial Molecular Switches and Motors	June 2017
3 <sup>rd</sup> Annual Symposium on Materials Chemistry, Indiana University	July 2015
H. C. Brown Lectures in Organic Chemistry, Purdue University	April 2016
PINDU Inorganic Chemistry Symposium, University of Notre Dame	December 2015
2 <sup>nd</sup> Annual Symposium on Materials Chemistry, Indiana University	May 2015
8 <sup>th</sup> Intl. Symp. on Macrocyclic and Supramolecular Chemistry, Arlington VA	July 2013
5 <sup>th</sup> Indiana University Annual NOBCChE Symposium, Indiana University	September 2013
246 <sup>th</sup> ACS National Meeting, Indianapolis IN	September 2013