Hao Li

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**Education and Working Experience**

* *Postdoctoral Fellow*

Department of Chemistry, the University of Texas at Austin, Austin, Texas, USA

Advisor: Professor Jonathan Sessler

**2013*–*Present**

* *PhD in Organic Chemistry*

Department of Chemistry, Northwestern University, Evanston, Illinois, USA

*Advisor*: Professor Fraser Stoddart

*Thesis Title*: “The Incorporation of Radical Pairing Interaction into the Syntheses and Switching of Mechanically Interlocked Molecules”

**2007*–*2012**

* *MSc in Organic Chemistry*

Department of Chemistry, Wuhan University, People’s Republic of China

*Advisor*: Professor Chuluo Yang

*Thesis Title*: “The Synthesis and Characterization of A Three-Component Molecular Machine Based on H-bonding Assembly”

**2005*–*2007**

* *BS in Chemistry*

Department of Chemistry, Wuhan University, People’s Republic of China

**2001*–*2005**

* *High School Studies*

No. 1 Middle School of Nanxian, Hunan Province, People’s Republic of China

**1998*–*2001**

**Teaching Experience**

* Teaching Assistant

Department of Chemistry, Northwestern University **2007*–*2008**

Supervised, instructed, and evaluated undergraduate students an Organic Chemistry Laboratory.

* Teaching Assistant

Department of Chemistry, Wuhan University **2006*–*2007**

Tutored three undergraduate students working in Professor Yang’s group in Organic Synthesis.

**Scholarships and Awards**

* Thousand Young Talents Plan **2015**
* The Chinese Government Award for Outstanding Self-Financed Student Abroad **2012**
* Second-Classa Prize for an Excellent Thesis for Bachelor’s Degree in the Province of Hubei **2005**
* Third-Classb Scholarship for Undergraduate Study **2004**
* Second-Classa Scholarship for Undergraduate Study **2003**
* The “Most Valuable Player” in the debate competition in Wuhan University **2003**
* Third-Class Scholarship for Undergraduate Study **2002**

a Awarded to the top 10% students in Wuhan University. b Awarded to the top 15% students in Wuhan University.

**Analytical Skills**

* Design and execution of organic synthetic procedures
* Implementation of planned research experiments with collaborators across multiple scientific fields
* Training undergraduate researchers and preparing them for success in a premier research group
* Budgeting research funds appropriately to perform experiments in the most cost-effective manner
* Reviewing manuscripts for acceptance into peer-review scientific journals
* Written and oral communication of complicated scientific concepts to a wide audience

**Publications (as the First Author)**

1. Jiao, T.; Chen, L.; Yang, D.; Li, X.; Wu, G.; Zeng, P.; Zhou, A.; Yin, Q.; Pan, Y.; Wu, B.; Hong, X.; Kong, X.; Lynch, V. M.; Sessler, J. L.; **Li, H.**\* “Trapping White Phosphorus within a Purely Organic Molecular Container Produced by Imine Condensation.” *Angew. Chem. Int. Ed.* **2017**, *56*, 14545–14550.
2. **Li, H.**\*; Zhang, H.; Lammer, A. D.; Wang, M.; Li, X.; Lynch, V. M.; Sessler, J. L.\* “Quantitative Self-Assembly of A Purely Organic Three-Dimensional Catenane in Water.” *Nature Chem.* **2015**, *7*, 1003–1008.
3. **Li, H.**; Cheng, C.; McGonigal, P. R.; Fahrenbach, A. C.; Frasconi, M.; Liu, W.-G.; Zhu, Z.; Zhao, Y.; Ke, C.; Lei, J.; Young, R. M.; Dyar, S. M.; Co, D. T.; Yang, Y.-W.; Botros, Y. Y.; Goddard, W. A. III; Wasielewski, M. R.; Astumian, R. D.; Stoddart, J. F. “Relative Unidirectional Translation in an Artificial Molecular Assembly Fueled by Light.” *J. Am. Chem. Soc.* **2013**, *135,* 18609–18620.
4. Jia, C.+; **Li, H.**+; Jiang, J.; Wang, J.; Chen, H.; Cao, D.; Stoddart, J. F. Guo, X. “Interface-engineered bistable [2]rotaxane-graphene hybrids with logic capabilities.” *Adv. Mater.* **2013**, *25*, 6752–6759. +*Equal contribution*. First author in Stoddart group.
5. **Li, H.**; Zhu, Z.; Fahrenbach, A. C.; Savoie, B. M.; Ke, C.; Barnes, J. C.; Lei, J.; Zhao, Y.-L.; Lilley, L. M.; Marks, T. J.; Ratner, M. A.; Stoddart, J. F. “Mechanical Bond-Induced Radical Stabilization.” *J. Am. Chem. Soc.* **2013**, *135,* 456–467. *Highlighted Article*.
6. Zhu, Z.+; **Li, H.**+; Colquhoun, H. M.; Stoddart, J. F. “Oligomeric Pseudorotaxanes Adopting Infinite-Chain Lattice Superstructures.” *Angew. Chem. Int. Ed.* **2012**, *51*, 7231–7235. +*Equal contribution*.
7. Avellini, T.+; **Li, H.**+; Coskun, A.+; Barin, G.; Trabolsi, A.; Basuray, A. N.; Dey, S. K.; Credi, A.; Silvi, S.; Stoddart, J. F.; Venturi, M. “Photoinduced Memory Effect in A Redox Controllable Bistable Mechanical Molecular Switch.” *Angew. Chem. Int. Ed.* **2012**, 51, 1611–1615. +*Equal contribution*. First author in Stoddart group.
8. **Li, H.**; Fahrenbach, A. C.; Coskun, A.; Zhu, Z.; Barin, G.; Zhao, Y.-L.; Botros, Y. Y.; Sauvage, J.-P.; Stoddart, J. F. “A Light–Stimulated Molecular Switch Driven by Radical–Radical Interactions in Water.” *Angew. Chem. Int. Ed.* **2011**, 50, 6782–6788.
9. **Li, H.**; Zhao, Y.-L.; Fahrenbach, A. C.; Kim, S.-Y.; Paxton, W. F.; Stoddart, J. F. “Degenerate [2]Rotaxanes with Electrostatic Barriers.” *Org. Biomol. Chem.* **2011**, 9, 2240–2250. *Hot Paper*.
10. **Li, H.**; Fahrenbach, A. C.; Dey, S. K.; Basu, S.;Trabolsi, A.; Zhu, Z.; Botros, Y. Y.; Stoddart, J. F. “Mechanical Bond Formation by Radical Templation.” *Angew. Chem. Int. Ed.* **2010**, 49, 8260–8265. *VIP Paper*.

**Publications (as a Co-Author)**

1. Cheng, C.; McGonigal, P. R.; **Li, H.**; Vermeulen, N. A.; Ke, C.; Stoddart, J. F. “An Artificial Molecular Pump.” *Nature Nanotech.* **2015**, *Accepted*.
2. Cheng, C.; McGonigal, P. R.; Liu, W.-G.; **Li, H.**; Vermeulen, N. A.; Ke, C.; Frasconi, M.; Stern, C. L.; Goddart, W. A. III, Stoddart, J. F. “Energetically demanding transport in a supramolecular assembly.” *J. Am. Chem. Soc.* **2014**, *136*, 14702—14705.
3. Zhu, Z.; Xu, L.; **Li, H.**; Zhou, X.; Qin, J.; Yang, C. “A Tetraphenylethene-based Zinc Complex as a Sensitive DNA Probe by Corodination Interaction.” *Chem. Commun.* **2014**, *50*, 7060—7062.
4. Fahrenbach, A. C.; Bruns, C. J.; **Li, H.**; Trabolsi, A.; Coskun, A.; Stoddart, J. F. “Ground-State Kinetics of Bistable Redox-Active Donor-Acceptor Mechanically Interlocked Molecules.” *Acc. Chem. Res.* **2014**, *47*, 482—493
5. Sheng, L.; Li, M.; Zhu, S.; **Li, H.**; Xi, G.; Li, Y.-G.; Wang, Y.; Li, Q.; Liang, S.; Zhong, K.; Zhang, S. X.-A. “Hydrochromic Molecular Switches for Water-Jet Rewritable Paper.” *Nature Commun.* **2014**, **DOI**: 10.1038/ncomms4044
6. Ke, C.; Strutt, N. L.; **Li, H.**; Hou, X.; Hartlieb, K. J.; McGonigal, P. R.; Ma, Z.; Iehl, J.; Stern, C. L.; Cheng, C.; Zhu, Z.; Vermeulen, N. A.; Meade, T. J.; Botros, Y. Y.; Stoddart, J. F. “Pillar[5]arene as a Co-Factor in Templating Rotaxane Formation.” *J. Am. Chem. Soc.*, **2013**, *135*, 17019—17030.
7. Zhu, Z.; Bruns, C.; **Li, H.**; Lei, J.; Ke, C.; Liu, Z.; Shafaie, S.; Colquhoun, H. M.; Stoddart, J. F. “Synthesis and solution–state dynamics of donor–acceptor oligorotaxane foldamers.” *Chem. Sci.* **2013**, *4*, 1470–1483.
8. Zou, Y; Zou, J.; Ye, T.; **Li, H.**; Yang, C.; Wu, H.; Ma, D.; Qin, J.; Cao, Y. “Unexpected Propeller-Like Hexakis(fluoren-2-yl)benzene Cores for Six-Arm Star-Shaped Oligofluorenes: Highly Efficient Deep-Blue Fluorescent Emitters and Good Hole-Transporting Materials.” *Adv. Funct. Mater.* **2013**, *23*, 1781–1788.
9. Ke, C.; Smaldone, R. A.; Kikuchi, T.; **Li, H.**; Davis, A. P. Stoddart, J. F. “Quantitative Emergence of Hetero[4]rotaxanes by Template-Directed Click Chemistry.” *Angew. Chem. Int. Ed.* **2012**, *52,* 381–387.
10. Barnes, J. C.; Fahrenbach, A. C., Cao, D.; Dyar, S. M.; Frasconi, M.; Giesener, M. A.; Benitez, D.; Tkatchouk, E.; Shin, W. H.; **Li, H.**; Stern, C. L.; Sarjeant, A. A.; Hartlieb, K. J.; Liu, Z.; Carmieli, R.; Botros, Y. Y.; Choi, J. W.; Slawin, A. M. Z.; Wasielewski, M. R.; Goddard, W. A.; III, Stoddart, J. F. “*A Radically Configurable Six-State Compound*. ” *Science.* **2013**, *339,* 429–433.
11. Fahrenbach, A. C.; Zhu, Z.; Cao, D.; Liu, W.-G.; Li, H.; Dey, S. K.; Basu, S.; Trabolsi, A.; Botros, Y. Y.; Goddard, W. A. III, Stoddart, J. F. “Radically Enhanced Molecular Switches.” *J. Am. Chem. Soc.*, **2012**, *134*, 16275–16288.
12. Zhu, Z.; Fahrenbach, A.; **Li, H.**; Barnes, J.; Liu, Z.; Dyar, S.; Zhang, H.; Lei, J.; Carmieli, R.; Raanan, S.; Sarjeant, A.; Stern, C.; Wasielewski, M.; Stoddart, J. F. “Controlling Switching in Bistable [2]Catenanes by Combining Donor–Acceptor and Radical–Radical Interactions.” *J. Am. Chem. Soc.* **2012**, *134*, 11709–11720.
13. Pan, X.; **Li, H.**; Nguyen, K. T.; Grüner, G.; Zhao, Y. “Phonon energy transfer in graphene-photoacid hybrids” *J. Phys. Chem. C.* **2012**, *116*, 4275–4181.
14. Fahrenbach, A. C.; Barnes, J. C.; Lanfranchi, D. A.; **Li, H.**; Coskun, A.; Gassensmith, J. J.; Liu, Z.; Trabolsi, A.; Elhabiri, M.; Stoddart, J. F. “Solution-Phase Mechanistic Study and Solid-State Structure of A Tris(Bipyridinium Radical Cation) Inclusion Complex.” *J. Am. Chem. Soc.* **2012**, *134*, 3061–3072**.**
15. Zhang, H.; Strutt, N. L.; Stoll, R. S.; **Li. H.**; Zhu, Z.; Stoddart, J. F. “Dynamic Clicked Surfaces Based on Functionalised Pillar[5]arene.” *Chem. Commun.* **2012**, *48*, 1647–1649.
16. Fahrenbach, A. C.; Barnes, J. C.; **Li, H.**; Benítez, D.; Basuray, A. N.; Fang, L.; Sue, C.-H.; Barin, G.; Dey, S. K.; Goddard, W. A. III.; Stoddart, J. F. “Measurement of the Ground State Distributions in Bistable Mechanically Interlocked Molecules Using Slow Scan Rate Cyclic Voltammetry.” *Proc.* *Natl. Acad. Sci. USA* **2011**, *108*, 20416–20421.
17. Hmadeh, M.; Fahrenbach, A. C.; Basu, S.; Trabolsi, A.; Benítez, D.; **Li, H.**; Albrecht-Gary, A.-M.; Elhabiri, M.; Stoddart, J. F. “Electrostatic Barriers in Rotaxanes and Pseudorotaxanes.” *Chem. Eur. J.* **2011**, 17, 6076–6087.
18. Coskun, A.; Friedman, D. C.; **Li, H.**; Patel, K.; Khatib, H. A.; Stoddart, J. F.“A Light-Gated STOP-GO Molecular Shuttle.” *J. Am. Chem. Soc.* **2009**, *131*, 2493–2495.
19. Li, Y.; Wang, N.; Gan, H.; Liu, H.; **Li, H.**; Li, Y.; He, X.; Huang, C.; Cui, S.; Wang, S.; Zhu, D. “Synthesis and Characterization of 3,5-Bis(2-hydroxyphenyl)-1,2,4-triazole Functionalized Tetraaryloxy Perylene Bisimide and Metal-Directed Self-Assembly.” *J. Org. Chem.*, **2005**, *70*, 9686–9692.
20. Li, Y., **Li, H**.; Li, Y.; Liu, H.; Wang, S.; He, X.; Wang, N.; Zhu, D. “Energy Transfer Switching in a Bistable Molecular Machine.” *Org. Lett.* **2005**, *7*, 4835–4838.
21. Cai, J.; Zhang, L.; Zhou, J.; **Li, H.**; Chen, H.; Jin, H. “Novel Fibers Prepared from Cellulose in NaOH/Urea Aqueous Solution.” *Macromol. Rapid, Commun.* **2004**, *25*, 1558–1562.

**Presentations**

1. Artificial molecular Motors. (**Li, H.**; McGonigal, P. R.; Cheng, C.; Stoddart, J. F.) Plenary Lecture, *the 8th Joint International Symposium on Macrocyclic & Supramolecular Chemistry,* Arlington, Virginia, July 9th, 2013.
2. Benzobisimidazolium – A Novel Building Block for the Constructions of Supramolecular and Mechanically Interlocked Architectures. (**Li, H.**; Zhang, Z.; Sessler, J. L.) *the 8th Joint International Symposium on Macrocyclic & Supramolecular Chemistry,* Arlington, Virginia, July 9th, 2013.
3. A Molecular Gasket: Pillar[5]arene as a Promoter in Rotaxane Synthesis. (Ke, C.; Strutt, N. L.; **Li, H.**; Hou, X.; Hartlieb, K. J.; McGonigal, P. R.; Stoddart, J. F.) *the 8th Joint International Symposium on Macrocyclic & Supramolecular Chemistry,* Arlington, Virginia, July 9th, 2013.
4. Driving a Molecular Pump away from Equilibrium. (Cheng, C.; **Li, H.**; Liu, W.-G.; McGonigal, P. R.; Vermeulen, N.; Frasconi, M.; Ke, C.; Goddard, W. A. III; Stoddart, J. F.) *the 8th Joint International Symposium on Macrocyclic & Supramolecular Chemistry,* Arlington, Virginia, July 9th, 2013.
5. The Incorporation of Radical Pairing Interactions into the Syntheses and Switching of Mechanically Interlocked Molecules. (**Li, H.**; Fahrenbach, A. C.; Coskun, A.; Zhu, Z.; Barin, G.; Zhao, Y.-L.; Stoddart, J. F.), Poster Presentation, *the 6th Challenges in Organic Materials & Supramolecular Chemistry*, Beijing, China, September 2th, 2011.
6. A Light-Stimulated Molecular Machine Driven by Radical Pairing Interactions in Water. (**Li, H.**; Fahrenbach, A. C.; Coskun, A.; Zhu, Z.; Barin, G.; Zhao, Y.-L.; Stoddart, J. F.), Poster Presentation, *the 8th Foundation of Nanoscience Conference*, Snowbird, Utah, April 10th, 2011.
7. Radical Templation for Mechanical Bond Formation. (**Li**, **H.**; Fahrenbach, A. C.; Dey, S. K.; Basu, S.; Trabolsi, A.; Zhu, Z.; Stoddart, J. F.), Poster Presentation, *the 5th Joint International Symposium on Macrocyclic & Supramolecular Chemistry,* Nara, Japan, June 9th, 2010.
8. Molecular Enemies Sit Down Together: A Rotaxane without Binding Sites. (**Li**, **H.**; Dey, S. K.; Trabolsi, A.; Stoddart, J. F.), Oral Presentation, *the 239th ACS National Meeting,* San Francisco, California, March 23th, 2010.