# CURRICULUM VITAE

## Cheng Wang

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## Experience and Education

*Professor* **2012-**

Wuhan University, Wuhan, Hubei, P. R. China

*Postdoctoral Research Associate* **2008-2012**

Northwestern University, Evanston, Illinois, USA

*Graduate Student* **2003-2008**

Institute of Chemistry, Chinese Academy of Sciences, Beijing, P. R. China

*Undergraduate Student* **1999-2003**

Wuhan University, Wuhan, P. R. China

## Qualifications

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| **Postdoc** | Northwestern University | **2012** |
| *Advisor* | Professor Sir J Fraser Stoddart | |
| *Research* | Mechanically Interlocked Molecular Switches, Mechanised Nanoparticles**,** Metal-Organic Frameworks | |
| **PhD** | Institute of Chemistry, Chinese Academy of Sciences (ICCAS) | **2008** |
| *Advisor* | Professor Deqing Zhang and Academician Professor Daoben Zhu | |
| *Thesis Title* | "Design, Synthesis and Self-assembly of New Functional Molecules with Photoresponsive and Electroactive Moieties and Their Application in Molecular Device" | |
| **BS** | Wuhan University, China | **2003** |

## Awards

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| *"Baojie" Scholarship* | Chinese Academy of Sciences | **2008** |
| *"Jieshijie Chemicals" Scholarship* | ICCAS | **2007** |
| *The First Prize of Director Scholarship* | ICCAS | **2005, 2007** |
| *Research Prize for Excellent Graduate Students* | ICCAS | **2007** |
| *Distinguished Prize for Young Scientists* | ICCAS | **2005** |
| *"Changxing Chemicals" Scholarship* | ICCAS | **2005** |
| *"Outstanding Student" Prize* | ICCAS | **2005, 2006** |
| *"Baosteel Prize" Scholarship* | Wuhan University | **2002** |
| *First Prize of People's Scholarship* | Wuhan University | **2002** |
| *Second Prize of the 4$^{th}$ "Ziqiang Cup"* | Wuhan University | **2002** |
| *Second Prize of People's Scholarship* | Wuhan University | **2000** |
| *"Outstanding Student" Prize* | Wuhan University | **2000, 2002** |

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## Major Research Experience

### Mechanically Interlocked Molecular Switches

- Isolation of translational isomers of a bistable donor-acceptor [2]catenane by crystallization
- Solvent-Dependent Ground State Distributions in a Donor-Acceptor Redox-Active Bistable [2]Catenane
- The Effects of Conformation on the Noncovalent Bonding Structure in a Bistable Donor-Acceptor [3]Catenane
- Tetrathiafulvalene Hetero Radical Cation Dimerization in a Redox-Active [2]Catenane
- Dual Stimulus Switching of a [2]Catenane in Water
- Donor-Acceptor Ring-in-Ring Complexes
- Thermodynamically and Kinetically Controlled Self-Assembly of Donor–Acceptor Ring–In–Ring Complex
- Synthesis of bistable Solomon Knot and investigation of its switchable motion
- Synthesis of bistable Olympiadane and investigation of its switchable motion

### Metal-Organic Frameworks

- Synthesis of bistable [2]catenane struts that could construct into MOFs
- Catenanes within a Porous Metal-Organic Framework Made to Order
- Two Cross-Talking Struts in a Metal-Organic Framework

### Mechanised Nanoparticles

- Stimulated Release of Size-Selected Cargos in Succession from Mesoporous Silica Nanoparticles
- Selective Recognition for Drug Delivery

### Tunable Organogel

- A redox switchable organogel based on an electro-active TTF unit: tuning the gel formation through charge-transfer interactions and oxidation
- A dual-responsive organogel based on photoresponsive azobenzene and redox TTF units: reversibly tuning the gel-sol transition by UV irradiation / light or chemical or electrochemical oxidation / reduction
- A chiral organogel based on a binaphthalene unit: modulating the CD spectra after gel formation
- An organogel based on a photo-active anthracene unit: fluorescence enhancement after gel formation
- A chiral organogel based on TTF unit: formation of organogel with supramolecular chirality
- In-depth spectral investigations of bispyrene molecules through the gel-solution transition: construction of a thermally driven molecular fluorescence switch

### Chiral Molecular Switches

- Synthesis of a chiral molecular switch based on binaphthalene molecules with anthracene moieties: unexpected CD signal due to interchromophoric exciton coupling
- $Hg^{2+}$ gated chiral molecular switch: remote control of the photodimerization of two anthracene units linked to binaphthalene through the transformation of 1,3-dithiole-2-thione into 1,3-dithiole-2-one

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## Scientific Publications

1. Tetrathiafulvalene Hetero Radical Cation Dimerization in a Redox-Active [2]Catenane (**C. Wang**, S. M. Dyar, D. Cao, A. C. Fahrenbach, N. Horwitz, M. T. Colvin, R. Carmielli, C. L. Stern, S. K. Dey, M. R. Wasielewski*, J. F. Stoddart*) *J. Am. Chem. Soc.*, *in revision*.
2. Stimulated Release of Size-selected Cargos in Succession from Mesoporous Silica Nanoparticles (**C. Wang**, Z. Li, D. Cao, Y. L. Zhao, J. W. Gaines, O. A. Bozdemir, M. W. Ambrogio, M. Frasconi, Y. Y. Botros, J. I. Zink*, J. F. Stoddart* ) *Angew. Chem. Int. Ed.* **2012**, *51*, 5460–5465.
3. Isolation by crystallization of translational isomers of a bistable donor-acceptor [2]catenane (**C. Wang**, M. A. Olson, L. Fang, D. Benítez, E. Tkatchouk, S. Basu, A. N. Basuray, D. Q. Zhang, D. B. Zhu, W. A. Goddard, J. F. Stoddart*) *Proc. Natl. Acad. Sci. USA* **2010,** *107*, 13991–13996.
4. Multistimuli Responsive Organogels Based on a New Gelator Featuring Tetrathiafulvalene and Azobenzene Groups: Reversible Tuning of the Gel-Sol Transition by Redox Reactions and Light Irradiation (**C. Wang**, Q. Chen, F. Sun, D. Q. Zhang*, G. X. Zhang, Y. Y. Huang, R. Zhao, D. B. Zhu) *J. Am. Chem. Soc.* **2010,** *132*, 3092–3096.
5. Dual Stimulus Switching of a [2]Catenane in Water (L. Fang, **C. Wang**, A. C. Fahrenbach, A. Trabolsi, Y. Y. Botros, J. F. Stoddart*) *Angew. Chem. Int. Ed.* **2011**, *50*, 1805–1809.
6. A low-molecular-mass gelator with an electroactive tetrathiafulvalene group: Tuning the gel formation by charge-transfer interaction and oxidation (**C. Wang,** D. Q. Zhang*, D. B. Zhu*) *J. Am. Chem. Soc.* **2005,** *127*, 16372–16373.
7. The Effects of Conformation on the Noncovalent Bonding Structure in a Bistable Donor-Acceptor [3]Catenane (**C. Wang**, D. Cao, A. C. Fahrenbach, S. Grunder, S. K. Dey, A. A. Sarjeant, J. F. Stoddart*), *Chem. Commun.* **2010,** *48*, 9245–9247.
8. Solvent-Dependent Ground State Distributions in a Donor-Acceptor Redox-Active Bistable [2]Catenane (**C. Wang**, D. Cao, A. C. Fahrenbach, L. Fang, M. A. Olson, D. C. Friedman, S. Basu, S. K. Dey, Y. Y. Botros, J. F. Stoddart*) *J. Phys. Org. Chem.* **2012**, *25*, 544–552.
9. Donor-Acceptor Ring-in-Ring Complexes (R. S. Forgan,† **C. Wang**,† D. C. Friedman, J. M. Spruell, C. L. Stern, D. Cao, J. F. Stoddart*) *Chem. Eur. J.* **2012**, *18*, 202–212. (†equal contribution)
10. A Rigid Donor-Acceptor Daisy Chain Dimer (D. Cao, **C. Wang**, M. Giesener, Z. Liu, J. F. Stoddart*), *Chem. Commun.* **2012**, *48* , 6791–6793..
11. An $Hg^{2+}$ - Gated Chiral Molecular Switch Created by Using Binaphthalene Molecules with Two Anthracene Units and Two 1,3-dithiole-2-thione (1,3-dithiole-2-one) units (**C. Wang,** D. Q. Zhang*, G. X. Zhang, J. F. Xiang, D. B. Zhu*) *Chem. Eur. J.* **2008**, *14*, 5680–5686. **Highlighted** by "Synfacts".
12. New organogels based on an anthracene derivative with one urea group and its photodimer: fluorescence enhancement after gelation. (**C. Wang,** D. Q. Zhang*, J. F. Xiang, D. B. Zhu*) *Langmuir* **2007,** *23*, 9195–9200. **Cover page**. **Highlighted** by "Nature China" and "Noteworthy Chemistry".
13. A chiral low-molecular-weight gelator based on binaphthalene with two urea moieties: Modulation of the CD spectrum after gel formation (**C. Wang,** D. Q. Zhang*, D. B. Zhu*) *Langmuir* **2007,** *23*, 1478–1482.
14. Chiral molecular switches based on binaphthalene molecules with anthracene moieties: CD signal due to interchromophoric exciton coupling and modulation of the CD spectrum (**C. Wang,** L. Y. Zhu, J. F. Xiang, Y. X. Yu, D. Q. Zhang*, Z. G. Shuai, D. B. Zhu*) *J. Org. Chem.* **2007,** *72*, 4306–4312.

15. Thermal modulation of the monomer/excimer fluorescence for bispyrene molecules through the gel-solution transition of an organogel: A thermo-driven molecular fluorescence switch (**C. Wang,** Z. Wang, D. Q. Zhang*, D. B. Zhu*) *Chem. Phy. Lett.* **2006,** *428*, 130–133.
16. Cholesterol-substituted tetrathiafulvalene (TTF) compound: formation of organogel and supramolecular chirality (**C. Wang**, F. Sun, G. X. Zhang, D. Q. Zhang*, D. B. Zhu) *Chin. J. Chem.* **2010,** *28*, 622–626.

## Patent

A new method for preparation of Strontium Carbonate (P. F. Fang, **C. Wang**) Patent number: ZL 02138871.7

## Presentations

1. Tetrathiafulvalene radical cation dimerization (**C. Wang,** J. F. Stoddart) Invited Talk, Sino-German Syposium on Organic Photovoltaic Materials and Organic Solar Cells, UESTC, Chengdu, China, May 27-31, **2012**.
2. External responsive organic gels based on LMWGs featuring electroactive and photochromic moieties (**C. Wang**, D. Q. Zhang, G. X. Zhang, D. B. Zhu) Poster Presentation, *China-Japan Joint Symposium on the π-Conjugated Molecules toward Functional Materials*, Beijing, China, February 24, **2008**.
3. Design, synthesis and studies of an organogel based on electro-active TTF unit: Tuning the gel formation by charge-transfer interaction and oxidation (**C. Wang**, D. Q. Zhang, D. B. Zhu) Poster Presentation, *The 7$^{th}$ National Symposium of Organic Solids and Electronic Materials*, Suzhou, China, Octorber 15-21, **2006**.