

Dr. Jinyao Tang

402 Chong Yuet Ming Chemistry Bldg., the University of Hong Kong, Pokfulam, Hong Kong

Email: Jinyao@hku.hk Office: (+852) 2299 0369

Website: <https://tanglab.hku.hk/>

Education Background

University of California, Berkeley	Berkeley, CA
Postdoctoral Fellow	10/2008-10/2012
Department of Chemistry	
Columbia University, Graduate School of Arts and Sciences	New York, NY
Ph.D. in Chemistry	08/2008
Department of Chemistry	
University of Science and Technology of China	Anhui, China
B.S. in Chemical Physics	07/2003
Department of Chemical Physics	

Professional Background

The University of Hong Kong	Hong Kong Island, Hong Kong
<i>Assistant Professor in Department of Chemistry</i>	10/2012-03/2018
<i>Associate Professor in Department of Chemistry</i>	03/2018-Present

Selected Awards and Honors

1. *Early Career Award (2014), Research Grants Council of Hong Kong, HK*
2. *Outstanding Young Research Award 2016-2017, The University of Hong Kong, HK*
3. *RGC Research Fellow (2020), Research Grants Council of Hong Kong, HK*
4. *Croucher Senior Research Fellowship (2022), Croucher Foundation, Hong Kong, HK*
5. *Elected member of The Hong Kong Young Academy of Sciences (YASHK), 2023, HK*
6. *BOCHK Science and Technology Innovation Prize in New Materials and New Energy (2023)*

Selected Invited Lectures

- 1) Materials Challenges in Alternative and Renewable Energy 2017 (MCARE 2017)
Invited speaker: "Nanoengineering for Thermoelectric material."
- 2) 2017 International Conference on Micro/Nanomachines (ICMNM 2017)
Invited speaker: "Exploring Light Propelled Nano/Microswimmer"
- 3) The 10th international Conference on Advanced Materials and Devices (ICAMD 2017)
Invited speaker: "Light powered microswimmer-towards more controllable nanorobot."
- 4) The 92nd American Chemical Society (ACS) Colloid & Surface Science Symposium. (2018)
Keynote Speaker: "Light Powered Artificial Microswimmer: Towards Better Controllability And Biocompatibility"
- 5) Materials Beyond Symposium V Fudan University. (2019)

- Invited Speaker: “Towards Functional Nanorobots-From basic surface science to optical communication”
- 6) International conference on micro-/nanomachines (ICMNM 2019)
Invited Speaker: “Unorthodox Ion Tolerance of Electrophoretic Microswimmer”
 - 7) IEEE-NanoMed 2021
Invited speaker: Nanoswarm from exchange interaction for antimicrobial application
 - 8) ICAS 2021 (Shenzhen)
Invited speaker: Information propagations in nanorobot network and collective intelligence
 - 9) The International Youth Conference of Bionic Science and Engineering Conference 2021
Keynote Speaker: Nanorobot Controlled with Collective Intelligence
 - 10) MARSS International Conference on Manipulation, Automation and Robotics at Small Scales 2022
Invited speaker: Active Swarm nanobots from simple ion exchange reaction

SELECTED PUBLICATIONS

1. Y. Huang, C. Wu, J. Chen, J. Tang*, Colloidal Self-assembly: From Passive to Active System. *Angew. Chem., Int. Ed.* e202313885 (2023)
2. M. Li, Y. Cao, K. Xie*, J. Tang*, Molecular Engineering on Kinetics-Driven Self-Assembled Monolayers Working as Auxiliary Layers on Dielectrics in Organic Field-Effect Transistors. *Adv. Electron. Mater.* 2300712, (2023)
3. Y. Huang, C. Wu, J. Dai, B. Liu, X. Cheng, X. Li, Y. Cao; J. Chen, Z. Li, J. Tang*. Tunable Self-thermophoretic Nanomotor with Polymeric Coating, *J. Am. Chem. Soc.* 145, 36, 19945 (2023)
4. J. Liu, J. Chen, J. Dai, J. Tang*, Simple Electroosmotic Pump and Active Microfluidics with Asymmetrically Coated Microelectrodes, *Small Sci.* 2300026 (2023)
5. J. Zheng, J. Chen, Y. Jin, Y. Wen, Y. Mu, C. Wu, Y.F. Wang, P. Tong, Z. Li, X. Hou, J. Tang*. Photochromism from wavelength-selective colloidal phase segregation, *Nature*, 617, 499–506 (2023)
6. M. Li, J. Zheng, X. Wang, R. Yu, Y. Wang, Y. Qiu, X. Cheng, G. Wang, G. Chen, K. Xie, J. Tang, Light-responsive Self-Strained Organic Semiconductor for Large Flexible OFET Sensing Array. *Nature Commun.* 13, 4912 (2022)
7. C. Wu, J. Dai, X. Li, L. Gao, J. Wang, J. Liu, J. Zheng, X. Zhan, J. Chen, X. Cheng, M. Yang, J. Tang, Ion-Exchange Enabled Synthetic Swarm. *Nat. Nanotechnol.* 16, 288–295 (2021)
8. J. Wang, Z. Xiong, M. Liu, X. Li, J. Zheng, X. Zhan, W. Ding, J. Chen, X. Li, X. D. Li, S.P. Feng, J. Tang. Rational Design of Reversible Redox Shuttle for Highly Efficient Light-Driven Microswimmer. *ACS Nano* 14, 3, 3272-3280 (2020)
9. X. Zhan, J. Zheng, Y. Zhao, B. Zhu, R. Cheng, J. Wang, J. Liu, J. Tang, J. Tang. From Strong Dichroic Nanomotor to Polarotactic Microswimmer. *Adv. Mater.* 1903329 (2019)
10. J. Tang. Hofmeister interaction in the driver's seat. *Nat. Nanotechnol.* (News & Views) (2019)
11. J. Zheng, J. Wang, Z. Xiong, Z. Wan, X. Zhan, S. Yang, J. Chen, J. Dai, J. Tang. Full Spectrum Tenable Visible-Light-Driven Alloy Nanomotor. *Adv. Funct. Mater.* 1901768, (2019)
12. J. Wang, Z. Xiong, J. Zheng, X. Zhan, J. Tang, Light-Driven Micro/Nanomotor for Promising Biomedical Tools: Principle, Challenge, and Prospect. *Acc. Chem. Res.* 51, 1957-1965 (2018)
13. Z. Xiong, X. Wang, H. K. Lee, J. Zhan, Y. Chen, J. Tang, Thermal Transport in Supported Graphene Nanomesh. *ACS Appl. Mater. Interfaces* 10, 9211-9215 (2018)
14. C. Zhou, H. P. Zhang, J. Tang, W. Wang, Photochemically Powered AgCl Janus Micromotors as a Model System to Understand Ionic Self-Diffusiophoresis. *Langmuir*, 34, 3289-3295 (2018)
15. M. Wei, C. Zhou, J. Tang, W. Wang, Catalytic Micromotors Moving Near Polyelectrolyte-Modified Substrates: The Roles of Surface Charges, Morphology, and Released Ions *ACS Appl. Mater. Interfaces* 10, 2249 (2018)

16. J. Zheng, B. Dai, J. Wang, Z. Xiong, Y. Yang, J. Liu, X. Zhan, Z. Wan, J. Tang, Orthogonal Navigation of Multiple Visible-Light-Driven Artificial Microswimmers. **Nat. Commun.** 8, (1), 1438. (2017)
17. Z. C. Su, H. G. Ye, Z. Xiong, Q. Lou, Z. Zhang, F. Tang, J. Tang, J. Y. Dai, C. X. Shan, S. J. Xu, Understanding and manipulating luminescence in carbon nanodots. **Carbon**, 2018, 126, 58-64 (2018)
18. Z. Xiong, Y. Cai, X. Ren, B. Cao, J. Liu, Z. Huo, J. Tang, Solution-Processed CdS/Cu₂S Superlattice Nanowire with Enhanced Thermoelectric Property. **ACS Appl. Mater. Interfaces**, 9 (38), 32424 (2017) (2017)
19. Z. Xiong, J. Chen, J. Wang, Y. Cai, X. Liu, Z. Su, S. J. Xu, A. Khan, W. Li, J. Bian, G. Li, M. Huang, J. Tang. Electrochemical Half-Reaction Assisted Graphene Hybrid Phototransistor. **NPG Asia Mater**, Accepted (2017)
20. J. Wang, Z. Xiong, X. Zhan, B. Dai, J. Zheng, J. Liu, and J. Tang, Silicon Nanowire as Spectral Tunable Light-Driven Nanomotor. **Adv. Mater.** 29 (30), 1701451 (2017)
21. J. Bian, L. Xi, J. Li, Z. Xiong, C. Huang, K. M. Lange, J. Tang, M. Shalom, R.-Q. Zhang, C=C π Bond Modified Graphitic Carbon Nitride Films for Enhanced Photoelectrochemical Cell Performance. **Chem. Asian J.** 12, 1005 (2017)
22. B. Dai, J. Wang, Z. Xiong, X. Zhan, W. Dai, C. Li, S. Feng, and J. Tang, Programmable artificial phototactic microswimmer. **Nat. Nanotechnol.** 11, 1087–1092 (2016)
23. Y. Su, C. Liu, S. Brittman, J. Tang, A. Fu, N. Kornienko, Q. Kong, P. Yang, Single-Nanowire Photoelectrochemistry. **Nat. Nanotechnol.** 11, 609-612, (2016)
24. J. Lim, H. Wang, J. Tang, S. C. Andrews, J. Lee, D. Lee, T. P. Russell, P. Yang, Simultaneous Thermoelectric Property Measurement and Incoherent Phonon Transport in Holey Silicon. **ACS Nano**, 10 (1), 124-132, (2016)
25. C. Liu, J. Tang, H. Chen, B. Liu, P. Yang, A Fully Integrated Nanosystem of Semiconductor Nanowires for Direct Solar Water Splitting, **Nano Lett.**, 13 (6), 2989-2992.(2013)
26. Liu, C., Sun, J., Tang, J. & Yang, P. Zn-Doped p-Type Gallium Phosphide Nanowire Photocathodes from a Surfactant-Free Solution Synthesis. **Nano Lett.** 12, 5407-5411, (2012).
27. Tang, J., Huo, Z., Brittman, S., Gao, H. & Yang, P. Solution-processed core-shell nanowires for efficient photovoltaic cells. **Nat. Nanotechnol.** 6, 568-572, (2011).
28. Lin, F., Hoang, D. T., Tsung, C.-K., Huang, W., Lo, S. H.-Y., Wood, J. B., Wang, H., Tang, J. & Yang, P. Catalytic properties of Pt cluster-decorated CeO₂ nanostructures. **Nano Res.** 4, 61-71, (2011).
29. Cao, D., Pang, P., He, J., Luo, T., Park, J. H., Krstic, P., Nuckolls, C., Tang, J. & Lindsay, S. Electronic Sensitivity of Carbon Nanotubes to Internal Water Wetting. **ACS Nano** 5, 3113-3119, (2011).
30. Tang, J., Wang, H.-T., Lee, D. H., Fardy, M., Huo, Z., Russell, T. P. & Yang, P. Holey Silicon as an Efficient Thermoelectric Material. **Nano Lett.** 10, 4279-4283, (2010).
31. Liu, H., He, J., Tang, J., Liu, H., Pang, P., Cao, D., Krstic, P., Joseph, S., Lindsay, S. & Nuckolls, C. Translocation of Single-Stranded DNA Through Single-Walled Carbon Nanotubes. **Science** (Washington, DC, U. S.) 327, 64-67, (2010).
32. Tang, J., Wang, Y., Klare, J. E., Tulevski, G. S., Wind, S. J. & Nuckolls, C. Encoding molecular-wire formation within nanoscale sockets. **Angew. Chem., Int. Ed.** 46, 3892-3895, (2007).(Inside cover)
33. Xiao, S., Tang, J., Beetz, T., Guo, X., Tremblay, N., Siegrist, T., Zhu, Y., Steigerwald, M. & Nuckolls, C. Transferring Self-Assembled, Nanoscale Cables into Electrical Devices. **J. Am. Chem. Soc.** 128, 10700-10701, (2006).
34. Tang, J., De Poortere, E. P., Klare, J. E., Nuckolls, C. & Wind, S. J. Single-molecule transistor fabrication by self-aligned lithography and in situ molecular assembly. **Microelectron. Eng.** 83, 1706-1709, (2006).
35. Guo, X., Myers, M., Xiao, S., Lefenfeld, M., Steiner, R., Tulevski, G. S., Tang, J., Baumert, J., Leibfarth, F., Yardley, J. T., Steigerwald, M. L., Kim, P. & Nuckolls, C. Chemoresponsive monolayer transistors. **Proc. Natl. Acad. Sci. USA** 103, 11452-11456, (2006).

PATENTS

1. Methods for Fabricating Nanoscale Electrodes and Uses Thereof.
U.S. Pat. Appl. Publ. (2007), US 2007/0059645 A1.
2. Nanopore and Carbon Nanotube Based DNA Sequencer
PCT Int. Appl. (2009), WO/2009/117517, PCT/US2009/037563.
3. Formation of Nanoscale Carbon Nanotube Electrodes using a self-aligned Nanogap Mask
U.S. Pat. Appl. Publ. (2011), US 2011/0268884 A1.
4. Nanostructured Silicon with Useful Thermoelectric Properties
U.S. Pat. Appl. Publ. (2012) 20120282435 A1
5. NANOMOTOR PROPULSION
U.S. Prov. Pat. Appl. 62268352 (2015)
6. Graphene-Semiconductor Based Wavelength Selective Photodetector for Sub-Bandgap Photo Detection
U.S. Prov. Pat. Appl. 62/346,706 (2016)
7. Optically Responsive Full Color Shifting Colloidal Liquid
PCT/CN2022/097814