

PERSONAL INFORMATION

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PERSONAL PROFILE

My research activities are focused on the study of surface physicochemical phenomena by using supramolecular chemistry protocols for the growth of samples, and state-of-the-art high-resolution STM, tip-induced lateral manipulation and DFT calculations for characterization. In particular, I am interested in surface-confined coordination chemistry and on-surface molecular design by self-assembly or chemical reactions, two of the most emerging themes within the surface science.

So far, I have obtained many novel results, achieving high impact on my community. To name a few: 1) I have for the first time demonstrated two kinds of tautomers of guanine molecules on Au(111), and realized the controlled selection of certain tautomers. 2) Furthermore, I have demonstrated the constitutional dynamics of two metal-organic motifs on solid surfaces in a controlled manner. 3) In addition, by employing the STM manipulation technique, I have been able to distinguish different intermolecular interactions and further achieved the controllable scission and seamless stitching of metal-organic clusters. These pioneering results have been published in 20 papers including *Angew. Chem. Int. Ed.*, *JACS*, *ACS Nano*, *Chem. Commun.*, etc.

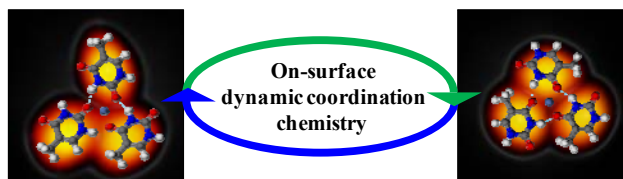
EDUCATION

2011.09-2015.03	Tongji University , Shanghai, China Ph.D. in Surface Physical Chemistry Advisor: Prof. Wei Xu
2008.09-2011.07	Nanchang University , Nanchang, China M.Sc. in Condensed Matter Physics Advisor: Prof. Li Wang
2004.09-2008.07	Nanchang University , Nanchang, China B.Sc., Physics

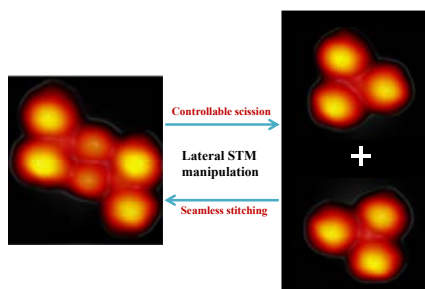
RESEARCH EXPERIENCE

- ◆ 2015.5-now **Herbert Gleiter Institute of Nanoscience**, Nanjing, China
(PostDoc with Prof. Harald Fuchs)
Mainly investigate the on-surface chemical reactions by using the low-temperature JT-SPM.
- ◆ 2011.9-2015.5 **Tongji University**, Shanghai, China
(Ph.D. with Prof. Wei Xu)
Mainly investigate the interaction between nucleobases and transition metals on metal surfaces by the combination of high-resolution STM imaging, in-situ STM manipulation and DFT calculations.

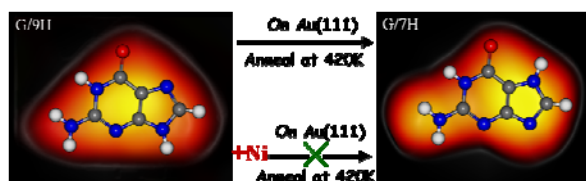
- [Constitutional dynamics of coordination motifs on a Au\(111\) surface.](#) (*Angew. Chem. Int. Ed.*, 55, 7157-7160, 2016). In this paper, we have for the first time realized the controllably continuous reversible conversion between two metal-organic motifs on solid surfaces and further achieved the control selection of different dynamers.



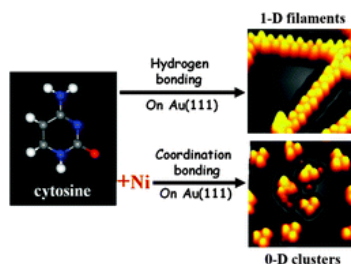
- [Controllable scission and seamless stitching of metal-organic clusters by STM manipulation](#) (*Angew. Chem. Int. Ed.*, 54, 6526-6530, 2015). By employing lateral STM manipulation, we have for the first time achieved the controllable scission of a complicated metal-organic cluster (on the left side) into its elementary structural motifs (on the right side), and reversibly, seamless stitching of the elementary ones back into the original one.



- [Atomic-scale investigation on the facilitation and inhibition of guanine tautomerization at Au\(111\) surface](#) (*ACS Nano*, 8, 1804-1808, 2014). In this paper, we have for the first time demonstrated two kinds of tautomers of guanine molecules in real space, and further achieved the controlled selection of certain tautomers by heating or introducing Ni atoms.



- [Ni-induced supramolecular structural transformation of cytosine on Au\(111\): from one-dimensional chains to zero-dimensional clusters](#) (*Chem. Commun.* 50, 3242-3244, 2014). In this paper, we have demonstrated the structural transformation of cytosine on Au(111) from one-dimensional chains to zero-dimensional clusters by introducing Ni atoms. More interestingly, by employing DFT calculations, we surprisingly find that there exist three Ni atoms in the center of the zero-dimensional clusters consist of three Ni atoms. The fabrication of complex metal-organic coordination nanostructures with different metal numbers in the center is a promising prospect since the metal centers play key roles on the physicochemical properties of the metal-organic coordination nanostructures.



◆ 2008.9-2011.6

Nanchang University, Nanchang, China

(M.Sc. with Prof. Li Wang)

Mainly investigated the self-assembly of rubrene molecules on the Au(111) surface by using room-temperature STM.

TEACHING EXPERIENCE

- 2016 guiding a undergraduate for his Bachelor thesis
- 2016 supervising a graduate student for surface science study

AWARDS AND HONORS

- 2015 Outstanding dissertation for Ph. D. degree in Tongji University, Shanghai, China
- 2015 Outstanding graduates in Shanghai, Tongji University, Shanghai, China
- 2013 National Scholarship, Tongji University, Shanghai, China
- 2008 Outstanding graduates in Nanchang University, Nanchang University, Nanchang, China

PUBLICATIONS

1. Controlled competitive on-surface reaction schemes.
H. Kong, S. Yang, X. Huang, H. Gao, Q Tang, Q. Ji, W Liu, H. Fuchs. In preparation.
2. [Constitutional dynamics of coordination motifs on a Au\(111\) surface](#)
H. Kong, C. Zhang, L. Xie, L. Wang and W. Xu, *Angew. Chem. Int. Ed.* 55, 7157-7160, 2016. (IF=11.7)
3. [Controllable scission and seamless stitching of metal-organic clusters by STM manipulation](#)
H. Kong, L. Wang, Q. Sun, C. Zhang, Q. Tan, W. Xu, *Angew. Chem. Int. Ed.* 54, 6526-6530, 2015. (IF=11.7)
4. [Atomic-scale investigation on the facilitation and inhibition of guanine tautomerization at Au\(111\) surface](#)
H. Kong, Q. Sun, L. Wang, Q. Tan, C. Zhang, K. Sheng, W. Xu, *ACS Nano* 8, 1804-1808, 2014. (IF=13.3)
5. [Ni-induced supramolecular structural transformation of cytosine on Au\(111\): from one-dimensional chains to zero-dimensional clusters](#)
H. Kong, L. Wang, Q. Tan, C. Zhang, Q. Sun, W. Xu, *Chem. Commun.* 50, 3242-3244, 2014. (IF=6.5)
6. [Identification of molecular-adsorption geometries and intermolecular hydrogen-bonding configurations by in situ STM manipulation](#)
W. Xu, **H. Kong**, C. Zhang, Q. Sun, H. Gersen, L. Dong, Q. Tan, E. Laegsgaard, F. Besenbacher, *Angew. Chem. Int. Ed.* 52, 7442-7445, 2013 (IF=11.7)
7. [Formation of a G-quartet-Fe complex and modulation of electronic and magnetic properties of the Fe center](#)

- L. Wang, **H. Kong**, C. Zhang, Q. Sun, L. Cai, Q. Tan, F. Besenbacher, W. Xu, *ACS Nano* 8, 11799-11805, 2014 (IF=13.3)
8. [Atomic-scale probing the priority of oxidation sites of an organic molecule adsorbed at the CuO/Cu\(110\) interface](#)
K. Sheng, **H. Kong**, Z. Li, C. Zhang, Q. Sun, Q. Tan, Y. Pan, A. Hu, W. Xu, *ChemCatChem* 5, 2662-2666, 2013 (IF=4.7)
 9. [On-surface aryl-aryl coupling via selective C-H activation](#)
Q. Sun, C. Zhang, **H. Kong**, Q. Tan, W. Xu, *Chem. Commun.* 50, 11825-11828, 2014 (IF=6.5)
 10. [On-surface synthesis of organometallic complexes via metal-alkene interaction](#)
C. Zhang, Q. Sun, **H. Kong**, L. Wang, Q. Tan, W. Xu, *Chem. Commun.* 50, 15924-15927, 2014 (IF=6.5)
 11. [Atomic-scale insight into tautomeric recognition, separation and interconversion of guanine molecular networks on Au\(111\)](#)
C. Zhang, L. Xie, L. Wang, **H. Kong**, Q. Tan, W. Xu, *J. Am. Chem. Soc.* 137, 11795-11800, 2015 (IF=13.0)
 12. [On-surface formation of one-dimensional polyphenylene through Bergman cyclization](#)
Q. Sun, C. Zhang, Z. Li, **H. Kong**, Q. Tan, A. Hu, W. Xu, *J. Am. Chem. Soc.* 135, 8448-8451, 2013 (IF=13.0)
 13. [Solventless formation of G-quartet complexes based on alkali and alkaline earth salts on Au\(111\)](#)
C. Zhang, L. Wang, L. Xie, **H. Kong**, Q. Tan, L. Cai, Q. Sun, W. Xu, *ChemPhysChem* 16, 2099-2105, 2015 (IF=3.1)
 14. [Atomic-scale structures and interactions between guanine quartet and potassium](#)
W. Xu, Q. Tan, M. Yu, Q. Sun, **H. Kong**, E. Lægsgaard, I. Stensgaard, J. Kjems, J. Wang, C. Wang, F. Besenbacher, *Chem. Commun.* 49, 7210-7212, 2013 (IF=6.5)
 15. [A molecular conformational change induced self-assembly: from randomness to order](#)
W. Xu, C. Zhang, H. Gersen, Q. Sun, **H. Kong**, L. Dong, K. Sheng, Q. Tan, E. Lægsgaard, F. Besenbacher, *Chem. Commun.* 49, 5207-5209, 2013 (IF=6.5)
 16. [A self-assembled molecular nanostructure for trapping the native adatoms on Cu\(110\)](#)
L. Dong, Q. Sun, C. Zhang, Z. Li, K. Sheng, **H. Kong**, Q. Tan, Y. Pan, A. Hu, W. Xu, *Chem. Commun.* 49, 1735-1737, 2013 (IF=6.5)
 17. [Controlling on-surface molecular diffusion behaviors by functionalizing the organic molecules with tert-butyl groups](#)
Q. Sun, C. Zhang, Z. Li, K. Sheng, **H. Kong**, L. Wang, Y. Pan, Q. Tan, A. Hu, W. Xu, *Appl. Phys. Lett.* 103, 013103, 2013 (IF=3.1)
 18. [Conformation-induced self-assembly of rubrene on Au\(111\) surface](#)
L. Wang, **H. Kong**, X. Chen, X. Du, F. Chen, X. Liu, H. Wang, *Appl. Phys. Lett.* 95, 093102, 2008 (IF=3.1)
 19. [Chiral supramolecular self-assembly of rubrene](#)
L. Wang, **H. Kong**, X. Song, X. Liu, H. Wang, *Phys. Chem. Chem. Phys.* 12, 14682, 2010 (IF=4.4)
 20. [Ultrathin monolayer of rubrene on Au\(111\) induced by charge transfer](#)
X. Liu, **H. Kong**, X. Song, L. Liu, L. Wang, *Surf. Interface Anal.* 43, 1494, 2011 (IF=1.0)
 21. [Large-area self-assembly of rubrene on au\(111\) surface](#)
X. Liu, **H. Kong**, X. Chen, X. Du, F. Chen, N. Liu, L. Wang, *Chin. Phys. Lett.* 27, 056804, 2010 (IF=0.8)