

## GANG CHEN, Ph.D.

Assistant Professor  
Department of Chemistry  
University of Central Florida  
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### RESEARCH EXPERIENCE

**University of Central Florida**, Orlando, FL

*Assistant Professor*, Department of Chemistry

2016-present

- Synthesis of complex metallic nanostructures with unique optical, mechanical and electrical properties
- Precisely control the distribution of functional molecules on nanoparticles
- Self-assembly of nanoparticles guided by the DNA nanostructures
- Application of nanotechnology in functional materials

**The University of Chicago**, Chicago, IL

*Research Professional*, Department of Chemistry

2014-2016

Advisor: Prof. Yossi Weizmann

- Built NanoLEGO from Colloidal Nanoparticles through Polymer Protection and DNA Modification Strategy
- Addressed the synthetic problem of metal nanocrystals with unique shape and functionality
- Mentor of graduate students in research and preparation of scientific papers
- Assisted teaching Biological Chemistry of Materials course (CHEM 33600/01)

*Postdoctoral Scholar*, Department of Chemistry

2011-2014

Advisor: Prof. Yossi Weizmann

- Solved the scalable production of DNA Origami as delivery vehicle in nanomedicine
- Established DNA-junction-based strategy to expand the spectrum of molecular topologies
- Mentor of undergraduate students in summer research

**Nanyang Technology University**, Singapore

*Research Fellow*, Division of Chemical and Biochemical Chemistry

2008-2011

Advisor: Prof. Hongyu Chen

- Explored the mechanism of 1D nanoparticles array formation
- Developed purification method to sort the nanoparticle clusters
- Investigated the collective behavior of SERS hotspots
- Trained undergraduate and graduate students in basic laboratory techniques and analytical instrumentation

**Lanzhou Institute of Chemical Physics, CAS**, Lanzhou, China

*Graduate Research Assistant*

2002-2008

Advisor: Prof. Shengrong Yang and Prof. Junyan Zhang

- Synthesized carbon-based nanocomposite films and their applications

### EDUCATION

**Lanzhou Institute of Chemical Physics, CAS**, Lanzhou, China

Ph.D. in Physical Chemistry,

March 2008

**Zhengzhou University**, Zhengzhou, China

B.S. in Chemistry

June 2002

### **HONORS/ACCOLADES/AWARDS**

|                                                                 |           |
|-----------------------------------------------------------------|-----------|
| UCF Preeminent Postdoctoral Program Award                       | 2017      |
| UCF ORC Research Mentoring Program Award                        | 2017      |
| Best Poster Award at AAAS Annual Meeting                        | 2014      |
| Best Poster Award at ICMAT                                      | 2011      |
| Excellent-student Title, Chinese Academy of Sciences            | 2006      |
| Outstanding Graduate Student Award, Chinese Academy of Sciences | 2006      |
| Graduate Student Scholarship, Chinese Academy of Sciences       | 2002-2007 |

### **PROFESSIONAL SERVICES**

Guest Editor of the special issue "Nanocrystals: Synthesis, Characterization and Applications" in the journal *Molecules*

Associate Editor of the *International Journal of Biosensors & Bioelectronics* 2016-

Assistant organization of the symposium K in 6<sup>th</sup> ICMAT

Volunteer for 2015 Midstates Research Symposium in University of Chicago

Referee for professional journals (*Nanoscale*, *Journal of Physical Chemistry Letters*, etc.)

### **PRESENTATIONS AND POSTERS**

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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| The 254th ACS National Meeting & Exposition Conference, Washington, DC<br>"Site-specific Surface Encoding for Programmable Self-assembly of Colloidal Nanoparticles"                         | 2017 |
| The 93rd Florida Annual Meeting and Exposition (FAME) Conference, Tampa, FL<br>"On the Role of Core-Shell Synergy in Nanotechnology"                                                         | 2017 |
| University of Central Florida, Department of Chemistry, Orlando, FL<br>"On the Role of Core-Shell Synergy in Nanotechnology"                                                                 | 2016 |
| AAAS Annual Meeting, Chicago, IL<br>"Programmable Assembly of Colloidal NPs with Specific Bonding Directionality"                                                                            | 2014 |
| Foundations of Nanoscience 14, Snowbird, UT<br>"Programmable Assembly of Colloidal Nanoparticles with Specific Bonding Directionality"                                                       | 2014 |
| 6 <sup>th</sup> International Conference on Materials for Advanced Technologies, Singapore<br>"Engineering Functional Nanocomposites By Controlled Self-assembly of Colloidal Nanoparticles" | 2011 |
| 3 <sup>rd</sup> IEEE International Nanoelectronic Conference, Hong Kong, China<br>"High Purity Separation of Nanoparticle Dimers and Trimers for SERS Hot Spots"                             | 2010 |
| 5 <sup>th</sup> International Conference on Materials for Advanced Technologies, Singapore<br>"High Purity Separation of Au Nanoparticle Dimers and Trimers"                                 | 2009 |
| 6 <sup>th</sup> National Conference on Surface Engineering, Lanzhou, China<br>"Synthesis of diamond-like carbon/nano-silica composite films by an electrochemical method"                    | 2006 |

### **PUBLICATIONS**

1. Site-Specific Functionalization of Nanoparticles for Programmable Self-Assembly, **Chen, G.**; Liu, D.; Rees, H. C.; Weizmann, Y., *under revision*.
2. Synthesizing Topological Structures Containing RNA, Liu, D.; Shao, Y. M.; **Chen, G.**; Tse-Dinh, Y. C.; Piccirilli, J. A.; Weizmann, Y., *Nat. Commun.* **2017**, 8, 14936.
3. Creating Complex Molecular Topologies by Configuring DNA Four-Way Junctions, Liu, D.; **Chen, G.**; Akhter U.; Cronin, T. M.; Weizmann, Y., *Nat. Chem.* **2016**, 8, 907-914. **Front Cover**.
4. Bipyramid-Templated Synthesis of Monodisperse Anisotropic Gold Nanocrystals, Lee, J.-H.; Gibson, K. J.; **Chen, G.**; Weizmann, Y., *Nat. Commun.* **2015**, 6, 7571.
5. Enzymatic Synthesis of Periodic DNA Nanoribbons for Intracellular pH Sensing and Gene Silencing, **Chen, G.**; Liu, D.; He, C. B.; Gannett, T. R.; Lin, W. B.; Weizmann, Y., *J. Am. Chem. Soc.* **2015**, 137 (11), 3844-3851. **Spotlights and Front Cover**.
6. Chiral Transformation: from Single Nanowire to Double Helix, Wang, Y.; Wang, Q. X.; Sun, H.; Zhang, W.Q.; **Chen, G.**; Wang, Y. W.; Shen, X. S.; Han, Y.; Lu, X. M.; Chen, H. Y., *J. Am. Chem. Soc.* **2011**, 133 (50), 20060-20063.
7. Toroidal Micelles of Polystyrene-block-Poly(acrylic acid), Liu, C.; **Chen, G.**; Sun, H.; Xu, J.; Feng, Y. H.; Zhang, Z.; Wu, T.; Chen, H. Y., *Small* **2011**, 7 (19), 2721-2726.
8. Measuring Ensemble-Averaged Surface-Enhanced Raman Scattering in the Hotspots of Colloidal Nanoparticle Dimers and Trimers, **Chen, G.**; Wang, Y.; Yang, M. X.; Xu, J.; Goh, S. J.; Pan, M.; Chen, H. Y., *J. Am. Chem. Soc.* **2010**, 132 (11), 3644-3645.
9. A Systems Approach towards the Stoichiometry-Controlled Hetero-Assembly of Nanoparticles, Wang, Y.; **Chen, G.**; Yang, M. X.; Silber, G.; Xing, S. X.; Tan, L. H.; Wang, F.; Feng, Y. H.; Liu, X. G.; Li, S. Z.; Chen, H. Y., *Nat. Commun.* **2010**, 1, 87.
10. Scalable Routes to Janus Au-SiO<sub>2</sub> and Ternary Ag-Au-SiO<sub>2</sub> Nanoparticles, Chen, T.; **Chen, G.**; Xing, S. X.; Wu, T.; Chen, H. Y., *Chem. Mater.* **2010**, 22 (13), 3826-3828.
11. Mechanistic Investigation into the Spontaneous Linear Assembly of Gold Nanospheres, Yang, M. X.; **Chen, G.**; Zhao, Y. F.; Silber, G.; Wang, Y.; Xing, S. X.; Han, Y.; Chen, H. Y., *PCCP* **2010**, 12 (38), 11850-11860.
12. Hotspot-Induced Transformation of Surface-Enhanced Raman Scattering Fingerprints, Chen, T.; Wang, H.; **Chen, G.**; Wang, Y.; Feng, Y. H.; Teo, W. S.; Wu, T.; Chen, H. Y., *ACS Nano* **2010**, 4 (6), 3087-3094.
13. High-Purity Separation of Gold Nanoparticle Dimers and Trimers, **Chen, G.**; Wang, Y.; Tan, L. H.; Yang, M. X.; Tan, L. S.; Chen, Y.; Chen, H. Y., *J. Am. Chem. Soc.* **2009**, 131 (12), 4218-4219.
14. Fabrication of Polymer Nanocavities with Tailored Openings, Tan, L. H.; Xing, S. X.; Chen, T.; **Chen, G.**; Huang, X.; Zhang, H.; Chen, H. Y., *ACS Nano* **2009**, 3 (11), 3469-3474.
15. Fabrication of Hydrophobic Fluorinated Amorphous Carbon Thin Films by an Electrochemical Route, **Chen, G.**; Zhang, J. Y.; Yang, S. R., *Electrochem. Commun.* **2008**, 10 (1), 7-11.
16. Synthesis of C-60 Nanoparticle Doped Hard Carbon Film by Electrodeposition, Hu, H. Y.; **Chen, G.**; Zhang, J. Y., *Carbon* **2008**, 46 (7), 1095-1097.
17. Facile Synthesis of CNTs-Doped Diamond-Like Carbon Film by Electrodeposition, Hu, H. Y.; **Chen, G.**; Zha, J. Y., *Surf. Coat. Technol.* **2008**, 202 (24), 5943-5946.

18. Synthesis and Characterization of High Voltage Electrodeposited Phosphorus Doped DLC Films, Wan, S. H.; Hu, H. Y.; **Chen, G.**; Zhang, J. Y., *Electrochem. Commun.* **2008**, 10 (3), 461-465.
19. A novel method for the synthesis of Au nanoparticles incorporated amorphous hydrogenated carbon films, **Chen, G.**; Zhang, J. Y.; Yang, S. R., *Electrochem. Commun.* **2007**, 9 (5), 1053-1056.
20. Synthesis of silicon carbide nitride nanocomposite films by a simple electrochemical method, Yan, X. B.; Tay, B. K.; **Chen, G.**; Yang, S. R., *Electrochem. Commun.* **2006**, 8 (5), 737-740.
21. Preparation and characterization of amorphous hydrogenated carbon films containing Au nanoparticles from heat-treatment of polymer precursors, Yan, X. B.; Xu, T.; **Chen, G.**; Wang, X. B.; Liu, H. W.; Yang, S. R., *Appl. Phys. A* **2005**, 81 (1), 197-203.
22. Field-emission properties of diamond-like-carbon and nitrogen-doped diamond-like-carbon films prepared by electrochemical deposition, Yan, X.; Xu, T.; **Chen, G.**; Xu, S.; Yang, S., *Appl. Phys. A* **2005**, 81 (1), 41-46.
23. Polymer-assisted synthesis of aligned amorphous silicon nanowires and their core/shell structures with Au nanoparticles, Yan, X. B.; Xu, T.; Xu, S.; **Chen, G.**; Xue, Q. J.; Yang, S. R., *Chem. Phys. Lett.* **2004**, 397 (1-3), 128-132.
24. Fabrication of carbon spheres on a-C : H films by heat-treatment of a polymer precursor, Yan, X. B.; Xu, T.; Xu, S.; **Chen, G.**; Liu, H. W.; Yang, S. R., *Carbon* **2004**, 42 (12-13), 2769-2771.
25. Fabrication of oriented FePt nanoparticles embedded in a carbon film made by pyrolysis of poly(phenylcarbyne), Yan, X. B.; Xu, T.; Xu, S.; **Chen, G.**; Liu, H. W.; Yang, S. R., *Carbon* **2004**, 42 (14), 3021-3024.
26. Preparation and characterization of electrochemically deposited carbon nitride films on silicon substrate, Yan, X. B.; Xu, T.; **Chen, G.**; Yang, S. R.; Liu, H. W.; Xue, Q. J., *J. Phys. D: Appl. Phys.* **2004**, 37 (6), 907-913.
27. Study of structure, tribological properties and growth mechanism of DLC and nitrogen-doped DLC films deposited by electrochemical technique, Yan, X. B.; Xu, T.; **Chen, G.**; Yang, S. R.; Liu, H. W., *Appl. Surf. Sci.* **2004**, 236 (1-4), 328-335.
28. Synthesis of diamond-like carbon/nano silica composite films by an electrochemical method, Yan, X. B.; Xu, T.; **Chen, G.**; Xue, Q. J.; Yang, S. R., *Electrochem. Commun.* **2004**, 6 (11), 1159-1162.
29. Effect of deposition voltage on the microstructure of electrochemically deposited hydrogenated amorphous carbon films, Yan, X. B.; Xu, T.; **Chen, G.**; Liu, H. W.; Yang, S. R., *Carbon* **2004**, 42 (15), 3103-3108.