

ZHONGYING WANG

Civil and Environmental Engineering
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Berkeley
UNIVERSITY OF CALIFORNIA

Civil & Environmental Engineering

Education

Brown University

Ph.D. in Department of Chemistry

Sc. M. in School of Engineering

Providence, RI

09/2015

05/2015

Tsinghua University

Bachelor of Science in Chemistry

Beijing, China

06/2010

Research Experience

Membrane Innovation (MI) Lab, University of California, Berkeley, California

Postdoctoral Researcher (Advisor: Baoxia Mi)

09/2016 – present

- Membrane innovation using novel two dimensional nanomaterials for water purification and desalination.
- Development of Nanotechnology-enabled applications in water treatment fields.

Laboratory for Environmental and Health Nanoscience, Brown University, Providence, RI

Research Associate (Advisor: Robert H. Hurt)

10/2015 -08/2016

- Biological and environmental transformations of novel 2D nanomaterials
Explored the biological and environmental interactions of emerging two-dimensional nanomaterials beyond graphene and developed a hierarchical test strategy for managing the variety and complexity of this material class.

Graduate Research Assistant (Advisor: Robert H. Hurt)

09/2010 -09/2015

- Focused on biological and environmental interactions of nanomaterials. Specific topics include:
- Biological and environmental transformation of Ag- or Cu-based nanomaterials
Investigated the chemical transformation of nanomaterials in biological and environmental media including redox, dissolution, sulfidation, catalytic and free-radical generation reactions.
Evaluated and managed potential risks of nanomaterials to human health and the environment.
- Crumpled graphene sacks as nanoreactor
Developed ways to align, stack, wrap, fold, crumple, or gel graphene sheets into novel 3D carbon-based architecture to achieve applications in catalysis and environmental remediation.
- Wavelength tunable wrinkled graphene in biomedical applications
Designed biocompatible graphene based textured surfaces with periodic topographical features and long-range order for directing cell-material interactions.

Inorganic Nanomaterial Lab, Tsinghua University, Beijing, China

Undergraduate researcher (Advisor: Yadong Li)

06/2007 – 07/2010

- Prepared Fe₃O₄ and LiFeO₂ nanostructures for lithium ion batteries, and synthesized rare-earth oxide nanoparticles.

- Employed CV as a quantitative method to analyze metallacrown host-guest interactions.

Peer Reviewed Papers (google scholar citation: 523)

First-author publications:

1. **Wang Z**, von dem Bussche A, Kabadi PK, Kane AB, Hurt RH, Biological and Environmental Transformations of Copper-based Nanomaterials, *ACS Nano*, 7 (10), 8715-8727, **2013** (IF:13.3)
2. **Wang Z**, Lv X, Chen Y, Liu D, Xu X, Palmore GTR, Hurt RH, Crumpled Graphene Nanoreactors, *Nanoscale*, 7 (22), 10267-10278, **2015** (IF: 7.8)
3. **Wang Z**, Tonderys D, Leggett SE, Williams EK, Kiani MT, Steinberg RS, Qiu Y, Wong IY, Hurt RH, Wrinkled, Wavelength-Tunable Graphene-based Surface Topographies for Directing Cell Alignment and Morphology, *Carbon*, 97, 14-24, **2016** (IF: 6.2)
4. **Wang Z**, Zhu W, Qiu Y, Yi X, von dem Bussche A, Kane AB, Gao H, Koski K, Hurt RH, Biological and Environmental Transformations of Novel 2D Nanomaterials, *Chemical Society Reviews*, 45, 1750-1780, **2016** (IF: 34.1)
5. **Wang Z**, von dem Bussche A, Qiu Y, Valentin T, Kyle G, Kane AB, Hurt RH, Chemical Dissolution Pathways of MoS₂ Nanosheets in Biological and Environmental Media, *Environmental Science & Technology*, 50(13), 7208-7217, **2016** (IF: 6.2)
6. **Wang Z**, Zhang Y, Liu M, Peterson A, and Hurt RH, Oxidation Suppression During Hydrothermal Phase Reversion Allows Synthesis of Monolayer Semiconducting MoS₂ in Stable Aqueous Suspension, *Nanoscale*, 9(17), 5398-5403, **2017** (IF: 7.8)
7. **Wang Z**, Mi B, Environmental Applications of 2D Molybdenum Disulfide (MoS₂) Nanosheets, *Environmental Science & Technology*, 51(15), 8229-8244, **2017** (IF: 6.2)
8. **Wang Z**, Tu Q, Zheng S, Urban JJ, Li S and Mi B, Understanding Aqueous Stability and Filtration Capability of MoS₂ Membranes, *Nano Letters*, 17(11), 7289-7298, **2017** (IF: 12.7)
9. **Wang Z**, Sim A, Urban JJ and Mi B, Understanding the Mechanism in Removal of Heavy Metal Ions by Two-dimensional MoS₂ Nanosheets, *Environmental Science & Technology*, 52(17), 9741-9748, **2018** (IF: 6.2)

Co-author publications:

10. Wang D, **Wang Z**, Zhao P, Zheng W, Peng Q, Liu L, Chen X, Li Y. Rare-Earth Oxide Nanostructures: Rules of Rare-Earth Nitrate Thermolysis in ODA, *Chemistry, an Asian Journal*, 5 (4), 925, **2010** (IF:4.6)
11. Wang D, Ma X, Wang Y, Wang L, **Wang Z**, Zheng W, He X, Li J, Peng Q, Li Y, Shape Control of CoO and LiCoO₂ Nanocrystals, *Nano Research*, 3 (1), 1-7, **2010** (IF:8.9)
12. Liu J, **Wang Z**, Liu FD, Kane AB, Hurt RH. Chemical Transformations of Nanosilver in Biological Environments, *ACS Nano*, 6 (11), 9887-9899, **2012** (IF:13.3)
13. Lu J, Peng Q, **Wang Z**, Nan C, Li L, Li Y. Hematite Nanodiscs Exposing (001) Facets: Synthesis, Formation Mechanism and Application for Li-Ion Batteries, *Journal of Materials Chemistry A*, 1 (17), 5232-5237, **2013** (IF:8.3)
14. Qiu Y, **Wang Z**, Owens ACE, Kulaots I, Chen Y, Kane AB, Hurt RH, Antioxidant Chemistry of Graphene-based Materials and Its Role in Oxidation Protection Technology, *Nanoscale*, 6 (20), 11744-11755, **2014** (IF:7.8)
15. Chen Y, **Wang Z**, Qiu Y. Aerosol Synthesis and Application of Folded Graphene-based Materials, *International Journal of Modern Physics B*, 29 (03), 1530003, **2015**
16. Chen P, Sodhi J, Qiu Y, Valentin T, Steinberg R, **Wang Z**, Hurt RH, Wong IY. Multiscale Graphene Topographies

- Programmed by Sequential Mechanical Deformation, *Advanced Materials*, 28(18), 3564-3571, **2016** (IF: 19)
17. Zhu W, von dem Bussche A, Yi X, Qiu Y, **Wang Z**, Weston P, Hurt RH, Kane AB, Gao H. Nanomechanical Mechanism For Lipid Bilayer Damage Induced By Carbon Nanotubes Confined In Intracellular Vesicles, *Proceedings of the National Academy of Sciences*, 113(44), 12374-12379, **2016** (IF: 9.4)
 18. Lv X, Qiu Y, **Wang Z**, Jiang G, Chen Y Xu X., Hurt RH. Aerosol Synthesis of Phase-Controlled Iron-Graphene Nanohybrids through FeOOH Nanorod Intermediates. *Environmental Science: Nano*, 3(5), 1215-1221, **2016** (IF: 5.9)
 19. Chen P, Liu M, Valentin TM, **Wang Z**, Spitz Steinberg R, Sodhi J, Wong IY, Hurt RH. Hierarchical Metal Oxide Topographies Replicated from Highly Textured Graphene Oxide by Intercalation Templating, *ACS Nano*, 10 (12), 10869-10879, **2016** (IF: 13.3)
 20. Chen P, Liu M, **Wang Z**, Hurt RH, and Wong IY. Flatland to Spaceland: Higher Dimensional Patterning with Two-Dimensional Materials, *Advanced Materials*, 29, 1605096, **2017** (IF: 19)
 21. Jin L, **Wang Z**, Zheng S, Mi B, Polyamide-crosslinked Graphene Oxide Membrane for Forward Osmosis, *Journal of Membrane Science*, 545, 11-18, **2018** (IF: 5.6)
 22. Song Z, Qiu F, Zaia EW, **Wang Z**, Kunz M, Guo J, Brady MA, Mi B, Urban JJ. Dual-Channel, Molecular-Sieving Core/shell ZIF@ MOF Architectures as Engineered Fillers in Hybrid Membranes for Highly Selective CO₂ Separation, *Nano Letters*, 17 (11), 6752-6758, **2017** (IF: 12.7)
 23. Li, N., Huang, Q., Nie, J., Meng, X., **Wang, Z.**, *et al* and Lin, L. Dew point measurements using montmorillonite (MTT) and molybdenum disulfide (MoS₂) coated QCM sensors. *Sensors and Actuators B: Chemical*, 279, 122-129, **2019**

Conference Presentations

1. **Wang Z**, *et al.* Superfund Research Program (SRP) Annual Meeting, Raleigh, North Carolina, October, **2012**.
2. **Wang Z**, *et al.* ASME 2013 2nd Global Congress on NanoEngineering for Medicine and Biology, Boston, MA, February **2013**. (Oral)
3. **Wang Z**, *et al.* 245th ACS National Meeting, New Orleans, LA, April, **2013**. (Oral)
4. **Wang Z**, *et al.* MRS Spring Meeting & Exhibit, San Francisco, CA, April, **2013**. (Oral)
5. **Wang Z**, *et al.* Gordon Research: Environmental Nanotechnology, Stowe, VT, June, **2013**.
6. **Wang Z**, *et al.* SRP Annual Meeting, Baton Rouge, LA, October, **2013**.
7. **Wang Z**, *et al.* 2nd Sustainable Nanotechnology Organization (SNO) Conference, Santa Barbara, CA, November, **2013**. (Oral)
8. **Wang Z**, *et al.* Carbon: Innovation with Carbon Materials, Dresden, Germany, July, **2015**.
9. **Wang Z**, *et al.* SETAC North America 36th Annual Meeting, Salt Lake City, UT, Nov **2015**. (Oral)
10. **Wang Z**, *et al.* SRP Annual Meeting, San Juan, Puerto Rico, Nov, **2015**. (Oral)
11. **Wang Z**, *et al.* 253th ACS National Meeting, San Francisco, CA, April, **2017**. (Oral)
12. **Wang Z**, *et al.* 11th International Congress on Membranes and Membrane Processes, San Francisco, CA, July, **2017**. (Oral)

Reviewer for Scholarly Journals (~ 60 reviews)

1. *Carbon* (IF: 6.2)
2. *Desalination* (IF: 5.5)
3. *Nano Research* (IF: 8.9)
4. *Nanotoxicology* (IF: 7.9)
5. *Water Research* (IF: 5.3)

6. *Environmental science: nano* (IF: 5.9)
7. *Journal of Hazardous Materials* (IF: 4.8)
8. *Environmental Science & Technology* (IF: 6.2)
9. *Colloids and Surfaces B: Biointerfaces* (IF: 4.2)

Awards & Honors

- Student Poster Award. *11th International Congress on Membranes and Membrane Processes*, 2017.
- Outstanding Paper Award. *ASME 2013 2nd Global Congress on NanoEngineering for Medicine and Biology*, 2013.
- The First-Class Scholarship of Tsinghua, 2009
- Tsinghua-SAMSUNG Scholarship, 2008

References

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