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Formal Education

B. S.	1997	Chemical Engineering, Tsinghua University, P.R. China
M. S.	2000	Chemical Engineering, Tsinghua University, P. R. China
Ph.D.	2006	Chemical Engineering, Tulane University, USA

Academic Experience

2014-present	Associate Professor, Mechanical and Nuclear Engineering Department, The Pennsylvania State University
2009-2014	Assistant Professor, Mechanical and Nuclear Engineering Department, The Pennsylvania State University
2008-2009	Scientist, Pacific Northwest National Laboratory
2006-2008	Post-Doctoral Researcher, Pacific Northwest National Laboratory
2005	Visiting Student, Advanced Materials Laboratory, University of New Mexico/Sandia National Laboratory (Katrina evacuation)

Honors and Recognition

Outstanding Research Award, Penn State Engineering Alumni Association, 2013
DTRA Young Investigator Grant Award, 2010
MRS Graduate Student Gold Award, Materials Research Society, Fall, 2004
First Place Presenter Award, Eastern Regional Chemical Engineering Graduate Student Symposium, 2005
Student Award, the American Institute of Chemist, 2004
Graduate Student Achievement Award, School of Engineering, Tulane University, 2004
Graduate School Dissertation Year Fellowship, Tulane University, 2003-2004

Research Interests

Investigate a variety of nanomaterials for clean energy technologies such as batteries, solar cells, fuel cells, and environmental remediation. The experimental research includes nanomaterial synthesis, characterization and device fabrication and evaluation in devices such as batteries, solar cells, fuel cells and reactors for clean energy application. We aim to develop new materials to improve performance of the clean energy techniques and guide development of advanced energy techniques.

Research and Scholarly Publications

Invited Book Chapters

1. Sohn, H.**, Gordin, M. L.*, Wang, D. H. Hierarchical Porous Carbon Nanocomposite for Electrochemical Energy Storage. In *Advanced Hierarchical Nanostructured*

Materials, Wiley-VCH Verlag GmbH & Co., 2013. (*/**Author supervised by candidate.)

2. Zhu, K.; Wang, D. H.; Liu, J. Self-assembled Materials for Catalysis. In *Design of Heterogeneous Catalysts: New Approaches based on Synthesis, Characterization and Modeling*, WILEY-VCH Verlag GmbH & Co., 2009.
3. Wang, D. H.; Gil, M. P.; Lu, G.; Lu, Y. Nanostructured Systems from Low-dimensional Building Blocks. In *Nanofabrication towards Biomedical Applications*, WILEY-VCH, 2004.
4. McCaughey, B. F.; Hampsey, J. E.; Wang, D. H.; Lu, Y. Self-Assembled Organic/Inorganic Nanocomposites, In *Encyclopedia of Nanoscience and Nanotechnology*, American Scientific Publisher, 2004, Vol. 9, p 529.

Peer-Reviewed Journal Publications (* indicates Ph.D. students supervised)

2015

1. Song, Z. P.,* Qian, Y. M., Gordin, M. L.,* Tang, D. H.,** Xu, T.,* Otani, M., Zhan, H., Zhou, H. S., Wang, D. H. Polyanthraquinone as a Reliable Organic Electrode for Stable and Fast Lithium Storage. *Angewandte Chemie International Edition* 2015, DOI: 10.1002/anie.201506673. (*/**Author supervised by candidate.)
2. Sohn, H.,** Gordin, M. L.,* Regula, M.,* Kim, D. H., Jung, Y. S., Song, J. X.,* Wang, D. H. Porous Spherical Polyacrylonitrile-Carbon Nanocomposite with High Loading of Sulfur for Lithium-Sulfur Batteries. *Journal of Power Sources 2015*, in press. (*/**Author supervised by candidate.)
3. Yu, Z. X.,* Shang, S. L., Gordin, M. L.,* Mousharraf, A.,* Liu, Z. K., Wang, D. H. Ti-substituted Li[Li0.26Mn0.6-xTixNi0.07Co0.07]O2 layered cathode material with improved structural stability and suppressed voltage fading. *Journal of Materials Chemistry A* 2015, 3, 17376. (*/**Author supervised by candidate.)
4. Azimi, N., Xue, Z., Bloom, I., Gordin, M. L.,* Wang, D. H., Daniel T., Takoudis, C., Zhang, Z. Z. Understanding the Effect of a Fluorinated Ether on the Performance of Lithium-Sulfur Batteries. *ACS Applied Materials & Interface* 2015, 7, 9169. (*/**Author supervised by candidate.)
5. Zhong, H.,* Yang, Y. B., Ding, F., Wang, D. H., Zhou, Y. H., Zhan, H. A Si–MnOOH composite with superior lithium storage properties. *Chemical Communications*, 2015, 51, 6164. (*/**Author supervised by candidate.)
6. Song, Z.,* Qian, Y., Gordin, M. L.,* Tang, D.,** Xu, T.* Otani, M., Zhan H., Zhou, H., Wang D. Polyanthraquinone as a Reliable Organic Electrode for Stable and Fast Lithium Storage. *Angewandte Chemie International Edition*, accepted. (*/**Author supervised by candidate.)
7. Yu, Z. X.,* Shang S. L., Gordin, M. L.*, Mousharraf A.*, Liu, Z.-K., Wang, D. H. Ti-substituted Li[Li0.26Mn0.6-xTixNi0.07Co0.07]O2 layered cathode material with improved structural stability and suppressed voltage fading. *Journal of Materials Chemistry A* **2015**, *3*, 17376 - 17384. (*/**Author supervised by candidate.)
8. Azimi, N., Xue, Z., Bloom, I., Gordin, M. L.,* Wang, D. H., Daniel T., Takoudis, C., Zhang, Z. Z. Understanding the Effect of a Fluorinated Ether on the Performance of Lithium-Sulfur Batteries. *ACS Applied Materials & Interface* **2015**, *7*, 9169. (*/**Author supervised by candidate.)

9. Zhong, H.,* Yang, Y. B., Ding, F., Wang, D. H., Zhou, Y. H., Zhan, H. A Si–MnOOH composite with superior lithium storage properties. Chemical Communications, **2015**, *51*, 6164. (*/**Author supervised by candidate.)
10. Yu, Z. X.*, Song, J. X.**, Gordin, M. L.*, Yi, R.*, Tang, D. H.**, Wang, D. H. Phosphorus-Graphene Nanosheet Hybrids as Lithium-ion Anodes with Exceptional High-Temperature Cycling Stability. *Advanced Science* **2015**, 2: doi: 10.1002/advs.201400020. (*/**Author supervised by candidate.)
11. Song, J. X. **, Gordin, M. L. *, Xu, T. *, Yi, R. *, Tang, D. H. **, Walter, T. *, Regula, M. *, Choi, D., Li, X., Manivannan, A., Wang, D. H. Strong Lithium Polysulfide Chemisorption on Electroactive Sites of Nitrogen-Doped Carbon Enables High-Performance Lithium-Sulfur Battery Cathodes. *Angewandte Chemie International Edition* **2015**, *54*, 4325. (*/**Author supervised by candidate.)
12. Azimi, N., Xue, Z., Rago, N. D., Takoudis, C., Gordin, M. L. *, Song, J. X. **, Zhang, Z. Z., Wang, D. H. Fluorinated Electrolytes for Li-S Battery: Suppressing the Self-Discharge with an Electrolyte Containing Fluoroether Solvent. *Journal of Electrochemical Society* **2015**, 162, A64. (*/**Author supervised by candidate.)

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13. Song, J. X.**, Yu, Z. X. *, Gordin, M. L. *, Hu, S.**, Yi, R.*, Tang, D. H.**, Walter, T.*, Regula, M.*, Choi, D., Li, X., Manivannan, A., Wang, D. H. Chemically Bonded Phosphorus/Graphene Hybrid as a High Performance Anode for Sodium-Ion Batteries. *Nano Letters* **2014**, 14 (11), 6329–6335. (*/**Author supervised by candidate.)
14. Yi, R.*, Chen, S. R.*, Song, J. X.**, Gordin, M. L.*, Manivannan, A., Wang, D. H. High-Performance Hybrid Supercapacitor Enabled by a High-Rate Si-based Anode. *Advanced Functional Materials,* 2014, 24 (47), 7433–7439. (*/**Author supervised by candidate.)
15. Lv, D. P.**, Tang, D. H.**, Duan, Y. H., Gordin, M. L.*, Dai, F.*, Zhu, P. Y.*, Song, J. X.*, Manivannan, A., Wang, D. H. Study of Fluorine Substituted Phenyl Based Complex as 3V-electrolyte for Mg Batteries. *Journal of Material Chemistry A* **2014**, DOI:10.1039/C4TA02686A. (*/**Author supervised by candidate.)
16. Song, J. X.**, Zhou, M. J.**, Yi, R.*, Xu, T.*, Gordin, M. L.*, Tang, D. H.**, Yu, Z. X.*, Regula, M.*, Wang, D. H. Interpenetrated Gel Polymer Binder for High Performance Silicon Anode in Lithium-ion Battery. *Advanced Functional Materials* **2014**, DOI:10.1002/adfm.201401269. (*/**Author supervised by candidate.)
17. Tang, D. H.**, Yi, R.*, Gordin, M. L.*, Melnyk, M.*, Dai, F.**, Chen, S. R.*, Song, J. X.**, Wang, D. H. Titanium nitride coating to enhance the performance of silicon nanoparticles as a lithium-ion battery anode. *Journal of Material Chemistry A* **2014**, *2*, 10375. (*/**Author supervised by candidate.)
18. Gordin, M. L.*, Dai, F.**, Chen, S. R.*, Xu, T.*, Song, J. X.**, Tang, D. H.**, Azimi, N., Zhang, Z. C., Wang, D. H. Bis(2,2,2-trifluoroethyl) Ether As an Electrolyte Co-solvent for Mitigating Self-Discharge in Lithium–Sulfur Batteries. *ACS Applied Materials & Interface* **2014**, *6*, 8006. (*/**Author supervised by candidate.)
19. Sohn, H. S.**, Gordin, M. L.*, Xu, T.*, Chen, S. R.*, Lv, D. P.**, Song, J. X.**, Manivannan, A., Wang, D. H. Porous spherical carbon/sulfur nanocomposites by aerosol-assisted synthesis: the effect of pore structure and morphology on their

electrochemical performance as lithium-sulfur battery cathodes. *ACS Applied Materials & Interface,* 2014, 6, 7596–7606. (*/**Author supervised by candidate.)

20. Yi, R.*, Zai, J. T.**, Dai, F.**, Gordin, M. L.*, Wang, D. H. Dual Conductive Network-Enabled Graphene/Si-C Composite Anode with High Areal Capacity for Lithium-ion Batteries. *Nano Energy,* 2014, 6, 211. (*/**Author supervised by candidate.)
21. Song, J. X.**, Yu, Z. X.*, Xu, T.*, Chen, S. R.*, Sohn, H. S.**, Regula, M.**, Wang, D. H. Flexible Freestanding Sandwich-structured Sulfur Cathodes with Superior Performance for Lithium-sulfur Batteries. *Journal of Material Chemistry A,* 2014, 2 (23), 8623-8627. (*/**Author supervised by candidate.)
22. Zhu, P. Y.*, Song, J. X.**, Lv, D. P.**, Wang, D. H., Jaye, C., Fischer, D. A., Wu, T. P., Chen, Y. S. Mechanism of Enhanced Carbon Cathode Performance by Nitrogen Doping in Lithium–Sulfur Battery: An X-ray Absorption Spectroscopic Study. *Journal of Physical Chemistry C,* 2014, 118, 7765. (*/**Author supervised by candidate.)
23. Fang, D.**, Zai, J. T.**, Yi, R.*, Gordin, M. L.*, Chen, S. R.*, Sohn, H.**, Wang, D. H., Bottom up synthesis of mesoporous crystalline silicon and evaluation of its hydrogen evolution performance, 2014, *Nature Communications*, 5:3605 doi: 10.1038/ncomms4605. (*/**Author supervised by candidate.)
24. Chen, D.**, Yi, R.*, Chen, S. R.*, Xu, T.*, Gordin, M. L.*, Lv, D. P.*, Wang, D. H. Solvothermal Synthesis of V_2O_5/Graphene Nanocomposites for High Performance Lithium Ion Batteries, *Materials Science and Engineering B,* 2014, 185, 7-12. (*/**Author supervised by candidate.)
25. Song, J. X.**, Xu, T.*, Gordin, M. L.*, Zhu, P. Y.*, Lv, D. P.**, Jiang, Y-B, Chen, Y. S., Duan Y. H., Wang, D. H. Nitrogen-Doped Mesoporous Carbon Promoted Chemical Adsorption of Sulfur and Fabrication of High-Areal-Capacity Sulfur Cathode with Exceptional Cycling Stability for Lithium-Sulfur Batteries, *Advanced Functional Materials*, 2014, 24, 1243-1250. (*/**Author supervised by candidate.)
26. Lv, D. P.**, Gordin, M. L.*, Yi, R.*, Xu, T.*, Song, J. X.**, Jiang Y-B, Choi, D. W., Wang, D. H., GeOx/Reduced Graphene Oxide Composite as an Anode for Li-ion Batteries: Enhanced Capacity via Reversible Utilization of Li_2O along with Improved Rate Performance, *Advanced Functional Materials*, 2014, 24, 1059-1066. (*/**Author supervised by candidate.)
27. Chen, D.**, Yi, R.*, Chen, S. R.*, Xu, T.*, Gordin, M. L.*, Wang, D. H. Facile Synthesis of Graphene-silicon Nanocomposites with an Advanced Binder for High-performance Lithium-ion Battery Anodes, *Solid State Ionics*, 2014, 254, 65-71. (*/**Author supervised by candidate.)
28. Song, J. X.**, Chen S. R.*, Zhou, M. J.**, Xu, T.*, Gordin, M. L.*, Lv, D. P.**, Long T. J.*, Melnyk M.*, Wang, D. H. Micro-sized silicon-carbon composite composed of carbon-coated sub-10 nm Si primary particles as high-performance anode materials for lithium-ion batteries, *Journal of Material Chemistry A*, 2014, 2, 1257 - 1262. (*/**Author supervised by candidate.)

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29. Xu, T.$^{+,}$*, Song, J. X.$^{+,}$**, Gordin, M. L.*, Sohn, H. S.**, Yu, Z. X.*, Chen, S. R.*, Wang, D. H. Nanostructured Carbon-Sulfur Composite Microspheres with High Tap Density Enabling High-Areal-Capacity Cathodes for Practical Applications in Li-S

Batteries, *ACS Applied Materials & Interface*, submitted. (*/**Author supervised by candidate, $^{+}$Author contributed equally)

30. Yi, R.*, Zai, J. T.**, Dai F.**, Gordin, M. L.*, Wang, D. H. Improved rate capability of Si-C composite anodes by boron doping for lithium-ion batteries, *Electrochemistry Communications*, 2013, 36, 29.(*/**Author supervised by candidate.)
31. Yi, R.*, Dai F.**, Gordin, M. L.*, Sohn, H. S.**, Wang, D. H. Influence of Silicon Nanoscale Building Blocks Size and Carbon Coating on the Performance of Micro-Sized Si–C Composite Li-Ion Anodes, *Advanced Energy Materials*, 2013, 3, 1507. (*/** Author supervised by candidate.)
32. Chen, S. R.*, Dai F.**, Gordin, M. L.*, Wang, D. H. Exceptional electrochemical performance of rechargeable Li-S batteries with polysulfide-containing electrolyte, *RSC Advances*, 2013, 3(11), 3540-3543. (*/**Author supervised by candidate.)
33. Yi, R.*, Feng, J. K.**, Lv, D. P.**, Gordin, M. L.*, Chen, S. R.*, Choi, D. W. Wang, D. H. Amorphous Zn_2GeO_4 Nanoparticles as Anodes with High Reversible Capacity and Long Cycling Life for Li-ion Batteries, *Nano Energy*, 2013, 2, 498-504. (*/**Author supervised by candidate.)
34. Yi, R.*, Dai F.**, Gordin, M. L.*, Chen, S. R.*, Wang, D. H. Micro-sized Si-C Composite with Interconnected Nanoscale Building Blocks as High-Performance Anodes for Practical Application in Lithium-ion Batteries, *Advanced Energy Materials*, 2013, 3(3), 295-300. (*/** Author supervised by candidate, Featured in front cover)
35. Zhou, M. J.**, Gordin M. L*. Chen, S. R*. Xu, T*. Song, J. X.**, Lv. D. P.**, Wang, D. H. Enhanced Performance of SiO/Fe_2O_3 Composite as an Anode for Rechargeable Li-ion Batteries, *Electrochemistry Communications*, 2013, 28, 79-32. (*/** Author supervised by candidate.)
36. Lv, D. P.**, Xu, T.*, Saha P., Datta, M. K. Gordin, M. L.*, Ayyakkannu Manivannan, A., Kumta, P. N., and Wang, D. H., A Scientific Study of Current Collectors for Mg Batteries in $Mg(AlCl_2EtBu)_2$/THF Electrolyte, *Journal of the Electrochemical Society*, 2013, 160 (2), A351-A355. (*/** Author supervised by candidate.)

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37. Dai, F.**, Yi, R.*, Gordin, M. L.*, Chen, S. R.*, Wang, D. H. Amorphous $Si/SiO_x/SiO_2$ Nanocomposites via a Facile and Scalable Synthesis as Anodes for Li-ion Batteries with Long Cycling Life, *RSC Advances*, 2012, 2, 12710-12713. (*/**Author supervised by candidate.)
38. Chen, S. R.*, Gordin, M. L.*, Yi, R.*, Howlett, G.*, Sohn, H. S. ** and Wang, D. H. Silicon core-hollow carbon shell nanocomposites with tunable buffer voids for high capacity anodes of lithium-ion batteries. *Physical Chemistry Chemical Physics*. 2012, 14 (37), 12741 – 12745. (*/**Author supervised by candidate.)
39. Song, Z. P. *, Xu, T. *, Gordin, M. L. *, Jiang, Y. B., Bae, I. T., Xiao, Q. F., Zhan, H., Liu, J. and Wang, D. H. Polymer-graphene nanocomposites as ultrafast-charge and -discharge cathodes for rechargeable lithium batteries. *Nano Letters* 2012, 12, 2205. (*Author supervised by candidate.)

40. Vaughn, D. D., Hentz, O. D., Chen, S. R. *, Wang, D. H. and Schaak, R. E. Formation of SnS nanoflowers for lithium ion batteries. *Chemical Communications* 2012, 48, 5608. (*Author supervised by candidate.)
41. Wang, L. Q., Wang, D. H., Liu, J. and Exarhos, G. J. Probing Porosity and Pore interconnectivity in Self-Assembled TiO2-Graphene Hybrid Nanostructures Using Hyperpolarized Xe-129 NMR. *Journal of Physical Chemistry C* 2012, 116, 22.
42. Xu, Y., Yi, R. *, Yuan, B., Wu, X. F., Dunwell, M., Lin, Q. L., Fei, L., Deng, S. G., Andersen, P., Wang, D. H. and Luo, H. M. High Capacity MoO2/Graphite Oxide Composite Anode for Lithium-Ion Batteries. *Journal of Physical Chemistry Letters* 2012, 3, 309. (*Author supervised by candidate.)
43. Wang, L. Q.; Wang, D. H.; Liu, J.; Exarhos, G. J. Probing Porosity and Pore interconnectivity in Self-Assembled TiO_2-Graphene Hybrid Nanostructures Using Hyperpolarized Xe-129 NMR. *Journal of Physical Chemistry C* 2012, 116, 22.

2011

44. Kou, R.; Shao, Y. Y.; Mei, D. H.; Nie, Z. M.; Wang, D. H.; Wang, Y.; Liu, J. Stabilization of Electrocatalytic Metal Nanoparticles at Metal-Metal Oxide-Graphene Triple Junction Points. *Journal of the American Chemical Society* 2011, 133, 2541.

2010

45. Xu, T.*; Wang, W.; Gordin, M. L.*; Wang, D. H.; Choi, D. W. Li-ion Batteries for Stationary Energy Storage. JOM 2010, 9, 24. (*Author supervised by candidate.)
46. Choi, D. W.; Wang, D. H.; Bae, I. T.; Xiao, J.; Nie, Z. M.; Wang, W.; Viswanathan, V. V.; Lee, Y. J.; Zhang, J. G.; Graff, G. L.; Yang, Z. G.; Liu, J. LiMnPO4 Nanoplate Grown via Solid-State Reaction in Molten Hydrocarbon for Li-Ion Battery Cathode. Nano Letters 2010, 10, 2799.
47. Li, J.; Liu, J.; Wang, D. H.; Guo, R. S.; Li, X. L.; Qi, W. Interfacially Controlled Synthesis of Hollow Mesoporous Silica Spheres with Radially Oriented Pore Structures. Langmuir 2010, 26, 12267.
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51. Viswanathan, V. V.; Choi, D.; Wang, D. H.; Xu, W.; Towne, S.; Williford, R. E.; Zhang, J. G.; Liu, J.; Yang, Z. G. Effect of Entropy Change of Lithium Intercalation in Cathodes and Anodes on Li-Ion Battery Thermal Management. *Journal of Power Sources* 2010, 195, 3720.

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55. Wang, L. Q.; Wang, D. H.; Liu, J.; Exarhos, G. J.; Pawsey, S.; Moudrakovski, I. Probing Porosity and Pore Interconnectivity in Crystalline Mesoporous Tio2 Using Hyperpolarized Xe-129 Nmr. *Journal of Physical Chemistry C* 2009, 113, 6577.
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61. Wang, D. H.; Choi, D. W.; Yang, Z. G.; Viswanathan, V. V.; Nie, Z. M.; Wang, C. M.; Song, Y. J.; Zhang, J. G.; Liu, J. Synthesis and Li-Ion Insertion Properties of Highly Crystalline Mesoporous Rutile Tio2. *Chemistry of Materials* 2008, 20, 3435.
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*Graduate student supervised by candidate
**Research scholar supervised by candidate

Patents

1. Wang, D. H., Dai, F.**, Yi, R.*, Mesoporous Silicon Synthesis and Applications in Li-Ion Batteries and Solar Hydrogen Fuel Cells, US Application (61/844,634) and PCT Application, 2013. (*/**Author supervised by candidate.)
2. Wang, D. H., Song, J.**, Elastic Gel Polymer Binder for Si-based, US Provisional

Patent Application, 2013. (*/**Author supervised by candidate.)

3. Wang, D. H., Song, J.**, Xu, T.* Doped Carbon-Sulfur Nanocomposite Cathode for Lithium-Sulfur Batteries, US Patent Application (13/938,527) and PCT Application (PCT/US13/49870) 2013. (*/**Author supervised by candidate.)
4. Wang, D. H., Chen, S. R.*, Dai, F.** Liquid Electrolyte for Increasing Capacity and Cycling Retention of Lithium Sulfur Battery, US Provisional Patent Application (61/737,606), 2012. (*/**Author supervised by candidate.)
5. Wang, D. H., Yi, R.*, Dai, F.**, Micro-sized Si-C composite anodes, US Provisional Patent Application (61/713,324), 2012. (*/**Author supervised by candidate.)
6. Wang, D. H., Xu, T.* Reduced Graphene Oxide-Metal Oxide-Sulfur Cathode for Lithium Sulfur Batteries, US Provisional Patent Application (61/678,824), 2012. (*Author supervised by candidate.)
7. Wang, D. H., Song, J.**, Xu, T.* Doped Carbon-Sulfur Nanocomposite Cathode for Lithium-Sulfur Batteries, US Provisional Patent Application (61/669,859), 2012. (*/**Author supervised by candidate.)
8. Wang, D. H., Chen, Z. X.*, Xu, T.* Carbon-Metal Oxide-Sulfur Cathodes for High-Performance Lithium Batteries, U.S. Utility Patent Application (13/371,946), 2012. (*Author supervised by candidate.)
9. Wang, D. H., Chen, Z. X.*, Xu, T.* Carbon-Metal Oxide-Sulfur Cathodes for High-Performance Lithium Batteries, U.S. Provisional Patent Application (61/441,724), 2011. (*Author supervised by candidate.)
10. Liu, J., Aksay, I. L., Wang, D. H., Kou, R. Mesoporous Metal Oxide Graphene Nanocomposite Materials, US Patent Application, 2010.
11. Liu, J., Choi, D., Yang, Z. G., Wang, D. H., Graff, G. L., Nie, Z. M., Viswanathan, V., Zhang, J., Xu, W., Kim, J. Y. Nanocomposite of Graphene and Metal Oxide Materials, US Patent Application, 2010.
12. Liu, J., Wang, D. H., Yang, Z. G., Nie, Z. M., Kou, R., Choi, D. Self-assembled Batteries, US Patent Application, 2009.
13. Lu, Y., Wang, D. H. Process for the Preparation of Metal-containing Nanostructured Films. US Patent Application, 2004, US 2004118698.

*Graduate student supervised by candidate
**Research scholar supervised by candidate

Presentation at Technical and Professional Meetings and Seminars

Invited Talk

1. Wang, D. H., In Asia Pacific Conference on Electrochemical Energy Storage and Conversion, Brisbane, Australia, February 2014. (Presented by candidate.)
2. Wang, D. H., In Materials Challenges In Alternative & Renewable Energy, American Ceramic Society, Clear Water, Florida, February 2014. (Presented by candidate.)
3. Wang, D. H. Bottom-up Synthesis and Self-Assembly of Nanoporous Crystalline Semiconductors, In International Conference on Nanoscience and Technology, Beijing,

China, September 2013. (Presented by candidate.)

4. Wang, D. H. Integrating Nanomaterials to Structured Micro-sized Composites for Electrochemical Energy Storage, Seminar at Beijing Institute of Nanoenergy and Nanosystems, September 6, 2013
5. Wang, D. H. Integrating Nanomaterials to Structured Micro-sized Composites for Electrochemical Energy Storage, Seminar at State Key Laboratory of Multi-Phase Complex Systems, Institute of Process Engineering, Chinese Academy of Science, September 4, 2013
6. Wang, D. H. Development of Lithium-Sulfur Batteries, In Beyond Li-ion Symposium VI, Boulder, Colorado, June 2013. (Presented by candidate.)
7. Wang, D. H. Development of Nanocomposites for Energy Storage Applications, Seminar at Rutgers University, April 2013. (Presented by candidate.)
8. Wang, D. H. Integrating Nano-sized Si into Three-Dimensional Structured Macroscopic Composites as High Capacity Anodes for Li-ion Batteries, In Symposium of Nanostructured Materials for Lithium Ion Batteries and for Supercapacitors, TMS Annual Meeting & Exhibition, San Antonio, TX, March 2013. (Presented by candidate.)
9. Integrating Nano-sized Si into Three-Dimensional Structured Macroscopic Composites as High Capacity Anodes for Li-ion Batteries, In Symposium of Nanostructured Materials for Lithium Ion Batteries and for Supercapacitors, TMS Annual Meeting & Exhibition, San Antonio, TX, March 2013. (Presented by candidate.)
10. Wang, D. H. Multifunctional nanocomposites for energy storage applications, In Symposium of Frontiers of Energy and Fuel Research, Division of Energy and Fuel, 244th American Chemical Society (ACS) National Meeting, Philadelphia, PA, August 2012. (Presented by candidate.)
11. Wang, D. H. Nanostructured carbon materials for use in Li-S batteries, In Symposium of Advances in Batteries, Division of Energy and Fuels, 244th American Chemical Society (ACS) National Meeting, Philadelphia, PA, August 2012. (Presented by candidate.)
12. Wang, D. H. Nanocomposite Materials For Energy Storage Application, In Symposium of Advanced Materials and Technologies for Rechargeable Batteries, 36th International Conference and Expo on Advanced Ceramics and Composites, Daytona, Florida, January 2012. (Presented by candidate.)
13. Wang, D. H. Development of Structured Nanocomposites for Energy Storage Applications, 7th Sino-US Nano Forum, Xiamen University, Xiamen, China, June 2012. (Presented by candidate.)
14. Wang, D. H. Development of Nanocomposites for Energy Storage Applications, Seminar at Jilin University, China, June 2012. (Presented by candidate.)
15. Wang, D. H. Development of Nanocomposites for Energy Storage Applications, Seminar at State Key Laboratory of Multi-Phase Complex Systems, Institute of Process Engineering, Chinese Academy of Science, China, June, 2012. (Presented by candidate.)
16. Wang, D. H. Development of Nanocomposites for Energy Storage Applications, Seminar at State Key Laboratory of Applied Chemistry of Earth Rare Elements, Chinese Academy of Science, China, June, 2012. (Presented by candidate.)

17. Wang, D. H. Development of Nanocomposites for Energy Storage Applications, Seminar at China Jiliang University, Hangzhou, China, June, 2012. (Presented by candidate.)
18. Wang, D. H. Graphene Nanocomposites for Li-Ion Battery. Workshop of PA Nanomaterials Commercialization Center Showcase, Wright-Patterson Air Force Base, Dayton, OH, August 2011. (Presented by candidate.)
19. Wang, D. H. In Polymer Nanocomposites Conference, Society of Plastic Engineering, Lehigh University, Bethlehem, PA, March 2011. (Presented by candidate.)
20. Wang, D. H. Multi-component Nanocomposites for Energy Storage Applications. In Pittsburgh-Cleveland Catalysis Society Workshop, Pittsburgh, PA, May 2011. (Presented by candidate.)
21. Wang, D. H. In Symposium of New Energy Technologies, Division of Fuel Chemistry, 240th American Chemical Society (ACS) National Meeting, Boston, MA, August 2010. (Presented by candidate.)
22. Wang, D. H. In Symposium of Materials in Clean Power Systems V: Clean Coal-, Hydrogen Based-Technologies, Fuel Cells, and Materials for Energy Storage, The Minerals, Metals & Materials Society (TMS) Conference, Seattle, WA, February 2010. (Presented by candidate.)
23. Wang, D. H. In Symposium of Energy Storage: Materials, Systems, and Applications, Material Science & Technology Conference, Pittsburgh, PA, October 2009. (Presented by candidate.)
24. Wang, D. H. In Nanostructured Functional Materials for Energy Conversion and Storage, Seminar at Department of Mechanical Engineering, West Virginia University, Morgantown, WV, April 7, 2010. (Presented by candidate.)

Contributed Presentations

25. Yi, R.*(presenter), Dai, F.**, Gordin, M. L.*, Chen, S. R.*, Wang, D. H., Micro-Sized Si-C Composite With Interconnected Nanoscale Building Blocks As High-Performance Anodes for Lithium-Ion Batteries. Electrochemical Society (ECS) Fall Meeting, San Francisco, October 2013. (*/**Author supervised by candidate.)
26. Chen, S. R.*(presenter), Dai, F.**, Gordin, M. L.*, Wang, D. H., Performance Booster: A Different Role of Polysulfide in Rechargeable Lithium-Sulfur Batteries. Electrochemical Society (ECS) Fall Meeting, San Francisco, October 2013. (*/**Author supervised by candidate.)
27. Lv, D. P.**, Gordin, M. L.*, Manivannan, A, Wang, D. H. Study of Mg Batteries: Electrolyte, Current Collectors and Their Compatibility, Electrochemical Society (ECS) Fall Meeting, San Francisco, October 2013. (Presented by candidate, *author supervised by candidate.)
28. Xu, T.*(presenter), Song, J. X.**, Wang, D. H., Porous Carbon-reduced Graphene Oxide Composite for Enhanced High-rate-performance of Li-S Batteries. 2012 Materials Research Society (MRS) Fall Meeting, Boston, November 2012. (*/**Author supervised by candidate.)
29. Lv D. P.**(presenter), Gordin, M. L.*, Yi R.*, Xu T. R.*, Wang D. H. , GeO/Graphene Composites as High-Rate Anode Materials for Li-ion Batteries, Materials Research

Society (MRS) Fall Meeting, Boston, November 2012. (*/**Author supervised by candidate.)

30. Song, J. X.**(presenter), Xu, T.*, Lu. D. P.**, Gordin, M. L.*, Wang, D. H.. Hierarchical Three-Dimensional Functionalized Carbon-Sulfur Cathodes for High Performance Lithium-Sulfur Batteries. Materials Research Society (MRS) Fall Meeting, Boston, November 2012.
31. Sohn, H.**(presenter), Xu, T.*, Gordin, M. L.*, Wang, D. H. Porous Carbon Sphere prepared by Aerosol-assisted Process for the Application of Lithium-sulfur Battery. Material Research Society (MRS) Fall Meeting, Boston, November 2012. (*/**Author supervised by candidate.)
32. Sohn, H.**(presenter), Xu, T.*, Gordin, M. L.*, Wang, D. H. Carbon Nanotubes Grown on Porous Hollow Carbon Sphere and Its Applications to Lithium-sulfur Battery. Material Research Society (MRS) Fall Meeting, Boston, November 2012. (*/**Author supervised by candidate.)
33. Dai, F.**(presenter), Yi, R.*, Gordin, M. L.*, Howlett, G.*, Wang, D. H. Amorphous Si/SiOx Nanocomposite via Facile and Scalable Synthesis as Anode Materials for Li-ion Batteries with Long Cycling Life. Materials Research Society (MRS) Fall Meeting, Boston, November 2012. (*/**Author supervised by candidate.)
34. Wang, D. H., Chen, S. R.*, Song, Z. P.*, Xu, T.*, Song, J. X.**, Yi R.*, Dai, F.**, Gordin, M. L.* Nanostructured Composites for Energy Storage Applications in Symposium of Battery Technology, Electrochemical Society Meeting, Honolulu, Hawaii, 2012. (Presented by candidate, *author supervised by candidate.)
35. Chen, S. R.*(presenter), Yi, R.*, Xu, T.*, Gordin, M. L.*, Howlett, G.* Wang, D. H. Improved cycling capacity of silicon-carbon nanocomposite anode for lithium-ion batteries. 244th American Chemical Society (ACS) National Meeting, Fall 2012. (*Author supervised by candidate.)
36. Yi, R.*(presenter), Chen, S. R.*, Xu, T.*, Gordin, M. L.*, Howlett, G.* Wang, D. H. Amorphous Zn_2GeO_4 nanoparticles as superior anodes for lithium-ion batteries. 244th American Chemical Society (ACS) National Meeting, Fall 2012. (*Author supervised by candidate.)
37. Lv. D. P.**(presenter), Xu, T.*, Saha, P., Datta, M., Gordin, M. L.*, Manivannan, A., Kumta, P., Wang, D. H. Study of current collectors for Mg batteries in Mg(AlCl2EtAu)2/THF electrolyte. 244th American Chemical Society (ACS) National Meeting, Fall 2012. (*/**Author supervised by candidate.)
38. Saha P.(presenter), Datta, M., Lv, D. P.**, Howlett G.*, Wang, D. H., Manivannan, A., Kumta, P. N., Magnesium Battery Concept for Stationary Power and Smart Electrical Grid, in Symposium of Batteries and Energy Technology Joint General Session, 221st ECS Meeting, Seattle, Washington, May, 2012. (*/**Author supervised by candidate.)
39. Chen, S. R.*(presenter), Xu, T.*, Feng, J. K.**, Gordin, M. L.*, Chen, Z. X.* Wang, D. H. Synthesis and Characterization of Hierarchically Porous Carbon Materials and Its Application in Energy Storage, Material Research Society Spring Meeting, San Francisco, April, 2012. (*/**Author supervised by candidate.)

40. Song, Z. P.*, Xu, T.*, Gordin, M. L.*, Wang, D. H. Graphene-based nanocomposites for energy storage applications. 243rd American Chemical Society (ACS) National Meeting, Spring, 2012. (Presented by candidate, *author supervised by candidate.)
41. Wang, D. H., Chen, Z. X.*, Gordin, M. L.*, Xu, T.* Hierarchically Ordered Multi-component Nanocomposites for Energy Storage Application, in Symposium of Bioinspired Materials and Systems, XX International Materials Research Congress (IMRC), Cancun, Mexico, 2011. (Presented by candidate, *author supervised by candidate.)
42. Wang, D. H.; Development and Fabrication of High-Energy Li Battery, 5th Annual Alternative Energy NOW, Lake Buena Vista, Florida, February 2011. (Presented by candidate.)
43. Xu, T.*(presenter), Gordin, M. L.*, Wang, D. Syntheses and Characterization of Graphene-Metal Oxide Nanocomposites for Energy Storage Applications. 241st American Chemical Society (ACS) National Meeting, Spring, Anaheim, CA, 2011. (*Author supervised by candidate.)
44. Gordin, M. L.*(presenter), Chen, Z.*, Xu, T.*, Wang, D. Synthesis and Characterization of Ordered Mesoporous Metal Oxide-Carbon Nanocomposites and Their Applications in Supercapacitors. 241st American Chemical Society (ACS) National Meeting, Anaheim, CA, 2011. (*Author supervised by candidate.)
45. Wang, D. H., Ma, Z., Choi, D., Nie, Z., Yang, Z., Dai, S., Liu, J. Mesoporous Crystalline Metal Oxide Supported Au Catalysts. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2009. (Presented by candidate.)
46. Wang, D., Choi, D., Li, J.*, Yang, Z., Nie, Z., Kou, R., Saraf, C. W. L., Zhang, J., Aksay, I., Liu, J. Metal Oxide-Graphene Hybrid Materials for Li-Ion Battery. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2009. (Presented by candidate, *author supervised by candidate.)
47. Liu, J., Wang, D., Kou, R., Yang, Z., Choi, D., Nie, Z., Lin, Y., Aksay, I. A. Hybrid Nanocomposite Materials through Multiscale Templating and Self-Assembly. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2009. (Presented by candidate.)
48. Zhang, J., Xiao, J., Wang, D., Choi, D., Wang, C., Yang, Z., Xu, W., Gordon, G. Silicon Based High Capacity Anode for Li-Ion Battery Applications. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2009. (Presented by candidate.)
49. Wang D., Choi D., Kou, R., Viswanathan V., Nie, Z., Yang, G. Z., Liu, J. Highly Crystalline Mesoporous Materials for Lithium Ion Batteries. Materials Research Society (MRS) Spring Meeting, San Francisco, CA, 2008.
50. Wang D., Ma, Z., Dai, S., Liu J., Nie, Z., Huo, Q., Wang, C. Highly Crystalline, Thermal Stable Mesoporous Metal Oxide Supported Au Nanocatalysts. Materials Research Society (MRS) Fall Meeting, Boston, MA, 2007.
51. Wang D., Viswanathan V., Liu J., Nie, Z. Mesoporous Crystalline TiO2 Oxide as Anode Materials for Lithium Ion Batteries. American Institute of Chemical Engineers (AIChE) Annual National Meeting, Marriott Salt Lake City, Salt Lake City, UT, November 4-11, 2007.

52. Wang D., Liu J., Nie, Z., Huo Q., Kou, R., Wang, C. Highly Crystalline Mesoporous TiO2 Composed of Oriented Nanorod Building Blocks. American Institute of Chemical Engineers (AIChE) Annual National Meeting, Marriott Salt Lake City, Salt Lake City, UT, November 4-11, 2007.
53. Wang D., Ma, Z., Dai, S., Liu J., Nie, Z. Mesoporous Crystalline Metal Oxide Supported Au Catalysts. American Institute of Chemical Engineers (AIChE) Annual National Meeting, Salt Palace Convention Center, Salt Lake City, UT, November 4-11, 2007.
54. Wang D., Liu J., Huo Q., Nie, Z., Williford R.E. Surface-Mediated Growth of Oriented and Well-Defined Nanocrystalline Anatase Titania Films. American Institute of Chemical Engineers (AIChE) Annual National Meeting, San Francisco Hilton, San Francisco, CA, November 12-17, 2006.
55. Wang, D., Kou, R., Gil, M. P., Lu, Y. Macroscopic Hierarchical Nanowire Networks and Its Application. Eastern Regional Chemical Engineering Graduate Student Symposium, Morgantown, WV, September 2005.
56. Wang, D., Kou, R., Gil, M. P., Lu, Y. Macroscopic Hierarchical Nanowire Networks. 5th Louisiana Conference on Advanced Materials and Emerging Technologies, New Orleans, LA, January 21-22, 2005.
57. Wang, D., Kou, R., Gil, M. P., Lu, Y. Synthesis and Applications of Hierarchical Nanowire Networks. Materials Research Society (MRS) Fall Meeting, Boston, MA, November 29- December 3, 2004.
58. Wang, D., Kou, R., Yang, Z., Lu, Y. Template Synthesis of 1D Mesoporous Silica Nanofibers within Anodized Alumina Membranes. American Institute of Chemical Engineers (AIChE) Annual National Meeting, Conventional Center, Austin, TX, November 7-12, 2004
59. Wang, D., Kou, R., Johnson, D. T., Lu, Y. Synthesis and Device Applications of Hierarchical Continuous Metallic and Semiconductor Nanowire Thin Films. American Institute of Chemical Engineers (AIChE) Spring National Meeting, Hyatt Regency, New Orleans, LA, April 25-29, 2004.
60. Wang, D., Gil, M. P., Kou, R., Johnson, D. T. McCaughey, B. F., Hampsey, J. E., Lu, Y. Synthesis and Device Applications of Hierarchical Continuous Metallic and Semiconductor Nanowire Thin Films. Materials Research Society (MRS) Symposium Proceedings, San Francisco, CA, April 12-18, 2004.
61. Wang, D., He, J., McCaughy, B. F., Hampsey, J. E., Ji, X., Jiang, Y. B., Xu, H., Zhou, W. L., Tang, J., Schmehl, R., O'Connor, C. J., Brinker, C. J., Lu, Y. Templating Synthesis of Hierarchical Nanowire and Nanomesh Thin Films. 225th American Chemical Society (ACS) National Meeting, New Orleans, LA, March 23-27, 2003, INOR-718.
62. Wang, D., Zhou. W. L., McCaughy, B. F., Hampsey, J. E., Ji, X., Jiang, Y. B., Xu, H., Zhou, W. L., Tang, J., Schmehl, R., O'Connor, C. J., Brinker, C. J., Lu, Y. Templating Synthesis of Hierarchical Nanowire and Nanomesh Thin Films. Materials Research Society (MRS) Symposium Proceedings, San Francisco, CA, April 21-25, 2003.

*Graduate student supervised by candidate
**Research scholar supervised by candidate

Teaching and Advising

Teaching

- ME 300 Engineering Thermodynamics (Fall 2009, Fall 2010, Spring 2011)
- ME (NUCE) 406 Introduction to Statistical Thermodynamics (Spring 2011)
- ME 403 Polymer Electrolyte Membrane Fuel Cells (Fall 2011-2013)
- ME 597D Materials for Energy Conversion and Storages (Spring 2013)

Students/Scholars Supervised

Current Research Scholars Supervised:

Postdoctoral Fellow:
Dr. Jiangxuan Song,
Dr. Duihai Tang,
Dr. Shi Hu

Past Research Scholars Supervised (after joining Penn State):

Postdoctoral Fellow and Current Position:
Dr. Hiesang Sohn (Samsang)
Dr. Jiantao Zai (Lecture, Shanghai Jiaotong University)
Dr. Fang Dai (GM R&D Center)
Dr. Jinkui Feng (Assistant Professor, Shangdong University, China)
Dr. Da Chen (Assistant Professor, China Jiliang University, China)
Dr. Mingjiong Zhou (Lecture, Ningbo University, China)
Dr. Peng Du (Silatronix LLC)
Dr. Dongping Lu (Postdoc, Pacific Northwest National Laboratory)
Visiting Graduate Student:
Mr. Zhongxue Chen (Wuhan University)
Mr. Zhiping Song (Wuhan University)
Mr. Zhiyue Han (Beijing Chemical and Technology University)
Mr. Hai Zhong (Wuhan University)

Ph.D. Students/Candidates

Ph.D.
Dr. Pengyu Zhu (2013, co-advisor)
Dr. Tianren Terrence Xu (2013, advisor)
Current
Mr. Mikhail Gordin (advisor)
Mr. Ran Yi (advisor)
Mr. Shuru Chen (advisor)
Mr. Zhaoxin Yu (advisor)
Mr. Qingquan Huang (advisor)
Mr. Mike Regula (advisor)
Mr. Adnan Mousharraf (advisor)
Mr. Yue Gao (advisor)

M.S. Students/Candidates

M.S.
Mr. Giles Howlett (2014, advisor)
Current
Mr. Mike Melnyk (advisor)

Undergraduate Students

Supervising Tianjun Long to work on polymer binder for Si-based anode in Fall 2012 and Spring 2013.

Supervising Dongao Yang to work on materials design for energy storage in Spring 2013.

Supervising Daniel Salem in NSF-REU program to work in my lab on anode materials of Li-ion battery in Summer 2012.

Supervising Douglas Curatola to work in my lab on materials of Li-ion battery in Summer 2012.

Supervising Qi Zhang to work in my lab on anode materials of Li-ion battery in Summer 2012.

Supervising Michael Melnyk to work on fuel cell design and materials developments in Spring 2012.

Supervising Howie Chu in NSF-REU program to work in my lab on cathode materials of Li-ion battery in Summer 2011.

Supervising Jeremy Marshall in PSU-SROP program to work in my lab on new fabrication of electrodes of Li-ion battery in Summer 2011.

Supervising Alison Cowley in Toshiba-Westinghouse program to work in my lab on new materials for energy storage in Summer 2011.

Supervising Michael Melnyk in Toshiba-Westinghouse program to work in my lab on new materials for energy storage in Summer 2011.

Supervising Wing Kai Tang to work on graphene-based nanocomposites in Fall 2010.

Supervising Qi Zhang in PSU-SROP program working in my lab on novel cathode materials of Li-ion battery in Summer 2010.

Professional Memberships and Licenses

- Material Research Society (MRS)
- American Chemical Society (ACS)
- Electrochemical Society (ECS)

Service to Professions and Governmental Agencies

Symposium Organizer

1. Workshop Organizer. In a New Industrial Chemistry & Engineering (NIChE) Workshop, Pittsburgh, March 2013.

2. Symposium Organizer. In Hierarchically Self-assembled Materials--From Molecule to Nano and Beyond, Materials Research Society Spring Meeting, San Francisco, April 2012.
3. Symposium Organizer. In Fuels, Chemicals, Materials and Energy from Coal, Biomass, Natural Gas and other Natural Resources, American Chemical Society (ACS) Division of Fuel Chemistry, 243rd ACS National Meeting, San Diego, CA, March, 2012.
4. Symposium Organizer. In Bioinspired Materials/Systems, International Materials Research Congress, Cancun, Mexico, 2011.
5. Symposium Organizer. In Fuels, Chemicals, Materials and Energy from Coal, Biomass, Natural Gas and other Natural Resources, American Chemical Society (ACS) Division of Fuel Chemistry, 241th ACS National Meeting, San Francisco, CA, 2011.
6. Symposium Organizer. In Solar Cell and Solar Fuel symposium, American Chemical Society (ACS) Division of Fuel Chemistry, 239th ACS National Meeting, San Francisco, CA, 2010.

Session Chair

1. Session Chair. In symposium of New Energy Technologies, American Chemical Society (ACS) Division of Fuel Chemistry, 240th ACS National Meeting, Boston, MA, 2010.
2. Session Chair. In symposium Catalytic Materials for Energy, Green Processes, and Nanotechnology, Materials Research Society (MRS), Boston, MA, Fall 2009.
3. Session Chair. In symposium of Battery Chemistry Beyond Li-, Electrochemical Society (ECS) Division of Battery, Fuel Cells and Energy Conversion, 224th ECS National Meeting, San Francisco, October, 2013.

Technical Reviewers to Governmental Agencies

- Serve on a NSF Panel to review proposals in SBIR/STTR program
- Serve on a NSF Panel to review proposals in Solid State and Materials Chemistry (DMR/SSMC) program
- Serve on a NSF Panel to review proposals in SBIR/STTR program
- Serve as a technical reviewer to review proposals for the Energy Innovations Small Grant Electricity Program (EISG) sponsored by the California Energy Commission
- Serve on a NSF Panel to review proposals in Materials Processing and Manufacturing (ENG/CMMI) program
- Serve as a technical reviewer to review proposals for North Dakota Renewable Energy Program
- Serve as a technical reviewer to review a proposal for the Global Climate and Energy Project (GCEP)