

CURRICULUM VITAE

XIULEI (DAVID) JI

Address Room 249, Gilbert Hall, Oregon State University
Corvallis, Oregon, 97331, United States
E-mail david.ji@oregonstate.edu
Phone (541) 737-6798
Website <http://jigroup.chem.oregonstate.edu>

EDUCATION

2006 – 2009 **Ph. D.** in Materials Chemistry, University of Waterloo
Supervisor: *Professor Linda F. Nazar*
2004 – 2006 **M. Sc.** in Materials Chemistry, University of Waterloo
Supervisor: *Professor Linda F. Nazar*
1999 – 2003 **B. Sc.** in Chemistry, Jilin University
Supervisor: *Professor Bai Yang*

PROFESSIONAL EXPERIENCE

2012 – Assistant Professor, Department of Chemistry, Oregon State University
(Promoted to Associate Professor after Sep. 2017)
2010 – 2012 NSERC Postdoctoral Fellow, University of California, Santa Barbara
Supervisor: *Professor Galen D. Stucky*
2009 – 2010 Postdoctoral Fellow, University of Waterloo
Supervisor: *Professor Linda F. Nazar*

AWARDS AND HONORS

- Scialog Fellow, Research Corporation for Science Advancement
- CAREER Award, National Science Foundation (2016)
- Innovation Challenge Award, Natural Sciences and Engineering Research Council of Canada (2010)
- Postdoctoral Fellowship, Natural Sciences and Engineering Research Council of Canada (2010 to 2012)
- Government Award for Outstanding Self-Financed Students Abroad (2008)

ACADEMIC SERVICE

- **Panelist** and *ad hoc* **Reviewer**, National Science Foundation, ACS Petroleum Research Foundation
- **Editorial Board Member** for *Scientific Reports* (2013 -)
- **Co-Organizer** for symposiums in ACS Meetings (three times)
- **Co-Guest Editor** for a focus issue in *Journal of Solid State Science and Technology*
- **Referee** for journals, including *J. Am. Chem. Soc.*, *Angew. Chem. Int. Ed.*, *Adv. Mater.*, *Nature Nanotech.*, and so on.

PUBLICATIONS (Google Scholar H-index: 32, Total Citations > 8200)

*** Corresponding author**

73. Wu, X., Leonard, D., Ji*, X. “**Emerging Non-Aqueous Potassium-Ion Batteries: Challenges and Opportunities**” *Chemistry of Materials*, an invited perspective, (2017)
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72. Tan, G., Xu, R. Xing, Z., Yuan, Y., Lu*, J., Wen, J., Liu, C., Ma, L., Zhan, C., Liu, Q., Wu, T., Jian, Z., Shahbazian-Yassar, R., Yang, R., Miller, D. J., Curtiss, L. A., Ji*, X., Amine*, K., “**Burning**” **Lithium in CS₂: Compact Li₂S@Graphene Nanocapsules for Li-S Batteries**” *Nature Energy* (2017) Accepted.
71. Li, Z., Bommier, C., Chong, Z. S., Jian, Z., Surta T. W., Wang, X., Xing, Z., Neuefeind, J. C., Stickle^d, W. F., Dolgos*, M., Greaney*, P. A., and Ji*, X., “**Mechanism of Na-Ion Storage in Hard Carbon Anodes Revealed by Heteroatom Doping**” *Advanced Energy Materials* (2017)
[DOI: 10.1002/aenm.201602894](https://doi.org/10.1002/aenm.201602894)
70. Jian, Z., Hwang, S., Li, Z., Hernandez, A. S., Wang, X., Xing, Z., Su*, D., Ji*, X. “**Hard-Soft Composite Carbon as a Long-Cycling and High-Rate Anode for Potassium-Ion Batteries**” *Advanced Functional Materials* (2017) [DOI: 10.1002/adfm.201700324](https://doi.org/10.1002/adfm.201700324)
69. Jian, Z., Bommier, C., Xing, Z., Li, Z., Wang*, C., Greaney*, P. A., Ji*, X. “**Insights on the Mechanism of Na-Ion Storage in Soft Carbon**” *Chemistry of Materials* 29, no. 5 (2017):2314-2320 [DOI: 10.1021/acs.chemmater.6b05474](https://doi.org/10.1021/acs.chemmater.6b05474)
68. Wu, X., Jian, Z., Li, Z., Ji*, X. “**Prussian White Analogues as Promising Cathode for Non-Aqueous Potassium-Ion Batteries**” *Electrochemistry Communications* 77, (2017): 54-57
<https://doi.org/10.1016/j.elecom.2017.02.012>
67. Li, Z., Jian, Z., Wang, X., Rodríguez-Pérez, I. A., Bommier, C., Ji*, X. “Hard Carbon Anode of Sodium-Ion Batteries: Undervalued Rate Capability” *Chemical Communications* 53, (2017): 2610-2613 [DOI: 10.1039/c7cc00301c](https://doi.org/10.1039/c7cc00301c)
66. Wang, X., Bommier, C., Jian, Z., Li, Z., Chandrabose, R. S., Rodríguez Pérez, I., Ji*, X. “**Hydronium-Ion Batteries with Perylenetetracarboxylic Dianhydride Crystals as an Electrode**” *Angew. Chem. Int. Ed.* 56, (2017): 2909-2913 [DOI:10.1002/ange.201700148](https://doi.org/10.1002/ange.201700148)
65. Zhu, H., Shen, F., Luo, W., Zhu, S., Zhao, M., Natarajan, B., Dai, J., Zhou, L., Ji, X., Yassar, R. S., Li, T., Hu*, L. “**Low Temperature Carbonization of Cellulose Nanocrystals for High Performance Carbon Anode of Sodium-Ion Batteries**” *Nano Energy* 33, (2017): 37-44 <http://dx.doi.org/10.1016/j.nanoen.2017.01.021>
64. Xing, Z., Gao, N., Qi, Y., Ji*, X., Liu*, H. “**Influence of Enhanced Carbon Crystallinity of Nanoporous Graphite on the Cathode Performance of Microbial Fuel Cells**” *Carbon* 115, (2017):271-278 <http://dx.doi.org/10.1016/j.carbon.2017.01.014>
63. Jian, Z., Hu, Y., Ji*, X., Chen*, W. “**NASICON Structure Materials for Energy Storage**” *Advanced Materials* [DOI: 10.1002/adma.201601925](https://doi.org/10.1002/adma.201601925)
62. Eftekhari*, A., Jiang, Z., Ji*, X. “**Secondary Potassium Batteries**” *ACS Applied Materials and Interfaces* 9, no. 5, (2017): 4404-4419 [doi: 10.1021/acsami.6b07989](https://doi.org/10.1021/acsami.6b07989)

61. Xing, Z., Qi, Y., Jian, Z., Ji*, X. **“Polynanocrystalline Graphite: A New Carbon Anode with Superior Cycling Performance for K-ion Batteries.”** *ACS Applied Materials and Interfaces* 9, no.5, (2017): 4343–4351 [doi: 10.1021/acsami.6b06767](https://doi.org/10.1021/acsami.6b06767)
60. Rodríguez-Perez, I. A. Jian, Z., Waldenmaier, P. K., Palmisano, J. W., Chandrabose, R. S., Wang, X., Lerner, M. M., Carter*, R. G., and Ji*, X. **“A Hydrocarbon Cathode for Dual-Ion Batteries”** *ACS Energy Letters* 1, (2016):719-723 [doi: 10.1021/acsenergylett.6b00300](https://doi.org/10.1021/acsenergylett.6b00300)
59. Bommier, C., Leonard, D., Jian, Z., Stickle, W. F., Greaney, P. A., Ji*, X. **“New Paradigms on the Nature of Solid Electrolyte Interphase Formation and Capacity Fading of Hard Carbon Anodes in NIBs”** *Advanced Materials Interfaces* 3, no. 19, (2016):1600449 [doi:10.1002/admi.201600449](https://doi.org/10.1002/admi.201600449)
58. Jiang, Z., Liang, Y. Rodríguez Pérez, I., Yao*, Y. Ji*, X. **“Poly(anthraquinonyl sulfide) Cathode for Potassium-ion Batteries”** *Electrochemistry Communications* 71, (2016): 5-8. doi.org/10.1016/j.elecom.2016.07.011
57. Evanko, B., Yoo, S., Chun, S-E, Wang, X., Ji, X., Boettcher*, S., Stucky*, G. **“Efficient charge storage in dual-redox electrochemical capacitors through reversible counterion-induced solid complexation”** *Journal of American Chemical Society* 138, (2016):9373-9376 [doi: 10.1021/jacs.6b05038](https://doi.org/10.1021/jacs.6b05038)
56. Li, Z., Lu, M., Surta, T., Jian, Z., Bommier, C., Xing, Z., Dolgos, M., Amine, K., Lu*, J., Wu*, T., Ji*, X. **“Unlock High Capacity of Hard Carbon Anodes in Na-ion Batteries by Increasing Structural Defects via Doping PO_x Clusters”** *ACS Energy Letters* 1, (2016): 395-401. [doi: 10.1021/acsenergylett.6b00172](https://doi.org/10.1021/acsenergylett.6b00172)
55. Wang, X., Chandrabose, R. S., Jian, Z., Xing, Z., Ji*, X. **“A 1.8 V Aqueous Supercapacitor with a Bipolar Assembly of Ion-Exchange Membranes as the Separator”** *Journal of the Electrochemical Society* 163, (2016): A1853-A1858. [doi: 10.1149/2.0311609jes](https://doi.org/10.1149/2.0311609jes)
54. Xing, Z., Luo, X., Qi, Y. (undergraduate), Stickle, W. F., Lu*, J., Ji*, X. **“Nitrogen-Doped Nanoporous Graphenic Carbon: An Efficient Conducting Support for O₂ Cathode”** *ChemNanoMat* 2, (2016): 692-697. [doi: 10.1002/cnma.201600112](https://doi.org/10.1002/cnma.201600112)
53. Cheng, Y. Shao*, Y., Raju, V., Ji, X., Mehdi, B. L., Han, K. S., Engelhard, M. H., Li, G., Browning, N. D., Mueller, K. T., Liu*, J. **“Molecular Storage of Mg Ions with Vanadium Oxide Nanoclusters”** *Advanced Functional Materials* 26, no. 20 (2016): 3446-3453. [doi: 10.1002/adfm.201505501](https://doi.org/10.1002/adfm.201505501)
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51. Li, B., Zhang, Y., Ma, D., Xing, Z., Ma, T., Shi, Z. , Ji, X., Ma*, S. **“Creation of a New Type of Ion Exchange Materials for Rapid, High-Capacity, Reversible and Selective Ion Exchange without Swelling and Entrainment”** *Chemical Science* 7, (2016): 2138-2144 [doi: 10.1039/C5SC04507J](https://doi.org/10.1039/C5SC04507J)
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46. Jian, Z., Xing, Z., Bommier, C., Li, Z., Ji*, X. “**Hard Carbon Micro-Spheres: Potassium-Ion Anode Versus Sodium-Ion Anode**” *Advanced Energy Materials* 6, no. 3, (2015): 1501874 [doi: 10.1002/aenm.201501874](https://doi.org/10.1002/aenm.201501874)
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41. Jian, Z., Raju, V, Li, Z., Xing, Z., Hu*, Y.-S., Ji*, X. “**A High-Power Symmetric Na-Ion Pseudocapacitor**” *Advanced Functional Materials* 25, (2015): 5778-5785. [doi: 10.1002/adfm.201502433](https://doi.org/10.1002/adfm.201502433)
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39. Bommier, C., Xu, R., Wang, W., Wang, X., Wen, D. (High School Student), Lu, J., and Ji*, X. “**Self-Activation of Cellulose: A New Preparation Methodology for Activated Carbon Electrodes in Electrochemical Capacitors**” *Nano Energy* 13, (2015): 709-717 [doi:10.1016/j.nanoen.2015.03.022](https://doi.org/10.1016/j.nanoen.2015.03.022),
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37. Jian, Z., Sun, Y., and Ji*, X. “**A New Low-Voltage Plateau of Na₃V₂(PO₄)₃ as an Anode for Na-Ion Batteries**” *Chemical Communications* 51, no. 29 (2015): 6381–6383. [doi:10.1039/C5CC00944H](https://doi.org/10.1039/C5CC00944H)

36. Luo, W., Bommier, C., Jian, Z., Li, X., Carter, R., Vail, S., Lu, Y., Lee, J.-J., and Ji*, X. “**Low-Surface-Area Hard Carbon Anode for Na-Ion Batteries via Graphene Oxide as a Dehydration Agent**” *ACS Applied Materials & Interfaces* 7, no. 4 (2015): 2626–2631. [doi:10.1021/am507679x](https://doi.org/10.1021/am507679x)
35. Xing, Z., Wang, B., Halsted, J. K. (Undergraduate), Subashchandrabose, R., Stickle, W. F., and Ji*, X. “**Direct Fabrication of Nanoporous Graphene from Graphene Oxide by Adding a Gasification Agent to a Magnesiothermic Reaction**” *Chemical Communications* 51, no. 10 (2015): 1969–1971. [doi:10.1039/C4CC08977D](https://doi.org/10.1039/C4CC08977D)
34. Xing, Z., Wang, B., Gao, W., Pan, C., Halsted, J. K. (Undergraduate), Chong, E. S. (undergraduate), Lu, J., Wang, X., Luo, W., Chang, C.-H., Wen, Y., Ma, S., Amine*, K., and Ji*, X. “**Reducing CO₂ to Dense Nanoporous Graphene by Mg/Zn for High Power Electrochemical Capacitors**” *Nano Energy* 11, (2015): 600–610. [doi:10.1016/j.nanoen.2014.11.011](https://doi.org/10.1016/j.nanoen.2014.11.011)
33. Bommier, C. and Ji*, X. “**Recent Development on Anodes for Na-Ion Batteries**” *Israel Journal of Chemistry* 55, no. 5 (2015): 486–507. [doi:10.1002/ijch.201400118](https://doi.org/10.1002/ijch.201400118) (Invited Review Article)
32. Raju, V., Rains, J. (undergraduate), Gates, C. (undergraduate), Luo, W., Wang, X., Stickle, W. F., Stucky, G. D., and Ji*, X. “**Superior Cathode of Sodium-Ion Batteries: Orthorhombic V₂O₅ Nanoparticles Generated in Nanoporous Carbon by Ambient Hydrolysis Deposition**” *Nano Letters* 14, no. 7 (2014): 4119–4124. [doi:10.1021/nl501692p](https://doi.org/10.1021/nl501692p)
31. Luo, W., Allen, M. (undergraduate), Raju, V., and Ji*, X. “**An Organic Pigment as a High-Performance Cathode for Sodium-Ion Batteries**” *Advanced Energy Materials* 4, no. 15 (2014): 1400554–1400558. [doi:10.1002/aenm.201400554](https://doi.org/10.1002/aenm.201400554)
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29. Bommier, C., Luo, W., Gao, W.-Y., Greaney, A., Ma, S., and Ji*, X. “**Predicting Capacity of Hard Carbon Anodes in Sodium-Ion Batteries Using Porosity Measurements**” *Carbon* 76, (2014): 165–174. [doi:10.1016/j.carbon.2014.04.064](https://doi.org/10.1016/j.carbon.2014.04.064)
28. Ji, X., He, G., Andrei, C., and Nazar*, L. F. “**Gentle Reduction of SBA-15 Silica to Its Silicon Replica with Retention of Morphology**” *RSC Advances* 4, no. 42 (2014): 22048. [doi:10.1039/c3ra46557h](https://doi.org/10.1039/c3ra46557h)
27. Luo, W., Wang, B., Heron, C. G. (undergraduate), Allen, M. J. (undergraduate), Morre, J., Maier, C. S., Stickle, W. F., and Ji*, X. “**Pyrolysis of Cellulose under Ammonia Leads to Nitrogen-Doped Nanoporous Carbon Generated through Methane Formation**” *Nano Letters* 14, no. 4 (2014): 2225–2229. [doi:10.1021/nl500859p](https://doi.org/10.1021/nl500859p)
26. Luo, W., Lorget, S., Wang, B., Bommier, C., and Ji*, X. “**Facile Synthesis of One-Dimensional Peapod-like Sb@C Submicron-Structures**” *Chemical Communications* 50, no. 41 (2014): 5435. [doi:10.1039/c4cc01326c](https://doi.org/10.1039/c4cc01326c)

25. Raju, V., Wang, X., Luo, W., and Ji*, X. “**Multiple Ambient Hydrolysis Deposition of Tin Oxide into Nanoporous Carbon To Give a Stable Anode for Lithium-Ion Batteries**” *Chemistry – A European Journal* 20, no. 25 (2014): 7686–7691. [doi:10.1002/chem.201402280](https://doi.org/10.1002/chem.201402280)
24. Wang, X., Raju, V., Luo, W., Wang, B., Stickle, W. F., and Ji*, X. “**Ambient Hydrolysis Deposition of TiO₂ in Nanoporous Carbon and the Converted TiN–carbon Capacitive Electrode**” *Journal of Materials Chemistry A* 2, no. 9 (2014): 2901. [doi:10.1039/c3ta14278g](https://doi.org/10.1039/c3ta14278g)
23. Luo, W., Wang, B., Wang, X., Stickle, W. F., and Ji*, X. “**Production of Graphene by Reduction Using a Magnesiothermic Reaction**” *Chemical Communications* 49, no. 91 (2013): 10676. [doi:10.1039/c3cc46368k](https://doi.org/10.1039/c3cc46368k)
22. Luo, W., Wang, X., Meyers, C., Wannemacher, N., Sirisaksoontorn, W., Lerner, M. M., and Ji*, X. “**Efficient Fabrication of Nanoporous Si and Si/Ge Enabled by a Heat Scavenger in Magnesiothermic Reactions**” *Scientific Reports* 3, (2013): [doi:10.1038/srep02222](https://doi.org/10.1038/srep02222)
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15. Lee, K. T., Black, R., Yim, T., Ji, X., and Nazar, L. F. “**Surface-Initiated Growth of Thin Oxide Coatings for Li–Sulfur Battery Cathodes**” *Advanced Energy Materials* 2, no. 12 (2012): 1490–1496. [doi:10.1002/aenm.201200006](https://doi.org/10.1002/aenm.201200006)
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