

JONGWOO LIM

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APPOINTMENTS

Seoul National University, Seoul, Korea

Mar.2017 – Present

Assistant Professor, Department of Chemistry

Stanford University, California, United States

Oct.2014 – Feb.2017

Postdoctoral Researcher, Department of Materials Science and Engineering

Advisor : William C. Chueh

University of California at Berkeley, California, United States

Feb.2014 - Sep.2014

Postdoctoral Researcher, Department of Chemistry

Advisor : Peidong Yang

EDUCATION

University of California at Berkeley, California, United States

Aug.2008 - Dec.2013

Ph. D. Department of Chemistry

Advisor : Peidong Yang

Thesis Title : Phonon and Electron Transport in Silicon Nanostructures

Pohang University of Science and Technology (POSTECH), Pohang, Korea

Mar.2001 - Feb.2008

B.S. Department of Chemistry

Advisor: Sungjee Kim

University of California at Berkeley, California, United States

Aug.2006 - May.2007

Concurrent enrollment program *Advisor : Stephen Leone*

University of Tokyo, Tokyo, Japan

Jan.2006 - Feb.2006

Undergraduate Researcher, *Advisor: T. Hasegawa and T. Shimada*

RESEARCH SUPERVISION

Graduate Student Advisees

Jinkyu Chung, Sugeun Jo	July. 2017 - present
Hyejung Hyun, Hyeyoon Park, Bonho Koo	Jan. 2018 - present
Juwon Kim, Joonho Bae, Subin Choi	July.2018 - present
Jeongwoo Hahn, Donghyuk Go, Yongjoon Kim, Danwon Lee, Hwiho Kim	July. 2018 – present Jan. 2019 – present

Postdoctoral Associate Advisees

Dr. Jian Wang	Sep. 2018 – present
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TEACHING EXPERIENCE

AT SEOUL NATIONAL UNIVERSITY

General Chemistry (1)	Sep. 2017 – Dec.2017
General Chemistry (2)	Mar.2018 – Jun.2018
Chemical Instrumentation	Sep. 2018 – Dec.2018
General Chemistry	Mar.2019 – Jun. 2019
Chemical Instrumentation	Sep. 2019 – present

PROFESSIONAL SERVICE

Board of Trustees, Korean Electrochemical Society	Jan.2018 – present
Secretary of analytical chemistry division, Korean Chemical Society	Jan. 2019 - present
Secretary of physical chemistry division, Korean Chemical Society	Jan. 2019 - present

AWARDS

Materials Research Society (MRS), CA, United States
Graduate Student Silver Award,

Apr. 2013

SCHOLARSHIPS

YangYeong Foundation, Scholarship for academic excellence	2006-2007
Exchange Student Scholarship, Financial support for studying at UC Berkeley	2005-2006
Insuk Foundation, Scholarship for the student with the highest GPA, POSTECH	2003-2005

PUBLICATIONS

[21] R. Gao, W. Wang, L. Pan, J. Wang, J. Zhang, W. Zhu, X. Zhang, C. Shi, J-J. Zou, **J. Lim** “Pt-Fe single pair with opening orbitals driven by strong electronic coupling for electrocatalytic oxygen reduction” *under review*

[20] J. Park, ZL Xu, G. Yoon, S. K. Park, J. Wang, H. Hyun, H. Park, **J. Lim**, Y-J. Ko, Y. S. Yun, K. Kang, “Stable and High-Power Calcium-Ion Batteries Enabled by Calcium Intercalation into Graphite” *Advanced Materials*, 2019, 1904411

[19] Y. Li, H. Chen, K. Lim, H. D. Deng, **J. Lim**, D. Fraggedakis, P. M. Attia, S. C. Lee, N. Jin, J. Moskon, Z. Guan, J. Hong, Y. S. Yu, M. Gaberscek, M. S. Islam, M. Z. Bazant, W. C. Chueh, "Fluid-enhanced Surface Diffusion Controls Intra-particle Phase Transformations" *Nature Materials*, 2018, 18, 915 - 922

[18] K. K. Sakimoto, N. Kornienko, C. Cestellos-Blanco, **J. Lim**, C. Chong, P. Yang, “Physical Biology of the Materials–Microorganism Interface” *Journal of the American Chemical Society*, **2017**, 140 (6) 1978-1985

[17] J. H. Seol, D. S. Barth, J. Zhu, D. Coso, K. Hippalgaonkar, **J. Lim**, J. Han, X. Zhang, and A. Majumdar “Tunable thermal conductivity in mesoporous silicon by slight porosity change” *Applied Physics Letters*, **2017**, 111, 063104

[16] **J. Lim**, Y. Li, D. H. Alsem, H. So, S. Lee, P. Bai, D.A. Cogswell, X. Liu, N. Jin, Y. Yu, N. Salmon, D. Shapiro, M. Z. Bazant, T. Tyliczszak, W. C. Chueh “Using Scanning Transmission X-ray Microscopy to Reveal the Origin of Lithium Compositional Spatiodynamics in Battery Materials” *Microscopy and Microanalysis*, 2017, 23, 888-889

[15] H. So, **J. Lim**, A. Suria, D. Senesky “Highly antireflective AlGa_N/Ga_N ultraviolet photodetectors using ZnO nanorod arrays on inverted pyramidal surfaces” *Applied Surface Science*, **2017**, 409, 91-96

[14] **J. Lim**^{*}, Y. Li^{*}, D. H. Alsem, H. So, S. Lee, P. Bai, D.A. Cogswell, X. Liu, N. Jin, Y. Yu, N. Salmon, D. Shapiro, M. Z. Bazant, T. Tylliszczak, W. C. Chueh “Origin and Hysteresis of Li Compositional Spatio-Dynamics within Battery Primary Particles”, *Science*, **2016**, 353, 566-571

- Covered by over 20 media reports including *Stanford News*, *Chosun.com*, and *JTBC.co.kr*
- Highlighted by perspective in *Science* : S. Schougaard, 2016, 353, 543-544

[13] J. Lee^{*}, W. Lee^{*}, **J.Lim**^{*}, Y. Yu, Q. Kong, J. Urban, and P. Yang “Thermal Transport in Silicon nanowires at High Temperature up to 700K”, *Nano Letters*, **2016**, 16, 4133-4140

[12] W. E. Gent, Y. Li, S. Ahn, **J. Lim**, Y. Liu, A. Wise, C. B. Gopal, D. Mueller, R. Davis, J. N. Weker, J-H. Park, S-K. Doo, W.C. Chueh “Persistent State-of-Charge Heterogeneity in Relaxed, Partially Charged Li_{1-x}Ni_{1/3}Co_{1/3}Mn_{1/3}O₂ Secondary Particles”, *Advanced Materials*, **2016**, 28, 6631-6638,

[11] H. So, **J.Lim**, D. G. Senesky, “Continuous V-Grooved AlGa_N/Ga_N surfaces for High-Temperature Ultraviolet Photodetectors”, *IEEE Sensors*, **2016**, 16, 3633-3639

[10] **J. Lim**^{*}, H. Wang^{*}, J. Tang, S. C. Andrews, J. Lee, D.H. Lee, T. Russell, and P. Yang “Simultaneous Thermoelectric Property Measurement and Incoherent Phonon Transport in Holey Silicon”, *ACS Nano*, **2016**, 10, 124-132

[9] H. So, M. Hou, S. R. Jain, **J. Lim**, D. G. Senesky, “Interdigitated Pt-Ga_N Schottky Interfaces for High-Temperature Soot-Particulate Sensing”, *Applied Surface Science*, **2016**, 368, 104-109

[8] Y. Li, S. Meyer, **J. Lim**, S. C. Lee, W. E. Gent, D. Shapiro, T. Tylliszczak, A. L. D. Kilcoyne, and W. C. Chueh, “Effects of Particle Size and Incoherent Nanoscale Crystallite Domains on the Sequence of Lithiation in LiFePO₄ Porous Electrode” *Advanced Materials*, **2015**, 27, 6591-6597

[7] Y. Li, J. N. Weker, W.E. Gent, D.N. Mueller, **J. Lim**, D. A. Cogswell, T. Tylliszczak, and W. C. Chueh, “Dichotomy in the lithiation pathway of ellipsoidal and platelet LiFePO₄ particles revealed through nanoscale operando State-of-charge imaging.” *Advanced Functional Materials*, **2015**, 25, 3677-3687

[6] J. Lee^{*}, **J. Lim**^{*}, P. Yang, “Ballistic Phonon Transport in Holey Silicon”, *Nano Letters*, **2015**, 15, 3273 - 3279

[5] K. Sakimoto, C. Liu, **J. Lim**, and P. Yang “Salt-Induced Self Assembly of Bacteria on Nanowire Arrays”, *Nano Letters*, **2014**, 14, 5471 - 5476

[4] N. Dasgupta, J. Sun, C. Liu, S. Brittman, S.C. Andrews, **J. Lim**, H Gao, R. Yan, P. Yang “Semiconductor Nanowires: Synthesis, Characterization, and Applications” *Advanced Materials*, **2014**, 26, 2137 – 2184 (invited review)

[3] S. Lee*, G. Kim*, **J. Lim**, S. Han, S. Han, B. Li, J.T.L. Thong, and S. Lee, “Control of Surface Morphology and Crystal Structure of Silicon Nanowires (SiNWs) and their both Anisotropic and Coherent Phonon Transport Characteristics, *Acta Materialia*, **2014**, 64, 62 - 71

[2] **J. Lim***, K. Hippalgaonkar*, S. C. Andrews, A. Majumdar and P. Yang, “Quantifying Surface Roughness Effect On Phonon Transport in Silicon Nanowires”, *Nano Letters*, **2012**, 12(5), 2475-2482

[1] J. Bang, J. Park, J. Lee, N. Won, J. Nam, **J. Lim**, B. Y. Chang, H. J. Lee, B. Chon, J. Shin, J. B. Park, J. H. Choi, K. Cho, S. M. Park, T. Joo, and S. Kim, "ZnTe/ZnSe (Core/Shell) Type-II Quantum Dots: Their Optical and Photovoltaic Properties", *Chemistry of Materials*, **2010**, 22(1), 233-240

* denotes equal contribution

PRESENTATIONS

Invited Talk

1. (2019.06.20) KCC Corporation, Yongin, South Korea
2. (2019.06.10) LG Chem, Daejeon, South Korea
3. (2019.05.31) Inha University, Incheon, South Korea
4. (2019.05.23) Spring symposium 2019, Society of Microscopy Symposium
5. (2019.05.02) Spring symposium 2019, The Korean Society of Industrial and Engineering Chemistry
6. (2019.03.07) Korean Institute of Science and Technology
7. (2019.01.16) Institute of Basic Science, Korea University, Seoul, South Korea
8. (2018.12.20) Department of Chemistry, Kyungpook National University, Daegu, South Korea
9. (2018.12.05) SpectroNanoscopy Workshop 2018, Seoul, South Korea
10. (2018.12.03) 2018 International Symposium on New Frontiers in Nano-Bio-Electronic Convergence Science and Technology (ISNBE 2018), Suwon, South Korea
11. (2018.11.28) Fall Symposium 2018, Korean Battery Society, Busan, South Korea

12. (2018.11.28) Department of Chemistry, Kyunghee University, Seoul, South Korea
13. (2018.11.12) 5th ERTL International Symposium, Gwangju, South Korea
14. (2018.11.08) Fall Symposium 2018, Materials Research Society of Korean, Yeosu, South Korea
15. (2018.11.07) Hanyang University, Ansan, South Korea
16. (2018.10.26) 2018 Fall Conference, The Korean Institute of Metals and Materials, Daejeon, South
17. (2018.10.24) Electronics and Telecommunications Research Institute, Daejeon, South Korea
18. (2018.10.18) 2018 Fall Conference, Division of Physical Chemistry, Korean Chemical Society, Daegu, South Korea,
19. (2018.10.17) Chungnam National University, Daejeon, South Korea
20. (2018.09.18) Department of Mechanical Engineering Hayang University, Seoul, South Korea
21. (2018.09.13) 2018 Fall Symposium, Korean Society of Photon Science, Seoul, South Korea
22. (2018.09.03) Korea Research Institute of Chemical Engineering, Daejeon, South Korea
23. (2018.08.22) International Union Materials Research on International Conference on Electronic Materials, Daejeon, South Korea
24. (2018.08.22) International Union Materials Research on International Conference on Electronic Materials, Daejeon, South Korea
25. (2018.08.01) Max Planck Institute, Berlin, Germany
26. (2018.04.21) Daejoo Electronic Materials, South Korea
27. (2018.04.21) Department of Applied Chemistry, Kyunghee University
28. (2018.04.04) Graduate School of Convergence Science and Technology, Seoul National University, Suwon, South Korea
29. (2018.04.02) Department of Physics, Choong Ang University, Seoul, South Korea
30. (2018.03.21) Department of Chemistry, Sookmyung University, Seoul, South Korea
31. (2018.03.20) Department of Chemistry, Ewha Woman's University, Seoul, South Korea
32. (2018.03.15) Samsung Advanced Institute of Technology, Suwon, South Korea
33. (2018.02.08) 2018 Winter Symposium, Korean Chemical Society, Suwon, South Korea
34. (2018.01.11) Gacheon University, Sungnam, South Korea
35. (2017.12.19) International Collaborative & Cooperative Chemistry Symposium, Hyderabad, India
36. (2017.11.24) Department of Chemistry, Pusan National University
37. (2017.11.24) 29th User Meeting, Pohang Accelerator Laboratory, Pohang, South
38. (2017.11.21) International Conference on Advanced Electromaterials, Jeju, South Korea
39. (2017.11.20) KAIST international workshop on EEWS, Daejeon, South Korea
40. (2017.11.17) Asia-Korea Conference Science and Technology, Singapore
41. (2017.11.16) 2017 Fall Symposium, Materials Research Society of Korea, South Korea
42. (2017.11.08) International Symposium on High Performance Liquid Phase Separations and Related Techniques 2017, Jeju, South Korea
43. (2017.11.03) 2017 Fall Symposium, Korean Electrochemical Society, Jeju, South Korea
44. (2017.10.20) 2017 Fall Symposium, Korean Chemical Society, Daegu, South Korea

45. (2017.10.18) Department of Energy Science, Sungkyunwhan University, Suwon, South Korea
46. (2017. 09. 20) Department of Chemistry, Korean Advanced Institute of Science and Technology, Daejeon, South Korea
47. (2017. 09.04) 2017 SpectroNanoscopy Workshop, Seoul, Korea
48. (2017. 07. 20) 2017 Summer symposium, Korean Chemical Society, Jeju, South Korea
49. (2017. 07. 05) Clean Energy Research Center, Korea Institute of Science and Technology, Seoul, South Korea
50. (2017.05.18) 2017 Spring Conference, Materials Research Society of Korea, Mokpo , South Korea,
51. (2017.05.17) Department of Energy and Chemical Engineering, Ulsan National Institute of Science and Technology, "Single-level Spectro-microscopy for electrochemical systems"
52. (2017.05.18) Sunchon National University, Sunchon, South Korea
53. (2017.04.26) 2017 Operando Workshop, Gwangju, South Korea
54. (2017.04.20) 2017 Spring Conference, Division of Inorganic Chemistry, Korean Chemical Society, Goyang, South Korea
55. (2017.04.07) 2017 Spring Conference, Division of Physical Electrochemistry, Korean Electrochemical Society, Jeju, South Korea
56. (2016.02.21) Gordon Research Seminar, Ventura, CA, USA
57. (2015.10.6) 2015 Fall ALS User Meeting, Advance Light Source, Berkeley, CA, USA
58. (2013.11.4.) 2013 Annual Meeting, American Institute of Chemical Engineers, San Francisco, CA, USA
59. (2013.4.2) Award Talk, Materials Research Society, San Francisco, CA, USA