NAME:
Cho, Kyeongjae (KJ)

EDUCATION:
BS, Physics, Seoul National University, 1986
MS, Physics, Seoul National University, 1988
PhD, Physics, M.I.T., 1994

ACADEMIC EXPERIENCE:
Professor, Department of Materials Science and Engineering, UT Dallas, TX, 2012 – present.
Associate Professor, Department of Materials Science and Engineering, UT Dallas, TX, 2006 – 2012.
Assistant Professor, Stanford University, 1997-2006
Research Fellow, Harvard University, 1995-1996
Research Scientist, M.I.T., 1995-1997
Postdoctoral Associate, M.I.T., 1994-1995

NON-ACADEMIC EXPERIENCE:
Co-founder and Scientific Advisor, Nanostellar Inc., CA, 2003 - 2012

CERTIFICATIONS / PROFESSIONAL REGISTRATION:
N/A

CURRENT MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS:
Members of American Physical Society (Fellow), Material Research Society, IEEE, Electrochemical Society, and Institute of Physics (Fellow)

HONORS & AWARDS:
Korean Government Overseas Study Fellowship (1988-1990)
MIT Industry Liaison Fellowship (1988)
Packard Foundation Frederich E. Terman Junior Faculty Fellowship (1997-2000)
Fellow of the Institute of Physics (Elected in 2004)
WCU visiting professor at Seoul National University (2009 – 2015)
Fellow of the American Physical Society (Elected in 2016)

SERVICE ACTIVITIES IN THE LAST FIVE YEARS:
The 3rd, 4th, 5th, 6th, 7th, 8th and 9th KIAS Electronic Structure Calculation Workshop (2007, 2008, 2009, 2010, 2011, 2012, 2013); KIAS Graphene Research Seminar (2007-2009).
The first and second Graphene Research Workshop (2009 in Korea, 2010 in Singapore)
Member of faculty search committees
Chair of Curriculum Committee at Materials Science and Engineering Department
Member of Academic Affairs Council of Erik Jonsson School Engineering and Computer Science
Chair and Member of MSE Personnel Review Committee

PROFESSIONAL DEVELOPMENT ACTIVITIES IN THE LAST FIVE YEARS:
Referees for Physical Review Letters, Physical Review A, B and E, Material Science and Engineering, International Journal of Solids and Structures, Journal of Biochemistry, and Computational Materials Science, Nano Letter.

Members of Editorial Boards of Modeling and Simulation in Materials Science and Engineering (2001-2005), Computer Modeling in Engineering & Science (2002-2006), Journal of Computational and Theoretical Nanoscience (2003-2006), and Computational Materials Science (2014-present); Topical Editor of Current Applied Physics (2013-2016).

PRINCIPAL PUBLICATIONS/PRESENTATIONS IN THE LAST FIVE YEARS:

(Career total: 274 Journal Papers; 41 Conference Proceeding Papers; Jan. 23, 2017 Citation Numbers: SCI = 12,854, SCOPUS = 14,339, Google = 18,500; SCI h-index = 49, SCOPUS h-index = 51, Google h-index = 55)

1. S. Chen, Q. Wu, C. Mishra, J. Kang, H. Zhang, K. Cho, W. Cai, A.A. Balandin, and R.S. Ruoff, "Thermal conductivity of isotopically modified graphene," Nature Mat. 11, 203-207 (2012).
2. W. Wang, G. McCool, N. Kapur, G. Yuan, B. Shan, M. Nguyen, U. M. Graham, B. H. Davis, G. Jacobs, K. Cho, X. Hao, "Mixed-Phase Oxide Catalyst Based on Mn-Mullite (Sm, Gd)Mn_2O_5 for NO Oxidation in Diesel Exhaust," Science 337, 832-835 (2012).
3. R. C. Longo, K. Xiong, W. Wang and K. Cho, "Influence of the exchange-correlation potential on the electrochemical properties of multicomponent silicate cathode materials," Electrochimica Acta 80, 84 (2012).
4. C. Gong, L. Colombo, and K. Cho, "Photon-Assisted CVD Growth of Graphene Using Metal Adatoms as Catalysts", J. Phys. Chem. C 116, 18263-18269 (2012).
5. C. Gong, H. Zhang, W. Wang, L. Colombo, R.M. Wallace, K. Cho, "Band alignment of two-dimensional transitional metal dichalcogenides: Application in tunnel field effect transistors," Appl. Phys. Lett. 103, 053513 (2013).
6. Y. Zheng, W. Xiao, M. Cho and K. Cho, "Density functional theory calculations for the oxygen dissociation on nitrogen and transition metal doped graphenes," Chem. Phys. Lett. 586, 104-107 (2013).
7. Santosh KC, Ka Xiong, Roberto C. Longo, and Kyeongjae Cho, "Interface phenomena between Li anode and Lithium phosphate electrolyte for Li-ion battery," Journal of Power Source 244, 136-142 (2013).
8. R. C. Longo, K. Xiong, Santosh KC and K. Cho, "Crystal structure and multicomponent effects in Tetrahedral Silicate Cathode Materials for Rechargeable Li-ion Batteries," Electrochimica Acta 121, 434-442 (2014).
9. K. Xiong, R. C. Longo, Santosh KC, W. Wang, and K. Cho, "Behavior of Li defects in solid electrolyte lithium thiophosphate $Li_7P_3S_{11}$: A first principles study," Computational Materials Science 90, 44-49 (2014).
10. Hengji Zhang, Geunsik Lee, Cheng Gong, Luigi Colombo, and Kyeongjae Cho, "Grain Boundary Effect on Electrical Transport Properties of Graphene," J. Phys. Chem. C 118(5), 2338-2343 (2014).
11. C. Gong, L. Colombo, R.M. Wallace, K. Cho, "The Unusual Mechanism of Partial Fermi Level Pinning at Metal-MoS2 Interface," Nano Lett. 14(4), 1714-1720 (2014).
12. S. KC, R.C. Longo, K. Xiong, K. Cho, "Point defects in garnet-type solid electrolyte (c-Li7La3Zr2O12) for Li-ion batteries," Solid State Ionics 261, 100-105 (2014).
13. P. Bhadrachalam, R. Subramanian, V. Ray, LC Ma, W. Wang, J. Kim, K. Cho, S. Koh, "Energy-filtered cold electron transport at room temperature," Nature Comm. 5, 4745 (2014).
14. **J.-M. Lim, D. Kim**, Y.-G. Lim, M.-S. Park, Y.-J. Kim, M. Cho, K. Cho, "**Origins and mechanism of phase transformation in bulk Li2MnO3: First-principles calculation and experimental study**," J. Mater. Chem. A 3, 7066-7076 (2015).
15. **F. Kong**, *R.C. Longo*, M.-S. Park, J. Yoon, D.-H. Yeon, J.-H. Park, *W. Wang*, **S. KC**, S.-K. Doo, and K. Cho, "***Ab initio* study of doping effects on $LiMnO_2$ and Li_2MnO_3 cathode materials for Li-ion batteries**," J. Mater. Chem. A **3**, 8489-8500 (2015).
16. *K. Xiong, R. Longo, W. Wang*, R. Gupta, B. Gnade, K. Cho, "**Enhancement of the thermoelectric efficiency of PbTe by selective site doping: Effect of group VA impurities**," Comp. Mater. Sci. 97, 159-164 (2015).
17. A.F. Fonseca, *H. Zhang*, K. Cho, "**Formation energy of graphene oxide structures: a molecular dynamics study on distortion and thermal effects**," Carbon 84, 365-374 (2015).
18. **S. KC**, *R.C. Longo*, R.M. Wallace, K. Cho, "**Surface Oxidation Energetics and Kinetics on MoS_2 Monolayer**," J. Appl. Phys. 117, 135301 (2015).
19. **Y. Zheng**, K. Song, J. Jung, C. Li, Y.-U. Heo, M.-S. Park, M. Cho, Y.-M. Kang, K. Cho, "**Critical**

Descriptor for the Rational Design of Oxide-Based Catalysts in Rechargeable Li-O2 Batteries: Surface Oxygen Density" Chem. Mater. 27, 3243-3249 (2015).

20. *H. Zhang*, T. Zheng, B. Gnade, K. Cho, "**The Effect of Point Defects and Nanoparticles on Thermal Conductivity of Magnesium Silicide**," Comp. Mater. Sci. 104, 172-176 (2015).
21. *W. Wang*, **C. Gong**, W. Wang, S.K. Fullerton-Shirley, A. Seabaugh, K. Cho, "**First principles study of crown ether and crown ether-Li complex interactions with graphene**" J. Phys. Chem. C 119, 20016-20022 (2015).
22. **Santosh KC**, **C. Zhang**, S. Hong, R. M. Wallace, K. Cho, "**Phase stability of transition metal dichalcogenide by competing ligand field stabilization and charge density wave**", 2D Mater. 2 (3), 035019 (2015).
23. **D. Kim**, **J.-M. Lim**, Y.-G. Lim, JS Yu, MS Park, M. Cho and K. Cho "Design of Nickel-rich Layered Oxides Using d Electronic Donor for Redox Reactions," , Chem. Mater. 27, 6450-6456 (2015).
24. **F. Kong**, *R. C. Longo*, D. H. Yeon, J. Yoon, J.-H. Park, C. Liang, S. KC, Y. Zheng, S.G. Doo, and K. Cho, "**Multi-Valent Li-Site Doping of Mn Oxides for Li-Ion Batteries**" J. Phys. Chem. C 119 (38), 21904 (2015).
25. **C. Gong**, **H. Zhang**, *W. Wang*, L. Colombo, RM Wallace, K. Cho, "**Band alignment of two-dimensional transition metal dichalcogenides: Application in tunnel field effect transistors (vol 103, 053513, 2013)**" Appl. Phys. Lett. 107, 139904 (2015).
26. **D. Kim**, **J.-M. Lim**, Y.-G. Lim, MS Park, YJ Kim, M. Cho and K. Cho, "Understanding of Surface Redox Behaviors of Li2MnO3 in Li-Ion Batteries: Frist-Principles Prediction and Experimental Validation," ChemSusChem, 8, 3255-3262 (2015).
27. M. Amani, D.-H. Lien, D. Kiriya, J. Xiao, A. Azcatl, *J. Noh*, S. R. Madhvapathy, R. Addou, **Santosh KC**, M. Dubey, K. Cho, R. M. Wallace, S.-C. Lee, J.-H. He, J. W. Ager III, X. Zhang, E. Yablonovitch, A. Javey,"**Near-Unity Photoluminescence Quantum Yield in MoS_2**", *Science* 27, 350 (6264)1065-1068(2015).
28. **F. Kong**, *R. C. Longo*, *H. Zhang*, B. Lee, D. -H. Yeon, J. Yoon, J. -H. Park, S. -G. Doo and K. Cho, "**A large-scale simulation method on complex ternary Li-Mn-O compounds for Li-ion battery cathode materials,"** Computational Materials Science **112**, 193-204 (2015)
29. W. Wang, *C. Gong*, *K. Xiong*, **Santosh KC**, R. M Wallace, K. Cho, "**Materials Design on the Origin of Gap States in a High-κ/GaAs Interface**", Engineering 1 (3), 372-377 (2015).
30. **F. Kong**, *H. Zhang*, *R. C. Longo*, B. Lee, D.-H. Yeon, J. Yoon, J.-H. Park, S.-K. Doo and K. Cho, "A Large Scale Simulation Method on the Complex Ternary Li-Mn-O Compound for Li-ion Battery Cathode Materials", Comput. Mater. Sci. 112, 193-204 (Feb. 2016).
31. **Yifan Nie**, Suklyun Hong, Robert M. Wallace, and Kyeongjae Cho, "Theoretical Demonstration of Ionic Barristor," Nano Lett 16(3), 2090-2095 (Mar. 2016).
32. Joshua Minwoo Kweun, Chenzhe Li, **Yongping Zheng**, Maenghyo Cho, Yoon Young Kim, and Kyeongjae Cho, **"Bulk-Surface relationship of an electronic structure for high-throughput screening of metal oxide catalysts,"** Appl. Surf. Sci. 370, 279-290 (May 1, 2016).
33. HD Lim, B. Lee, **Y. Zheng**, J. Hong, J. Kim, H. Gwon, Y. Ko, M. Lee, K. Cho, K. Kang, "Rational design of redox mediators for advanced Li–O2 batteries." *Nature Energy* 1, 16066 (May 23, 2016)
34. **Chenxi Zhang**, **Santosh KC, Yifan Nie,** *Chaoping Liang*, William G Vandenberghe, *Roberto C Longo*, **Yongping Zheng, Fantai Kong**, Suklyun Hong, Robert M Wallace, Kyeongjae Cho, "Charge Mediated Reversible Metal–Insulator Transition in Monolayer MoTe2 and W x Mo1–x Te2 Alloy," ACS nano 10 (8), 7370-7375 (Aug. 2016).
35. **Y. Zheng**, DS Yang, JM Kweun, C. Li, K. Tan, **F. Kong**, *C. Liang*, Y. Chabal, YY Kim, M. Cho, JS Yu, K. Cho, "Rational design of common transition metal-nitrogen-carbon catalysts for oxygen reduction reaction in fuel cells." *Nano Energy* 30, 443-449 (Dec. 2016).