Jong Seok Jeong, Ph. D.

Department of Chemical Engineering & Materials Science, University of Minnesota, Twin-Cities
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Citizenship: Republic of Korea (*Language*: Korean, English, and Japanese)

Current position:

Research Assistant Professor (June 16, 2014–present): Chemical Engineering & Materials Science, University of Minnesota-Twin Cities

Educations:

- Ph.D. (2001–2005): Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea
- M.S. (1999–2001): Materials Science and Engineering, KAIST, Korea
- B.S. (1995–1999): Materials Science and Engineering, Korea University, Korea

Appointments:

- Post-Doc. (May 2011–Jun. 2014): Department of Chemical Engineering & Materials Science, University of Minnesota (*Advisor: Prof. K. Andre Mkhoyan*)
- Post-Doc. (Apr. 2009–Mar. 2011): Institute of Multidisciplinary Research for Advanced Materials (IMRAM), Tohoku University, Japan *(Advisor: Prof. Daisuke Shindo*)
- Assistant Professor (Mar. 2007–Feb. 2009): Center for Nano Materials, Sogang University, Korea
- Senior Scientist (Sep. 2005–Feb. 2007): LG Chem., Ltd. Research Park, Korea
- Visiting Scholar (Feb. 2004–May. 2004): National Institute of Advanced Industrial Science and Technology (AIST), Japan
- Research Assistant (1999-2005): Materials Science and Engineering, KAIST

Awards:

- M&M Micrograph Competition Award (First Prize), *2015*, Microscopy Society of America
- Eric Samuel Postdoc Scholarship, *2014*, Microscopy Society of America
- Best Poster Award, *2010*, The Japan Institute of Metals
- Ceramography Contest (Selected Prize), *2004*, The Korean Ceramic Society
- JEOL EM Metallographic Contest (Selected Prize), *2006*, Korean Society of Microscopy
- HITACHI EM Metallographic Contest (Encouragement Prize), *2003*, Korean Society of Microscopy
- JEOL EM Metallographic Contest (Selected Prize), *2002*, Korean Society of Microscopy
- College Scholarship, *1996-1999*, Moam Scholarship Committee

Teaching Experiences:

- *2007-2008 Four graduate classes in the Interdisciplinary Program of Integrated Biotechnology at the Sogang University*
  - Principle and Application of Electron Microscopy (in Korean), Spring 2007, Spring 2008
  - Crystallography and Diffraction (in English), Spring 2007, Spring 2008
  - Instrumental Analyses for Nanotechnology (in Korean), Fall 2007, Fall 2008
  - Practical Application of Transmission Electron Microscopy (in English), Fall 2007, Fall 2008

- *Co-instructor for four TEM workshops sponsored by the Korean Society of Microscopy*
  - TEM workshop held in Donga University, Mar. 17, 2005
  - TEM workshop held in University of Ulsan, Jan. 18, 2002
  - TEM workshop held in KAIST, Feb. 8, 2001
  - TEM workshop held in Korea Institute of Science and Technology (KIST), Feb. 15, 2001

Advisees:

- *Graduate students:* Hwanhui Yun (2015-present, CEMS, UMN), Shuvo Jit Datta (2007-2009, Department of Chemistry, Sogang University)
- *Undergraduate students:* Ryan Streckert (2014, CEMS, UMN), Wangzhou Wu (2016-present, CEMS, UMN), Hosup Song (2016-present, CEMS/Math, UMN)

Fundraising and Developing Projects:

- *Fundraising*
  - Properties of functional oxides at the nanoscale: From one to three atomic layers (UMN Grand-in-Aid, July 1, 2016-January 15, 2018)
- *Fundraising (developed dominantly by myself during Post-doc. in Japan and Ph.D. course)*
  - Apr. 2010–Mar. 2011, Electron holography study on remanence states of Fe layer in exchange-biased MnPd/Fe system (supported by Institute for Materials Research in Tohoku University)
  - Oct. 2009–Mar. 2010, Electron holography study on distribution of charge by triboelectricity in model toner (supported by Institute for Materials Research in Tohoku University)
  - Mar. 2002–Feb. 2003, Synthesis and structural characterization of semiconducting oxide nanowires (supported by KAIST)
- *Projects (under advisory of Prof. K. Andre Mkhoyan in UMN and Prof. Jeong Yong Lee in KAIST)*
  - 2012–2014, C-SPIN: Theme 3. Spintronic interface engineering (supported by C-SPIN, one of the six centers of STARnet, a Semiconductor Research Corporation program, sponsored by MARCO and DARPA)
  - 2011–2012, MRSEC: IRG 4. Nanoparticle-based materials (supported by the MRSEC program of the NSF under Award Number DMR-0819885)
  - Mar. 2000–Feb. 2006, Controlled characterizing technique for microstructures and properties of materials (supported by Grant No. R-11-2000-086-0000-0 from the Center of Excellent Program of the Korea Science and Engineering Foundation and Ministry of Science and Technology)
  - Sep. 1999–Aug. 2004, Atomic arrangement characterization of new materials using high-resolution

transmission electron microscopy (supported by the Ministry of Science and Technology of Korea through the National Research Laboratory Program)

- Nov. 1999–Sep. 2002, Structural characterization of quantum dots and its optical devices (supported by the Ministry of Science and Technology of Korea)
- Jul. 1999–Jun. 2002, Development of the technology of data storage devices for FRAM (supported by the Ministry of Science and Technology and Ministry of Commerce, Industry and Energy of Korea)

Professional Service:

- Member of Editorial board member of Scientific Report, 2016-present.
- Symposium co-organizer, Microscopy Society of America Annual Meeting, 2015.
- Symposium Referee (Microscopy and Characterization Session), 2012, International Union of Materials Research Society-International Conference in Asia (IUMRS-ICA), Busan, Korea.

Refereeing:

Nano Letters, ACS Nano, Journal of Applied Physics, Micromachines, Journal of Nanoparticle Research, Journal of Materials Science, Chemical Engineering Journal, Computational Materials Science, Current Nanoscience, IUMRS-ICA 2012

Society Membership:

Microscopy Society of America (2005, 2011-present), Materials Research Society (2002-2003, 2013), The Japanese Institute of Metals and Materials (2009-2011), The Japanese Society of Microscopy (2009-2011), The Korean Chemical Society (2007-2009), Korean Society of Microscopy (2002-2009), Korean Ceramic Society (2004-2005), Korean Physical Society (2002-2005)

Collaborators:

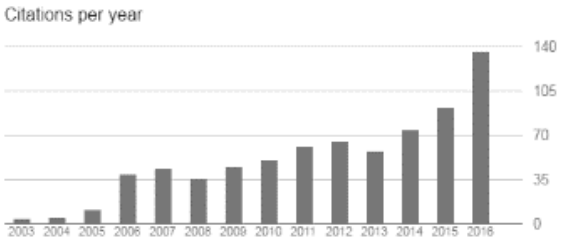
Prof. K.A. Mkhoyan (UMN), Prof. C. Leighton (UMN), Prof. B. Jalan (UMN), Prof. J. Johns (UMN), Prof. M. Tsapatsis (UMN), Prof. R. Wentzcovitch (UMN), Prof. M. Greven (UMN), Prof. U.R. Kortshagen (UMN), Dr. Ho-Seong Jang (KIST, Korea), Dr. Y.H. Kim (KRISS, Korea), Dr. Li Zhang (CIW, Washington), Prof. Daisuke Shindo (Tohoku Univ, Japan), Prof. Yasukazu Murakami (Tohoku Univ), Prof. Zentaro Akase (Tohoku Univ), Dr. Hiromitsu Kawase (RICOH, Japan), Dr. Jun-Mo Yang (National Nanofab Center, Korea), Prof. Jeong Yong Lee (KAIST, Korea)

Advisors:

- *Thesis Advisor*: Prof. Jeong Yong Lee (KAIST)
- *Postdoctoral Advisor*: Prof. K. Andre Mkhoyan (University of Minnesota), Prof. Daisuke Shindo (Tohoku University)

Citation Metrics:

- Citation (719), h-index (14) from Google Scholar



Publications (39):

- **Jong Seok Jeong**,† Mehmet Topsakal,† Peng Xu, Bharat Jalan, Renata M. Wentzcovitch, K. Andre Mkhoyan, "A New Line Defect in Perovskite $NdTiO_3$," Under Review (2016) †*equal contribution*.

1. P. Ambwani, P. Xu, G. Haugstad, **J. S. Jeong**, R. Deng, K. A. Mkhoyan, B. Jalan, C. Leighton, "Defects, stoichiometry, and electronic transport in $SrTiO_{3-\delta}$ epilayers: A high pressure oxygen sputter deposition study," *Journal of Applied Physics* **120**(5), 055704 (Aug. 4, 2016). *http://dx.doi.org/10.1063/1.4960343*
2. **Jong Seok Jeong**,† Michael L. Odlyzko,† Peng Xu, Bharat Jalan, K. Andre Mkhoyan, "Probing core-electron orbitals by scanning transmission electron microscopy and measuring the delocalization of core-level excitations," *Physical Review B* **93**(16), 165140 (Apr. 26, 2016). †*Equal contribution*. *Highlighted on FEI Company Facebook*
   http://dx.doi.org/10.1103/PhysRevB.93.165140
3. **Jong Seok Jeong**, K. Andre Mkhoyan, "Improving Signal-to-Noise Ratio in Scanning Transmission Electron Microscopy Energy-Dispersive X-Ray (STEM-EDX) Spectrum Images Using Single-Atomic-Column Cross-Correlation Averaging," *Microscopy and Microanalysis* **22**(03), 536-543 (Mar. 28, 2016). *http://dx.doi.org/10.1017/S1431927616000635*
4. L. O'Brien, D. Spivak, **J. S. Jeong**, K. A. Mkhoyan, P. A. Crowell, and C. Leighton, "Interdiffusion-controlled Kondo suppression of injection efficiency in metallic nonlocal spin valves," *Physical Review B* **93**(1), 014413 (Jan. 11, 2016). *http://dx.doi.org/10.1103/PhysRevB.93.014413*
5. Su Yeon Kim,† **Jong Seok Jeong**,† K. Andre Mkhoyan, Ho Seong Jang, "Direct observation of core/double-shell architecture of intense dual-mode luminescent tetragonal bipyramidal nanophosphors," *Nanoscale* **8**(19), 10049 (2016). (Dec. 8, 2015). †*Equal contribution*. *Highlighted on Cover Art*
   http://dx.doi.org/10.1039/C5NR05722A
6. Peng Xu, Timothy C. Droubay, **Jong Seok Jeong**, K. Andre Mkhoyan, Peter V. Sushko, Scott A. Chambers, Bharat Jalan, "Quasi 2D Ultrahigh Carrier Density in a Complex Oxide Broken-Gap Heterojunction," *Advanced Materials Interfaces* **3**(2), 1500432 (2016). (Nov. 24, 2015). *Highlighted on Phys.Org News & PNNL (Pacific Northwest National Laboratory) research highlights*
   http://dx.doi.org/10.1002/admi.201500432
7. Abhinav Prakash, John Dewey, Hwanhui Yun, **Jong Seok Jeong**, K. Andre Mkhoyan, Bharat Jalan, "Hybrid molecular beam epitaxy for the growth of stoichiometric $BaSnO_3$," *Journal of Vacuum Science and Technology A* **33**(6), 060608 (Oct. 19, 2015). *Highlighted on Editor's Picks*
   http://dx.doi.org/10.1116/1.4933401
8. Mahdi Jamali, Joon Sue Lee, **Jong Seok Jeong**, Farzad Mahfouzi, Yang Lv, Zhengyang Zhao, Branislav K. Nikolić, K. Andre Mkhoyan, Nitin Samarth, Jian-Ping Wang, "Giant Spin Pumping and Inverse Spin Hall Effect in the Presence of Surface and Bulk Spin-Orbit Coupling of Topological Insulator Bi_2Se_3," *Nano Letters* **15**(10), 7126-7132 (Sep. 14, 2015). *http://dx.doi.org/10.1021/acs.nanolett.5b03274*
9. Ryan J. Wu, Mehmet Topsakal, Tony Low, Matthew C. Robbins, Nazila Haratipour, **Jong Seok Jeong**, Renata M. Wentzcovitch, Steven J. Koester, K. Andre Mkhoyan, "The Atomic and Electronic Structure of Exfoliated Black Phosphorus," *Journal of Vacuum Science and Technology A* **33**(6), 060604 (July 16, 2015). *Highlighted on Cover Art, Editor's Picks, and Most Read The Month*
   http://dx.doi.org/10.1116/1.4926753
10. Koustav Ganguly, Palak Ambwani, Peng Xu, **Jong Seok Jeong**, K. Andre Mkhoyan, C. Leighton, Bharat Jalan, "Structure and Transport in High Pressure Oxygen Sputter-Deposited $BaSnO_{3-\delta}$," *APL Materials* **3**(6), 062509 (May 7, 2015). *http://dx.doi.org/10.1063/1.4919969*
11. Aaron S. George, Zafer Mutlu, Robert Ionescu, Ryan J. Wu, **Jong S. Jeong**, Hamed H. Bay, Yu Chai, K. Andre Mkhoyan, Mihrimah Ozkan, Cengiz S. Ozkan, "Wafer Scale Synthesis and High Resolution Structural Characterization of Atomically Thin MoS_2 Layers," *Advanced Functional Materials* **24**(47),

7461-7466 (Sep. 30, 2014). *http://dx.doi.org/10.1002/adfm.201402519*

12. Robert Ionescu, Aaron George, Isaac Ruiz, Zachary Favors, Zafer Mutlu, Chueh Liu, Kazi Ahmed, Ryan Wu, **Jong S. Jeong**, Lauro Zavala, K. Andre Mkhoyan, Mihri Ozkan, Cengiz S. Ozkan, "Oxygen etching of thick MoS_2 films," *Chemical Communications* **50**(76), 11226-11229 (Aug. 04, 2014). *http://dx.doi.org/10.1039/C4CC03911D*

13. L. Zhang, Y. Meng, W. Yang, L. Wang, W. L. Mao, Q.-S. Zeng, **J. S. Jeong**, A. J. Wagner, K. A. Mkhoyan, W. Liu, R. Xu, H.-K. Mao, "Disproportionation of (Mg,Fe)SiO_3 into $MgSiO_3$ perovskite and an Fe-rich hexagonal silicate in the deep lower mantle," *Science* **344**(6186), 877-882 (May 23, 2014). *Highlighted on Science Prospective*
http://dx.doi.org/10.1126/science.1250274

14. H. Na, **J. S. Jeong**, H. J. Chang, H. Y. Kim, K. Woo, K. Lim, K. A. Mkhoyan, H. S. Jang "Facile synthesis of intense green-emitting $LiGdF_4$:Yb,Er-based upconversion bipyramidal nanocrystals and their polymer composites," *Nanoscale* **6**(13), 7461-7468 (Apr. 16, 2014). *Highlighted on 2014 Hot Papers in Nanoscale*
http://dx.doi.org/10.1039/C4NR00857J

15. P. Xu, D. Phelan, **J. S. Jeong**, K. A. Mkhoyan, B. Jalan, "Stoichiometry-driven Metal-to-insulator Transition in $NdTiO_3/SrTiO_3$ Heterostructures," *Applied Physics Letters* **104**(8), 082109 (Feb. 27, 2014). *http://dx.doi.org/10.1063/1.4866867*

16. B. Elyassi, Y. A. Wahedi, N. Rajabbeigi, P. Kumar, **J. S. Jeong**, X. Zhang, P. Kumar, V. V. Balasubramanian, M. S. Katsiotis, K. A. Mkhoyan, N. Boukos, S. A. Hashimi, M. Tsapatsis, "A high-performance adsorbent for hydrogen sulfide removal," *Microporous & Mesoporous Materials* **190**, 152-155 (Feb. 12, 2014). *http://dx.doi.org/10.1016/j.micromeso.2014.02.007*

17. **J. S. Jeong**, P. Ambwani, B. Jalan, C. Leighton, K. A. Mkhoyan, "Observation of Electrically-Inactive Interstitials in Nb-Doped $SrTiO_3$," *ACS Nano* **7**(5), 4487-4494 (Apr. 28, 2013). *http://dx.doi.org/10.1021/nn401101y*

18. D. J. Rowe, **J. S. Jeong**, K. A. Mkhoyan, U. R. Kortshagen, "Phosphorus-doped silicon nanocrystals exhibiting mid-infrared localized surface plasmon resonance," *Nano Letters* **13**(3), 1317-1322 (Feb. 15, 2013). *http://dx.doi.org/10.1021/nl4001184*

19. T. Goto, **J. S. Jeong**, W. Xia, Z. Akase, D. Shindo, K. Hirata, "Electron holography of magnetic field generated by a magnetic recording head," *Microscopy* **62**(3), 383-389 (Jan. 4, 2013). *http://dx.doi.org/10.1093/jmicro/dfs090*

20. **J. S. Jeong**, Y. Murakami, D. Shindo, H. Kawase, "Investigation of tribocharges and their migration in layered model toners by electron holography," *Journal of Applied Physics* **109**(12), 124903 (Jun. 20, 2011). *http://dx.doi.org/10.1063/1.3596757*

21. **J. S. Jeong**, J. Y. Lee, "Formation mechanism and photoluminescence of necklace-like In_2O_3 nanowires," *Materials Letters* **65**, 1693-1695 (Jun. 15, 2011). *http://dx.doi.org/10.1016/j.matlet.2011.02.083*

22. **J. S. Jeong**, Z. Akase, D. Shindo, Q. Zhan, K. M. Krishnan, "Electron holography study of remanence states in exchange-biased MnPd/Fe bilayers grown epitaxially on MgO(001)," *Journal of Electron Microscopy* **60**(3), 235-242 (Apr. 7, 2011). *http://dx.doi.org/10.1093/jmicro/dfr015*

23. **J. S. Jeong**, J. Y. Lee, H. K. Cho, "Investigation of 2D/3D defects in controlled-growth oxygen-deficient ZnO nanowires and their field emission," *Chemical Physics Letters* **503**, 266-271 (Feb. 17, 2011). *http://dx.doi.org/10.1016/j.cplett.2011.01.016*

24. **J. S. Jeong**, J. Y. Lee, "Investigation of initial growth of ZnO nanowires and their growth mechanism," *Nanotechnology* **21**(47), 475603 (Oct. 29, 2010). *http://dx.doi.org/10.1088/0957-4484/21/47/475603*

25. **J. S. Jeong**, J. Y. Lee, "The synthesis and growth mechanism of bamboo-like In_2O_3 nanowires," *Nanotechnology* **21**(40), 405601 (Sep. 8, 2010). *http://dx.doi.org/10.1088/0957-4484/21/40/405601*

26. Y. S. Lim, **J. S. Jeong**, J. Bang, J. Kim, "CaO buffer layer for the growth of ZnO thin film," *Solid State Communications* **150**(9-10), 428-430 (Dec. 6, 2009). *http://dx.doi.org/10.1016/j.ssc.2009.12.001*
27. Y.-S. Park, J.-R. Jeong, **J. S. Jeong**, J. Y. Lee, S.-C. Shin, "Evolution of stress with film thickness in Co films on InP(001)," *IEEE Transactions on Magnetics* **45**(6), 2523-2526 (May 20, 2009). *http://dx.doi.org/10.1109/TMAG.2009.2018651*
28. E. L. Tae, K. E. Lee, **J. S. Jeong**, K. B. Yoon, "Synthesis of diamond-shape titanate molecular sheets with different sizes and realization of quantum confinement effect during dimensionality reduction from two to zero," *Journal of The American Chemical Society* **130**(20), 6534-6543 (May 21, 2008). *http://dx.doi.org/10.1021/ja711467g*
29. T. Tsuchiya, R. Kumashiro, K. Tanigaki, Y. Matsunaga, M. O. Ishitsuka, T. Wakahara, Y. Maeda, Y. Takano, M. Aoyagi, T. Akasaka, M. T. H. Liu, T. Kato, K. Suenaga, **J. S. Jeong**, S. Iijima, F. Kimura, T. Kimura, S. Nagase, "Nanorods of endohedral metallofullerene derivative," *Journal of The American Chemical Society* **130**(2), 450-451 (Jan. 16, 2008). *http://dx.doi.org/10.1021/ja710396n*
30. J. M. Paulsen, **J. S. Jeong**, K.-Y. Lee, "Core-shell cathode material with size-dependent composition," *Electrochemical and Solid-State Letters* **10**(4), A101-A105 (Jan. 31, 2007). *http://dx.doi.org/10.1149/1.2434204*
31. C. W. Sun, **J. S. Jeong**, J. Y. Lee, "Microstructural analysis of ZnO/ZnS nanocables through Moiré fringe induced by overlapped area of ZnO and ZnS," *Journal of Crystal Growth* **294**(2), 162-167 (Sep. 4, 2006). *http://dx.doi.org/10.1016/j.jcrysgro.2006.06.023*
32. **J. S. Jeong**, J. Y. Lee, J. H. Cho, C. J. Lee, S.-J. An, G.-C. Yi, R. Gronsky, "Growth behaviour of well-aligned ZnO nanowires on Si substrate at low temperature and their optical properties," *Nanotechnology* **16**(10), 2455-2461 (Sep. 12, 2005). *http://dx.doi.org/10.1088/0957-4484/16/10/078*
33. **J. S. Jeong**, J. Y. Lee, J. H. Cho, H. J. Suh, C. J. Lee, "Single-crystalline ZnO microtubes formed by coalescence of ZnO nanowires using a simple metal-vapor deposition method," *Chemistry of Materials* **17**, 2752-2756 (May 17, 2005). *http://dx.doi.org/10.1021/cm049387l*
34. **J. S. Jeong**, J. Y. Lee, C. J. Lee, S. J. An, G.-C. Yi, "Synthesis and characterization of high-quality In_2O_3 nanowires via catalyst-free growth using a simple physical vapor deposition at low temperature," *Chemical Physics Letters* **384**, 246-250 (Jan. 26, 2004). *http://dx.doi.org/10.1016/j.cplett.2003.12.027*
35. M.-C. Jung, T. G. Lee, Y. J. Park, S. H. Jun, J. S. Lee, M. S. Han, **J. S. Jeong**, J. Y. Lee, "Nanostructured silicon formations as a result of ionized N_2 gas reactions on silicon with native oxide layers," *Applied Physics Letters* **82**, 3653-3655 (May 26, 2003). *http://dx.doi.org/10.1063/1.1579124*
36. **J. S. Jeong**, Y. H. Kim, J. Y. Lee, "Morphology and structure of nano-sized In_2O_3 crystals synthesized by wet reaction," *Journal of The Korean Physical Society* **42**(92), S254-S257 (Feb. 1, 2003). *http://dx.doi.org/10.3938/jkps.42.254*
37. Y. H. Kim, **J. S. Jeong**, J. Y. Lee, "Growth of β–Ga_2O_3 nanowires with straight and bent shapes by simple evaporation without catalyst," *Journal of The Korean Physical Society* **42**(92), S250-S253 (Feb. 1, 2003). *http://dx.doi.org/10.3938/jkps.42.250*
38. Y. S. Lim, **J. S. Jeong**, J. Y. Lee, H. S. Kim, H. K. Shon, H. K. Kim, D. W. Moon, "A study on the oxidation behavior and the post-annealing effect in a graded SiGe/Si heterostructure," *Journal of Electronic Materials* **31**, 529-534 (May 2002). *http://dx.doi.org/10.1007/s11664-002-0110-y*
39. Y. S. Lim, **J. S. Jeong**, J. Y. Lee, H. S. Kim, H. K. Shon, H. K. Kim, D. W. Moon, "Dry thermal oxidation of a graded SiGe layer," *Applied Physics Letters* **79**, 3606-3608 (Nov. 26, 2001). *http://dx.doi.org/10.1063/1.1415373*

Conference Proceedings (10):

1. **Jong Seok Jeong**, Su Yeon Kim, Ho Seong Jang, K. Andre Mkhoyan, "Determination of Core/Double-

Shell Architecture of a Single Tetragonal Bipyramidal Nanophosphor for Intense Dual-Mode Luminescence," *Microscopy and Microanalysis* **22**(Suppl 3), 1428-1429 (Jul. 25, 2016). *http://dx.doi.org/10.1017/S1431927616007984*

2. Hwanhui Yun, Koustav Ganguly, Abhinav Prakash, Chris Leighton, Bharat Jalan, K. Andre Mkhoyan, **Jong Seok Jeong*,** "Study of Strain and Intermixing at the $BaSnO_3/SrTiO_3$ and $BaSnO_3/LaAlO_3$ Interfaces Using STEM and EELS," *Microscopy and Microanalysis* **22**(Suppl 3), 320-321 (Jul. 25, 2016). *http://dx.doi.org/10.1017/S1431927616002452*

3. **Jong Seok Jeong**, Mehmet Topsakal, Peng Xu, Renata M. Wentzcovitch, Bharat Jalan, K. Andre Mkhoyan, "Electronic Structure of New Line Defect in Strained $NdTiO_3$ on $SrTiO_3$," *Microscopy and Microanalysis* **21**(Suppl 3), 2073-2074 (Sep. 23, 2015). *http://dx.doi.org/10.1017/S1431927615011149*

4. Ryan J. Wu, Mehmet Topsakal, Matt C. Robbins, Nazila Haratipour, **Jong Seok Jeong**, Renata M. Wentzcovich, Steven J. Koester, and K. Andre Mkhoyan, "Measuring the Atomic and Electronic Structure of Black Phosphorus with STEM," *Microscopy and Microanalysis* **21**(Suppl 3), 109-110 (Sep. 23, 2015). *http://dx.doi.org/10.1017/S1431927615001348*

5. Dan Sorensen, Elizabeth Rosario, Jason Heffelfinger, **Jong Seok Jeong**, Jason Myers, John Lippold, Antonio Ramirez, "Optimization and Characterization of a Niobium-Platinum Resistance Spot Weld Using Scanning Transmission Electron Microscopy and Micropillar Compression Testing," *Microscopy and Microanalysis* **21**(Suppl 3), 2425-2426 (Sep. 23, 2015). *http://dx.doi.org/10.1017/S1431927615012908*

6. **Jong Seok Jeong**, Michael L. Odlyzko, Peng Xu, Bharat Jalan, K. Andre Mkhoyan, "Interfaces and Defects in Hybrid Molecular Beam Epitaxy Grown $NdTiO_3/SrTiO_3$ Heterostructures," *Microscopy and Microanalysis* **20**(Suppl 3), 98-99 (Aug. 27, 2014). *http://dx.doi.org/10.1017/S1431927614002219*

7. Prashant Kumar, **Jong Seok Jeong**, Bahman Elyassi, Nafiseh Rajabbeigi, Michael Tsapatsis, K. Andre Mkhoyan, "Probing Structure-Property Relationship of Active Metal Nanoparticles on Mesoporous Silica Sorbent," *Microscopy and Microanalysis* **20**(Suppl 3), 464-465 (Aug. 27, 2014). *http://dx.doi.org/10.1017/S1431927614004048*

8. **J. S. Jeong**, D. J. Rowe, U. Kortshagan, K. A. Mkhoyan, "Analytical STEM Study of P-Doped Silicon Nanocrystals Exhibiting Mid-Infrared Plasmon Resonance," *Microscopy and Microanalysis* **19**(Suppl 2), 1508-1509 (Oct. 9, 2013). *http://dx.doi.org/10.1017/S1431927613009537*

9. **J. S. Jeong**, P. Ambwani, C. Leighton, K. A. Mkhoyan, "STEM ADF and EELS study of strain and doping effects in $SrTiO_3$," *Microscopy and Microanalysis* **18**(Suppl 2), 310-311 (Nov. 23, 2012). *http://dx.doi.org/10.1017/S1431927612003406*

10. **J. S. Jeong**, J. Y. Lee, C. J. Lee, H. K. Cho, "Growth of Single-Crystalline ZnO Nano-/Microstructures: Vertically Aligned Nanowires on ZnO/Si Substrate and Microtubes on Al_2O_3 Substrate," *Microscopy and Microanalysis* **11**(Suppl 2), 1950-1951 (Aug. 1, 2005). *http://dx.doi.org/10.1017/S1431927605503581*

Korean Journal Publications (4):

1. Y.-S. Park, J.-R. Jeong, **J. S. Jeong**, J. Y. Lee, S.-C. Shin, "Evolution of Stress with Film Thickness in Co Film on InP (001) Substrate," *AMC2008 Asian Magnetics Conference* 300-300 (Dec. 2008)

2. **J. S. Jeong**, K. B. Yoon, "Principle of transmission electron microscopy and its role for material characterization," *The Korean Chemical Society, Chemworld, Instruments Special*, **9**, 67-73 (Sep. 2008).

3. Y. Huh, **J. S. Jeong**, J. Y. Lee, "Atomic arrangement characterization of new materials using high resolution transmission electron microscopy," *Trend in Metals and Materials Engineering* 17, 23 (Oct. 2004).

4. **J. S. Jeong**, Y. H. Kim, J. Y. Lee, "Synthesis and characterization of In_2O_3 nanowires in a wet oxidizing environment," *Korean Journal of Electron Microscopy* 33, 17 (Mar. 2003).

Thesis (2):

1. "Structural and optical properties of ZnO nanowires synthesized by thermal vapor deposition," KAIST, Ph.D. (Aug. 2005). Text in English, Advisor: Prof. Jeong Yong Lee.
2. "A study on transmission electron microscopy (TEM) specimen preparation of multilayer materials by mechanical polishing," KAIST, M.S. (Feb. 2001). Text in Korean, Advisor: Prof. Jeong Yong Lee.

Patents (1):

Y. S. Lim, **J. S. Jeong**, J. Y. Lee, H. S. Kim, D. W. Moon, "Formation method for oxidation film of SiGe epitaxiallayer" (0426956, Korean Intellectual Property Office).

Presentations (33):

9 Invited, 7 Oral, and 17 Poster Presentations

1. **J. S. Jeong**, S. Y. Kim, H. S. Jang, K. A. Mkhoyan, "Determination of Core/Double-Shell Architecture of a Single Tetragonal Bipyramidal Nanophosphor for Intense Dual-Mode Luminescence," Microscopy & Microanalysis 2016 Meeting, Columbus, OH, USA (Jul. 24-28, 2016).
2. **J. S. Jeong**, M. Topsakal, P. Xu, R. M. Wentzcovitch, B. Jalan, K. A. Mkhoyan, "Electronic Structure of New Line Defect in Strained $NdTiO_3$ on $SrTiO_3$," Microscopy & Microanalysis 2015 Meeting, Portland, OR, USA (Aug. 2-6, 2015).
3. **J. S. Jeong**, M. L. Odlyzko, P. Xu, B. Jalan, K. A. Mkhoyan, "Interfaces and Defects in Hybrid Molecular Beam Epitaxy Grown $NdTiO_3/SrTiO_3$ Heterostructures," Microscopy & Microanalysis 2014 Meeting, Hartford, CT, USA (Aug. 3-7, 2014).
4. **J. S. Jeong**, P. Ambwani, B. Jalan, C. Leighton, K. A. Mkhoyan, "Study of Interstitial Nb in $SrTiO_3$ by STEM and EELS," 9th International Symposium on Atomic Level Characterizations for New Materials and Devices '13 (ALC'13), The Big Island, HI, USA (Dec. 2-6, 2013).
5. **J. S. Jeong**, D. J. Rowe, U. R. Kortshagen, K. A. Mkhoyan, "Mid-infrared localized surface plasmon resonance in P-doped silicon nanocrystals," The 2013 International Conference on Advances in Nano Research (ICANR13), Seoul, Korea (Aug. 25-28, 2013).
6. **J. S. Jeong**, "Imaging invisible impurities in semiconductors using ADF STEM and EELS," Korea Institute of Science and Technology, Seoul, Korea (Aug. 23, 2013).
7. **J. S. Jeong**, "Imaging impurities in semiconductors using ADF STEM and EELS," Samsung Advanced Institute of Technology, Yongin-si, Korea (Aug. 22, 2013).
8. **J. S. Jeong**, "Transmission Electron Microscopy (TEM) – Introduction and Applications," Soongsil University, Seoul, Korea (Aug. 14, 2013).
9. **J. S. Jeong**, "Imaging impurities in semiconductors using ADF STEM and EELS," National Nanofab Center, Daejeon, Korea (Aug. 13, 2013).
10. **J. S. Jeong**, D. J. Rowe, U. R. Kortshagen, K. A. Mkhoyan, "Analytical STEM Study of P-Doped Silicon Nanocrystals Exhibiting Mid-Infrared Localized Surface Plasmon Resonance," Microscopy & Microanalysis 2013 Meeting, Indianapolis, IN, USA (Aug. 4-8, 2013).
11. **J. S. Jeong**, P. Ambwani, C. Leighton, K. A. Mkhoyan, "Electronic Structure and Strain in Nb-Doped $SrTiO_3$," Materials Research Society 2013 Spring Meeting, San Francisco, CA, USA (Apr. 1-5, 2013).

12. **J. S. Jeong**, "Study of interstitial Nb doping effects in $SrTiO_3$ by STEM and EELS," 8th Annual Minnesota Nanotechnology Workshop, Minneapolis, MN, USA (Nov. 7-8, 2012).
13. **J. S. Jeong**, P. Ambwani, C. Leighton, K. A. Mkhoyan, "STEM ADF and EELS Study of Strain and Doping Effects in $SrTiO_3$," Microscopy & Microanalysis 2012 Meeting, Phoenix, AZ, USA (Jul. 29 – Aug. 2, 2012).
14. **J. S. Jeong**, "Electron holography study of magnetic and electric field in the samples of MnPd/Fe exchange bilayers, toners, and solid-state Li-ion battery," Korea Institute of Materials Science, Changwon, Korea (Apr. 29, 2011).
15. **J. S. Jeong**, "Electron holography study of magnetic and electric field in the samples of MnPd/Fe exchange bilayers, toners, and solid-state Li-ion battery," National Nanofab Center, Daejeon, Korea (Apr. 28, 2011).
16. **J. S. Jeong**, "Electron holography study of magnetic and electric field in the samples of MnPd/Fe exchange bilayers, toners, and solid-state Li-ion battery," Korea Institute of Science and Technology, Seoul, Korea (Apr. 27, 2011).
17. **J. S. Jeong**, "Investigation of growth mechanism and structural properties of semiconducting oxides (ZnO and In_2O_3) using transmission electron microscopy," 2nd Joint Meeting of Departments in The Korean Scientists and Engineers Association in Japan, Tokyo, Japan, p.10 (A-2), (Feb. 26, 2011).
18. **J. S. Jeong**, "Introduction to transmission electron microscopy," The Korean Scientists and Engineers Association in Japan, Zao, Japan, (Jan. 8-9, 2011).
19. **J. S. Jeong**, Y. Murakami, D. Shindo, H. Kawase, "Electron holography study on triboelectricity using model toner samples," Kinken-Wakate 2010, 7th Materials Science School for Young Scientists, Sendai, Japan, p.99 (B-39) , (Dec. 2-3, 2010).
20. **J. S. Jeong**, Y. Murakami, D. Shindo, H. Kawase, "Electron holography study on triboelectricity using model toner samples," 2010 Fall Annual Meeting of The Japan Institute of Metals, Sapporo, Japan (Sep. 25-27, 2010).
21. **J. S. Jeong**, Z. Akase, D. Shindo, Q. F. Zhan, K. M. Krishnan, "Evaluation of magnetization in exchange-biased system by electron holography," The 66th Annual Meeting of the Japanese Society of Microscopy, Nagoya, Japan (May 23-26, 2010).
22. **J. S. Jeong**, Z. Akase, D. Shindo, K. M. Krishnan, "Electron holography study on magnetization in exchange-biased MnPd/Fe bilayers," 2010 Spring Annual Meeting of The Japan Institute of Metals, Tsukuba, Japan (Mar. 28-30, 2010).
23. **J. S. Jeong**, "Electron holography study on the magnetic field distribution in exchange-biased MnPd/Fe bilayers," 1st Joint Meeting of Departments in The Korean Scientists and Engineers Association in Japan, Tokyo, Japan, p.8 (A-2), (Feb. 27, 2010).
24. **J. S. Jeong**, Z. Akase, D. Shindo, K. M. Krishnan, "Electron holography study on the magnetic field distribution in exchange-biased MnPd/Fe bilayers." 9th Meeting of Institute of Multidisciplinary Research for Advanced Materials, Sendai, Japan, p.92 (P060), (Dec. 10, 2009).
25. **J. S. Jeong**, Z. Akase, D. Shindo, K. M. Krishnan, "Magnetic field distribution in the exchange-biased MnPd/Fe bilayers," Kinken-Wakate 2009, 6th Materials Science School for Young Scientists, Sendai, Japan, P.33 (A-13) , (Dec. 3-4, 2009).
26. **J. S. Jeong**, J. Y. Lee, C. J Lee, H. K. Cho, "Growth of Single-Crystalline ZnO Nano-/Microstructures: Vertically Aligned Nanowires on ZnO/Si Substrate and Microtubes on Al_2O_3 Substrate," Microscopy & Microanalysis 2005 Meeting, Hawaii, USA, 11, suppl. 2, 2005, p.1950CD-1951CD, (Jul. 31–Aug. 4, 2005).
27. **J. S. Jeong**, J. Y. Lee, H. J. Suh, J. H. Cho, C. J. Lee, S.-J. An, G.-C. Yi, "Growth behavior and optical properties of well-aligned ZnO nanowires produced on silicon substrate at low temperature by a catalyst-free vapor phase deposition," 1st China-Korea Symposium on Nanowires, Jeju, Korea, p.52, (Oct. 27-29, 2004).

28. **J. S. Jeong**, J. Y. Lee, J. H. Cho, H. J. Suh, C. J. Lee, "Catalyst-free growth and optical properties of ZnO nanowires on silicon substrate," Kaist-Kyoto University Joint Symposium on Materials Science and Engineering for the 21st Century, Kyoto, Japan, p.90, (Aug. 18-20, 2004).
29. **J. S. Jeong**, J. Y. Lee, S. C. Lyu, H. J. Suh, C. J. Lee, "Hierarchically Ordered ZnO Nanowires by a Simple Metal-Vapor Deposition Method," The 3rd International Symposium on Designing, Processing and Properties of Advanced Engineering Materials (ISAEM) 2003, Jeju, Korea, p.222, (Nov. 5-8, 2003)
30. **J. S. Jeong**, J. Y. Lee, S. C. Lyu, H. J. Suh, C. J. Lee, "Synthesis and characterization of ZnO nanowires by a simple metal-vapor deposition method," Kaist-Kyoto University Joint Symposium on Materials Science and Engineering for the 21st Century, KAIST, Daejeon, Korea, p.98, (Aug. 20-22, 2003).
31. **J. S. Jeong**, Y. H. Kim, J. Y. Lee, "Morphology and Structure of Nano-Sized In_2O_3 Crystals Synthesized by Wet Reaction," The 11th Seoul International Symposium on the Physics of Semiconductors and Applications (ISPSA) 2002, Jeju, Korea, p.186-187, (Aug. 20-23, 2002).
32. **J. S. Jeong**, Y. S. Lim, J. Y. Lee, H. S. Kim, D. W. moon, "A study on the dry thermal oxidation and post-annealing of a graded SiGe/Si heterostructures," Materials Research Society 2002 Spring Meeting, April 1-5, San Francisco, CA, USA, p.64 (Apr. 1-5, 2002).
33. **J. S. Jeong**, Y. H. Kim, J. Y. Lee, "Semiconducting oxide nanowires synthesized in a wet oxidizing environment," Frontier Issues in Nanostructure Science & Technology Inauguration International Symposium, KAIST, Daejeon, p.151, (Mar. 11-12, 2002).

Co-authored presentations (23):

1. H. Yun, K. Ganguly, A. Prakash, C. Leighton, B. Jalan, K. A. Mkhoyan, **J. S. Jeong**, "Study of Strain and Intermixing at the $BaSnO_3/SrTiO_3$ and $BaSnO_3/LaAlO_3$ Interfaces Using STEM and EELS," Microscopy & Microanalysis 2016 Meeting, Columbus, OH, USA (Jul. 24-28, 2016).
2. M. Topsakal, **J. S. Jeong**, P. Xu, B. Jalan, R. M. Wentzcovitch, K. A. Mkhoyan, "A new kind of defect in $NdTiO_3$ perovskite," Bulletin of the American Physical Society, APS March Meeting 2016, Baltimore, MD, USA (Mar. 14-18, 2016).
3. K. Ganguly, J. Walter, P. Ambwani, P. Xu, A. Prakash, **J. S. Jeong**, K. A. Mkhoyan, B. Yang, A. Goldman, B. Jalan, C. Leighton, "Electronic Transport in Oxygen Vacancy Doped Epitaxial $BaSnO_3$: Doping, Mobility, and the Insulator-Metal Transition," Electronic Materials and Applications 2016, Orlando, FL, USA (Jan. 20-22, 2016).
4. L. O'Brien, D. Spivak, **J. S. Jeong**, K. A. Mkhoyan, P. Crowell, C. Leighton, "Interdiffusion-Controlled Kondo Suppression of Injection Efficiency in Metallic Non-Local Spin Valves," 2016 MMM/Intermag Joint Conference, San Diego, CA, USA (Jan. 11-15, 2016).
5. M. Topsakal, **J. S. Jeong**, P. Xu, B. Jalan, K. A. Mkhoyan, R. M. Wentzcovitch, "The 'Disrotation': a New Line Defect in Complex Oxide $NdTiO_3$," AGU 2015 Fall Meeting, San Francisco, CA, USA (Dec. 14-18, 2015).
6. J. Kally, D. Rench, K.-H. Tu, D. R. Hickey, **J. S. Jeong**, R. Wu, A. Mkhoyan, C. Ross, N. Samarth, "Characterization of ferromagnetic τ-MnAl thin films grown by MBE," 2015 Annual Meeting of the APS Mid-Atlantic Section, Morgantown, WV, USA (Oct. 23-25, 2015).
7. D. Sorensen, E. Rosario, J. Heffelfinger, **J. S. Jeong**, J. Myers, J. Lippold, A. Ramirez, "Optimization and Characterization of a Niobium-Platinum Resistance Spot Weld Using Scanning Transmission Electron Microscopy and Micropillar Compression Testing," Microscopy & Microanalysis 2015 Meeting, Portland, OR, USA (Aug. 2-6, 2015).
8. R. J. Wu, M. Topsakal, M. C. Robbins, N. Haratipour, **J. S. Jeong**, R. M. Wentzcovich, S. J. Koester, K. A. Mkhoyan, "Measuring the Atomic and Electronic Structure of Black Phosphorus with STEM," Microscopy & Microanalysis 2015 Meeting, Portland, OR, USA (Aug. 2-6, 2015).
9. M. Topsakal, **J. S. Jeong**, P. Xu, B. Jalan, K. A. Mkhoyan, R. M. Wentzcovitch, "First-principles insights on

line defect in strained $NdTiO_3$ on $SrTiO_3$," MSI Mesabi Dedication and 2015 Research Exhibition, Minneapolis, MN, USA (Apr. 23, 2015).

10. R. J. Wu, **J. S. Jeong**, M. Robbins, N. Haratipour, M. Topsakal, R. M. Wentzcovich, S. J. Koester, K. A. Mkhoyan, "The Atomic and Electronic Structure of Phosphorene," Graphene 2015, Bilbao, Spain (Mar. 10-13, 2015).
11. P. A. Xu, T. C. Droubay, **J. S. Jeong**, S. A. Chambers, K. A. Mkhoyan, B. Jalan, "Extreme high-density electron gas using band engineered complex oxide interfaces," Bulletin of the American Physical Society, APS March Meeting 2015, San Antonio, TX, USA (Mar. 2-6, 2015).
12. K. Ganguly, P. Ambwani, **J. S. Jeong**, K. A. Mkhoyan, P. Xu, C. Leighton, B. Jalan, "Structure and Electronic Transport in $BaSnO_3$ Deposited via High Pressure Oxygen Sputtering," Bulletin of the American Physical Society, APS March Meeting 2015, San Antonio, TX, USA (Mar. 2-6, 2015).
13. L. Zhang, Y. Meng, W. Yang, L. Wang, W. L. Mao, Q. C. Zeng, **J. S. Jeong**, A. J. Wagner, K. A. Mkhoyan, W. Liu, R. Xu, H.-K. Mao, "Disproportionation of $(Mg,Fe)SiO_3$ Perovskite and its Implications to the Deep Earth," American Geophysical Union (AGU) 2014 Fall Meeting, San Francisco, CA, USA (Dec. 15-19, 2014).
14. P. Kumar, **J. S. Jeong**, B. Elyassi, N. Rajabbeigi, M. Tsapatsis, K. A. Mkhoyan, "Probing Structure-Property Relationship of Active Metal Nanoparticles on Mesoporous Silica Sorbent," Microscopy and Microanalysis 2014 Meeting, Hartford, CT, USA (Aug. 3-7, 2014).
15. P. Xu, D. Phelan, **J. S. Jeong**, K. A. Mkhoyan, B. Jalan, "Stoichiometry control of electronic transport at complex oxide interfaces," American Physics Society March 2014 Meeting, Denver, CO, USA (Mar. 3-7, 2014).
16. L. Zhang, Y. Meng, W. Yang, L. Wang. W. Mao, Q.-S. Zeng, **J. S. Jeong**, A. Wagner, K. A. Mkhoyan, W. Liu, R. Xu, H.-K. Mao, "Disproportionation of $(Mg,Fe)SiO_3$ into $MgSiO_3$ Perovskite and an Fe-rich Hexagonal Silicate in the Deep Lower Mantle," Asia Oceania Geosciences Society (AOGS) 10th Annual Meeting (AOGS2013), Brisbane, Australia (Jun. 24-28, 2013).
17. K. A. Mkhoyan, **J. S. Jeong**, P. Ambwani, B. Jalan, C. Leighton, "STEM EELS and ADF study of inactive Nb interstitials in epitaxial $SrTiO_3$:Nb film on $SrTiO_3$ substrate," International Electron Energy Loss Spectroscopy Meeting on Enhanced Data Generated by Electrons (EDGE 2013), Sainte-Maxime, France (May 26-31, 2013).
18. D. J. Rowe, **J. S. Jeong**, K. A. Mkhoyan, U. R. Kortshagen, "Phosphorus-doped silicon nanocrystals exhibiting mid-infrared localized surface plasmon resonance," Materials Research Society 2013 Spring Meeting, San Francisco, CA, USA (Apr. 1-5, 2013).
19. D. J. Rowe, **J. S. Jeong**, K. A. Mkhoyan, U. R. Kortshagen, "Localized Surface Plasmon Resonance from Doped Silicon Nanocrystals," 8th Annual Minnesota Nanotechnology Workshop, Minneapolis, MN, USA (Nov. 7-8, 2012).
20. K.-H. Liao, **J. S. Jeong**, G. D. Haugstad, K. A. Mkhoyan, C. W. Macosko, "Oxygen Effect On Elastic Modulus of Graphene Oxide," 2012 Annual meeting of AIChE, Nanoscale Science and Engineering Forum, Pittsburgh, PA, USA (Oct. 28–Nov. 2, 2012).
21. J. H. Cho, **J. S. Jeong**, C. J. Park, T. J. Lee, S. H. Seo, G. Z. Shen, J. Y. Lee, C. J. Lee, "Synthesis and characterization of ZnO nanowires using a thermal vapor deposition method and their field emission properties,"1st China-Korea Symposium on Nanowires, Jeju, Korea, p.14, (Oct. 27-29, 2004).
22. Y. H. Kim, **J. S. Jeong**, J. Y. Lee, "Growth of β-Ga_2O_3 Nanowires with Straight and Bent Shapes by Simple Evaporation without Catalyst," The 11th Seoul International Symposium on the Physics of Semiconductors and Applications (ISPSA) 2002, Jeju, Korea, p.184-185, (Aug. 20-23, 2002).
23. Y. H. Kim, **J. S. Jeong**, J. Y. Lee, "Growth of nanometer-sized β-Ga_2O_3 crystals by simple evaporation without catalyst," Frontier Issues in Nanostructure Science & Technology Inauguration International Symposium, KAIST, Daejeon, p.129, (Mar. 11-12, 2002).