

Curriculum Vitae

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EDUCATION

Clemson University, SC	Career & Technology Education	Doctor, 2007
Clemson University, SC	Construction Sci. & Management	MCSM, 2006
Xi'an University of Arch. & Tech. China	Business Management	MSc., 2003
Xi'an University of Arch. & Tech. China	Construction Engineering	B.Eng., 1997

EXPERIENCE

- 07/2015 - Present** **Purdue University, Indiana, United States**
Associate Professor, Lyles School of Civil Engineering
Associate Professor, School of Materials Sc. & Eng. (by Courtesy)
Birk Nanotechnology Center, Affiliated Faculty
- 06/2009-06/2015** **University of North Carolina at Charlotte, NC, United States**
Assistant Professor, Dept. of Engineering Technology
Adjunct Faculty, Dept. of Electrical and Computing Engineering
Assistant Director of Energy Production Infrastructure Center (EPIC)
& Cluster Leader of Renewable and Energy Efficiency Devices
- 09/2007-05/2009** **Roger Williams University, Rhode Island, United States**
Assistant Professor, Construction Science and Management
Coaching AGC Student Competition Team, Northeast Region First Place
- 05/2006-08/2006** **Peter Kiewit Corporation, Atlanta, GA, United States**
Project Engineer, Miami International Airport South Terminal Expansion
- 08/2004-05/2007** **Clemson University, South Carolina, United States**
Research and Teaching Assistant in Construction Sci. and Management
Dept.
- 09/1997-08/2003** **Xi'an University of Arch. & Tech., Shanxi Province, China**
Assistant Professor, Construction Engineering

HONOR AND AWARD

- National Science Foundation CAREER Award 2014
- National Science Foundation ADVANCE Fellow, UNC Charlotte 2010
- Phi Beta Delta Honor Society for International Scholars 2010
- Provost Fund for Undergraduate Research Award, Roger Williams University 2009
- Chinese/Japanese Construction Ministry Research Fellowship, Tokyo, Japan 2003

RESEARCH ACCOMPLISHMENTS

Book

1. Multifunctional Nanocomposites for Energy and Environmental Applications
Editor: Z. Guo, Y. Chen and N. Lu
ISBN: 978-3-527-34213-6; Publisher: Wiley-VCH Inc.

Book Chapters

4. E. Ghafari, E. Witkoske, Y. Liu, C. Zhang, A. Bukowski, X. Jiang, B. Kucukgok, I. Ferguson, M. Lundstrom, and N. Lu* “Chapter 4: III-nitrides Thermoelectric for Waste Heat Recovery”, in **III-Nitrides Materials, Devices, and Nano-structures**, ed. ZC. Feng, Imperial College Press (ICP), estimated date: December 2016.
3. E. Ghafari, Y. Feng, S.A. Ghahari, F. Severgnini, EJ. Lee, CY. Zhang, B. Kucukgok, I. Ferguson, and N. Lu*, “Chapter 9: Nanocomposites for Thermoelectricity”, in **Multifunctional Nanocomposites for Energy and Environmental Applications**, ed. Z. Guo, Y. Chen and N. Lu, ISBN: 978-3-527-34213-6 Publisher: Wiley-VCH Inc. To be published in late 2016/early 2017
2. N. Lu, S. Oza, and M. Tajabadi, “Chapter 9: Surface Modification of Natural Fibers: Current Review and Future Outlook”, in **Surface Modification of Biopolymers**, ed. Vijay Kumar Thakur, John Wiley and Sons, ISBN: 978-118-66955-6, 2015.
1. E. Burgett, E. Hurwitz, N. Hertel, C. Summers, J. Nause, N. Lu, and I. Ferguson, “Chapter 12: The Growth of ZnO for Neutron Detectors”, in **Handbook of Zinc Oxide and Related Materials, Volume II**, ed. Zhe Chuan Feng, CRC Publishing, pp.435-483, 2011.

Journal Publications

31. E. Ghahari, Y. Feng, Y. Liu, I. Ferguson, N. Lu*, “Investigating Process-Structure Relations of ZnO nanofiber via Electrospinning Method”, **Composites Part B**, 116, pp. 40-45, 2017.
30. Y. Liu, Q. Li, LY Wan, B. Kucukgok, I. Ferguson, ZC Feng, and N. Lu, “Temperature-Dependent Optical and Structural Properties of $Al_xGa_{1-x}N$ by Spectroscopic Ellipsometry”, **Applied Surface Science**, DOI: 10.1016/j.apsusc.2017.01.309. 2017
29. Y. Liu, E. Ghafari, X. Jiang, Y. Feng, ZC Feng, I. Ferguson, N. Lu*, “Temperature-dependent Optical Properties of AlN Thin Film by Spectroscopy Ellipsometry”, **MRS Advances**, DOI: 10.1557/adv.2017.171. 2017.
28. E. Ghafari, S.A. Ghahari, Y. Feng, F. Severgnini, and N. Lu, “Effect of Zinc Oxide and Al-Zinc Oxide Nanoparticles on the Rheological Properties of Cement Paste”, **Composites Part B**, 105, pp. 160-166, 2016.

27. Q. Hao, DC Xu, N. Lu, and H. Zhao, "High-throughput ZT Predictions of Nanoporous Bulk Materials as Next Generation Thermoelectric Materials: A Materials Genome Approach", **Physical Review B**, 93, pp. 205206, 2016.
26. B. Kucukgok, X. Wang, XJ Wang, Z. Liu, I. Ferguson, and N. Lu, "The Structural Properties of InGaN Alloys and the Interdependence on the Thermoelectric Behavior", **American Institute of Physics (AIP) Advances**, 6, pp. 025305, 2016.
25. Z. Liu, B. Fu, X. Yi, G. Yuan, J. Wang, J. Li, N. Lu, and I. Ferguson, "Co-doping of Magnesium with Indium in Nitrides: First Principle Calculation and Experiment", **Royal Society of Chemistry (RSC) Advances**, Vol. 6, pp. 5111-5115, 2016.
24. Z. Liu, X. Yi, Z. Yu, G. Yuan, Y. Liu, JX Wang, J. L, N. Lu, I. Ferguson, and Y. Zhang, "Impurity Resonant States P-type Doping in Wide Bandgap Nitrides", **Scientific Reports**, 6: 19537, pp. 1-7, 2016.
23. B. Wang, X. Zhang, A. Zhang, XR Zhou, B. Kucukgok, N. Lu, HL Xiao, XL Wang, and I. Ferguson, "Room Temperature Thermoelectric Properties of GaN Thin Films Grown by Metal Organic Chemical Vapor Deposition", **Acta Physica Sinica**, Vol. 64, pp. 047202, 2015.
22. B. Kucukgok, N. Lu, I. Ferguson, S. Wang, X. Zhang, and ZC Feng, "Structural and Optical Analyses of $\text{Al}_x\text{Ga}_{1-x}\text{N}$ Thin Films Grown by Metal-Organic Chemical Vapor Deposition", **Japanese Journal of Applied Physics**, Vol. 54, pp. 02BA05, 2015.
21. YT He, XY Lei, ZR Qiu, BP Zhang, N. Lu, I. Ferguson, and ZC Feng, "The characteristics of Optical Pumped GaN-Based Vertical Cavity Surface Emitting Laser Structures", **Applied Mechanics and Materials**, Vol. 692, pp. 187-190, 2014.
20. S. Oza, I. Ferguson, and N. Lu, "Effect of Surface Treatment on Thermal Stability of the hemp-PLA Composites: Correlation of Activation Energy with Thermal Degradation", **Composites Part B: Engineering**, Vol. 67, pp. 227-232, 2014.
19. B. Kucukgok, B. Wang, A. Melton, N. Lu, and I. Ferguson, "Comparison of Thermoelectric Properties of GaN and ZnO Samples", **Physica Status Solidi**, Vol. C11, (3-4), pp. 894-897, 2014.
18. B. Wang, P. Yu, B. Kucukgok, A. Melton, N. Lu, and I. Ferguson, "Characterization of Undoped and Si-doped bulk GaN fabricated by Hybride Vapor Phase Epitaxy", **Physica Status Solidi**, Vol. C11, (3-4), pp. 573-576, 2014.
17. N. Lu, and T. Korman, "Engineering Sustainable Construction Material: Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **ASCE Journal of Architecture Engineering**, Vol. 19 (3), pp. 204-208, 2013.

16. Z. Liu, A. Melton, X. Yi, J. Wang, B. Kucukgok, J. Kang, N. Lu, J. Wang, J. Li and I. Ferguson, "Design of Shallow Acceptors in GaN through Zinc-Magnium Co-doping: First Principle Calculation", **Applied Physics Express**, Vol. 6, pp. 042104-4, 2013.
15. T. Tong, D. Fu, A. Levander, W. Schaff, B. Pantha, N. Lu, B. Liu, I. Ferguson, and D. Cahill, "Suppression of Thermal Conductivity in InGaN Alloys by Nanometer-scale Disorder", **Applied Physics Letters**, Vol. 102, pp. 121906-4, 2013.
14. N. Lu, and S. Oza, "A Comparative Study of Mechanical Properties of Hemp Fiber with Virgin and Recycled High Density Polyethylene Matrix", **Composites Part B: Engineering**, Vol. 45, pp. 1651-1656, 2013.
13. N. Lu, and S. Bhogaiah, "Thermal Stability and Thermo-mechanical Properties of Hemp-High Density Polyethylene Composite: Effect of Two Different Chemical Modifications", **Composites Part B: Engineering**, Vol. 44, pp. 484-490, 2013.
12. N. Lu, and S. Oza, "Effect of Surface Treatment of Hemp Fibers on the Thermal Stability of the Hemp-PLA (Poly lactic acid) - Composites", **Advanced Materials Research**, Vol. 651, pp. 499-504, 2013.
11. N. Lu, and I. Ferguson, "III-Nitrides for Energy Production: Photovoltaic and Thermoelectric Applications", **Semiconductor Science and Technology**, Vol. 28, pp.074023, 2013. **Invited Review Article**.
10. Z. Liu, X. Yi, J. Wang, J. Kang, A. Melton, Y. Shi, N. Lu, and I. Ferguson, "Ferromagnetism and Its Stability in n-type Gd-doped GaN: First-principles calculation", **Applied Physics Letters**, Vol. 100 (23), pp. 232408, 2012.
9. Z. Liu, J. Ma, X. Yi, E. Guo, L. Wang, J. Wang, N. Lu, J. Lu, I. Ferguson, and A. Melton, "p-InGaN/AlGaIn electron blocking layer for InGaN/GaN blue light-emitting diodes", **Applied Physics Letters**, Vol. 101(26), pp. 261106, 2012.
8. N. Lu, and S. Oza, "Thermal Properties of Hemp-High Density Polyethylene Composites: Effect of Two Different Chemical Treatments", **Materials Processing and Interfaces**, Vol. 1, pp. 375-382, 2012.
7. N. Lu, S. Bhogaiah, and I. Ferguson, "Effect of Alkali and Silane Treatment on the Thermal Stability of Hemp Fibers as Reinforcement in Composite Structures", **Advanced Materials Research**, Vol. 415-417, pp. 666-670, 2012.
6. E. Hurwitz, M. Asghar, A. Melton, B. Kucukgok, L. Su, M. Oroc, M. Jamil, N. Lu, and I. Ferguson, "Thermopower Study of GaN-Based Materials for Next Generation Thermoelectric Devices and Applications", **Journal of Electronic Materials**, Vol. 40, pp. 513-517, 2011.

5. N. Lu, R. Swan, and I. Ferguson, "Composition, Structure and Mechanical Strength of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **Journal of Composite Materials**, Vol. 46 (16), pp. 1915-1924, 2011.
4. S. Bhogaiah, R. Wang, and N. Lu, "Thermal and Mechanical Properties of Recycled High Density Polyethylene/hemp Fiber Composites, **International Journal of Applied Science and Technology**, Vol. 1(5), pp. 31-35, 2011.
3. N. Lu, and S. Bhogaiah, "Effect of Physical and Chemical Surface Treatment on the Thermal Stability of Hemp Fibers as Reinforcement in Composite Structures", **Applied Mechanics and Materials**, Vol. 71-78, pp. 616-620, 2011.
32. N. Lu, "A Study of Surface Morphology and Flexural Strength of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **Applied Mechanics and Materials**, Vol. 71-78, pp. 4416-4420, 2011.
1. N. Lu, and R. Liska, "The Designers' and General Contractors' Perceptions of Offsite Construction Techniques in the United States Construction Industry", **International Journal of Construction Education and Research**, Vol. 4(3), pp. 177-188, 2008.

Peer Reviewed Conference Publications

29. E. Ghafari, Y. Feng, S. A Ghahari, A. Bukowski, and N. Lu*, "Investigating process-structure relations of ZnO nanofiber via electrospinning process for piezoelectricity", **the Proceeding of 2016 International Conference on Composites and Nano Engineering**, pp. 355-356, 2016.
28. J. Xin, CM. Chang, CH Hsueh, JF Lee, JM Chen, HH Lin, N. Lu, I. Ferguson, Y. Guan, L. Wan, Q. Yang and ZC FENG, "X-ray Absorption Fine Structure of ZnO Thin Film on Si and Sapphire Grown by MOCVD", 2-pages, submitted, **The 5th International Symposium on Next-Generation Electronics, Hsinchu**, IEEE Xplore, DOI: 10.1109/ISNE.2016.7543313. 2016
27. B. Kucukgok, B. Hussain, C. Zhou, I. Ferguson and N. Lu, "Investigation of Thermoelectric Properties of P-Type GaN Thin Films", **Mater. Res. Soc. Symp. Proceeding**, 1774, mrss15-2136797, 2015.
26. B. Kucukgok, B. Hussain, C. Zhou, I. Ferguson and N. Lu, "Thermoelectric Properties of ZnO Thin Films Grown by Metal-Organic Chemical Vapor Deposition", **Mater. Res. Soc. Symp. Proceeding**, 1805, mrss15-2136936, 2015.
25. P. Mishar, R. Patel, B. Hussain, J. Stansell, B. Kucukgok, M. Raja, N. Lu, and I. Ferguson, "Spatial Analysis of ZnO Thin Films Prepared by Vertically Aligned MOCVD", **IEEE 2014 High-capacity optical networks and emerging/enabling technologies (HONET) proceeding**, pp. 67-70, 2014.

24. B. Hussain, B. Kucukgok, M. Raja, B. Klein, N. Lu, and I. Ferguson, "Is ZnO as a Universal Semiconductor Material an Oxymoron?", **SPIE Proceedings: Oxide-based Materials and Devices V**, pp. 898718-14, 2014. **Invited Conference Proceeding**
23. S. Oza, A. Carlson, M. Tajabadi and N. Lu, "Effect of Surface Functionalization of Hemp Fiber on mechanical Properties of Fiber and Composites with Poly Lactic Acid (PLA) Matrix", **Proceeding of the 28th American Society of Composites Technical Conference**, pp.38-46, Sept 9-11, 2013.
22. T. Korman, and N. Lu, "Applying Context Sensitive Solutions for Environmental Protection on Highway and Infrastructure projects", **2013 Canadian ASCE Annual Conference & the 4th Construction Specialty Conference**, pp. CON-016-1, 2013.
21. A. Melton, B. Kucukgok, Z. Liu, N. Dietz, N. Lu and I. Ferguson, "Room Temperature GaN-based Spin Polarized Emitters", **SPIE Proceedings**, 8631, pp. 863104-9, 2013.
20. B. Wang, B. Kucukgok, Q. He, AG. Melton, J. Leach, K. Udway, K. Evans, N. Lu, and I. Ferguson, "Thermoelectric Properties of Undoped and Si-doped Bulk GaN", **Mater. Res. Soc. Symp. Proceedings**, 1558, mrs 13-1558-09-03, 2013.
19. B. Kucukgok, Q. He, A. Carlson, AG Melton, I. Ferguson, and N. Lu, "Investigation of Wide Bandgap Semiconductor for Thermoelectric Applications", **Mater. Res. Soc. Symp. Proceedings**, 1490, pp. 161-166, 2013.
18. T. Korman, N. Lu, and L. Simonian, "Context Sensitive Solutions for Infrastructure Projects", **ASCE Proceeding of 2012 International Conference on Sustainable Design, Engineering, and Construction (ICSDEC)**, pp. 416-422, 2012.
17. E. Hurwitz, B. Kucukgok, A. Melton, ZQ Liu, N. Lu, and I. Ferguson, "A Systematic Study of Thermoelectric Properties of GaN-based Wide Band Gap Semiconductors", **Mater. Res. Soc. Symp. Proceedings**, 1396, mrsf 11-1396-o08-10, 2012.
16. S. Oza, N. Lu, and T. Korman, "Effect of Alkali Treatment on the Mechanical Properties of Hemp-HDPE Composites: Virgin versus Recycled Polymer Matrix", **ASCE Proceeding of the 2nd International Conference on Sustainable Design, Construction and Engineering**, pp. 818-825, 2012.
15. A. Melton, B. Kucukgok, N. Lu, and I. Ferguson, "The Development of a Universal Substrate Technology for the Growth of Light Emitting Diodes," **IEEE 2012 High-capacity optical networks and emerging/enabling technologies (IEEE-HONET) proceeding**, pp. 188-192, 2012.
14. N. Lu, E. Guo, L. Wang, A. Melton, Z. Liu, and I. Ferguson, "Optical and Electrical Characteristics of GaN Vertical Light Emitting Diodes with Current Block Layer", **Mater. Res. Soc. Symp. Proceedings**, 1396, pp. 15-19, 2012.

13. A. Melton, B. Kucukgok, B. Wang, N. Dietz, N. Lu, and I. Ferguson, "Development of Indium-rich InGaN Epilayers for Integrated Solar Tandem Solar Cells", **Mater. Res. Soc. Symp. Proceedings**, E15: Thin Film Solar Cells; E 15.02. pp. 1-6, 2012.
12. A. Melton, Z. Liu, B. Kucukgok, N. Lu, and I. Ferguson, "Properties of MOCVD-Grown GaN: Gd films for Spintronic Devices", **Mater. Res. Soc. Symp. Proceedings**, 1396, pp. 133-137. 2012.
11. A. Melton, Z. Liu, M. Kane, N. Lu, and I. Ferguson, "Development of Room Temperature Spin Polarized Emitters", **the Proceeding of 2011 IEEE-HONET conference**, pp. 21-24, 2011.
10. N. Lu, and T. Korman, "Engineering Sustainable Construction Material: Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **International Conference of Sustainable Design and Construction**, ASCE ICSDC 2011, pp. 569-576, 2011.
9. N. Lu, and T. Korman, "Review of Current Legislation, Codes, and Certifications Increasing the Sustainability Standards for Construction Operations", **International Conference of Sustainable Design and Construction**, ASCE ICSDC 2011, pp. 129-135, 2011.
8. T. Korman, and N. Lu, "Heavy Civil Construction Operations: Increased Sustainability through Legislation, Codes and Certifications", **ASCE Proceeding of 3rd International Construction Specialty Conference**, pp. 192-1, 2011.
7. N. Lu, and R. Swan, "A Study of Tensile Properties of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **the Proceeding of Society of Advance Material Processing Engineering SAMPE Annual Technical Conference**, Novel Materials & Fibers, pp. 1-9, 2011.
6. N. Lu, and S. Bhogaiah, "The Effect of Alkylation on the Thermal and Mechanical Properties of Hemp Fiber Composite with Recycled High Density Polyethylene Matrix", **the Proceeding of 26th American Society of Composite Technical Conference**, 1068, pp. 1-10, 2011.
5. B. Kucukgok, L. Su, E. Hurwitz, A. Melton, ZQ Liu, N. Lu and I. Ferguson, "Seebeck and Spin Seebeck Effect in Gd-doped GaN Thin Films for Thermoelectric devices and applications", **Mater. Res. Soc. Symp. Proceedings**, 1329, pp. 26-31, 2011
4. T. Korman, and N. Lu, "Innovation and Improvement of Mechanical Electrical and Plumbing Systems for Modular Construction Use Building Information Modeling", **ASCE Proceeding of 211 AEI Conference**, pp. 448- 454, 2011.

33. N. Lu, and T. Korman, "Implementation of Building Information Modeling (BIM) in Modular Construction", **American Society of Civil Engineering 2010 Construction Research Congress Proceeding**, pp.1136-1145, 2010.
2. D. Cottrell, CS Cho, N. Lu, and R. Swan, "Innovative Collaboration to Provide Hands-on Educational Opportunities for Engineering Students: Integrating Habitat for Humanity into a First Year Construction Material Course", **Proceeding of 2010 American Society for Engineering Education**, Louisville, AL. June 20-23, 2010.
1. N. Lu, "The Current Use of Offsite Construction Techniques in the U.S. Construction Industry", **Proceedings of the American Society of Civil Engineers (ASCE) Construction Research Congress 2009**, pp. 946-955, 2009.

Keynote and Invited Conference/Research Seminar Presentations

Keynote Presentations

5. N. Lu and I. Ferguson, "High Temperature Energy Harvesting in Wide Bandgap Semiconductor", **the 13th IEEE-HONET conference**, Nicosia, Northern Cyprus, October 13-14, 2016. **Keynote Talk.**
4. E. Ghafari, Y. Feng, S. A Ghahari, A. Bukowski, and N. Lu, "Investigating process-structure relations of ZnO nanofiber via electrospinning process for piezoelectricity", **the 2016 International Conference on Composites and Nano Engineering**, Haikou, China. July 18-22, 2016. **Keynote Talk.**
3. N. Lu, "The Current Status and Future Prospect For High Temperature Thermoelectric Materials", **3rd international workshop on Nanotechnology**, Renewable Energy & Sustainability, Xi'an, China. September 28, 2015. **Keynote Talk.**
2. N. Lu, A. Mohammad, B. Kucukgok, A. Melton, I. Ferguson, "Nano-structuring Low Dimensional Thermoelectric Composites for High Temperature Applications", **the 20th International Conference on Composites/Nano Engineering (ICCE-20)**, Beijing, China. July 22-28, 2012. **Keynote Talk.**
1. N. Lu, "Wide Bandgap Materials for Thermoelectric Energy Applications", **the 2nd International Conference on Semiconductors Materials and Nano-Device Technology**, Bahawalpur, Pakistan. October 10-12, 2010. **Keynote Talk.**

Invited Conference Presentations

6. B. Kucukgok, I. Ferguson, and N. Lu, "Thermoelectric Behavior of ZnO and GaN-Based Wide Bandgap Semiconductors", **SPIE Photonic West 2016**, San Francisco, CA. Feb 13-18, 2016, **Invited Talk**

5. B. Kucukgok, I. Ferguson, and N. Lu, “High Power Factor of InGaN Thin Film on ZnO Substrate for Thermoelectric Power Generation”, **the 2016 Workshop on Compound Semiconductor Materials and Devices**, Tuscan, AZ. Feb 1-4, 2016. **Invited Talk**
4. B. Kucukgok, C. Zhou, I. Ferguson, and N. Lu, “Novel Thermoelectric Materials for High Temperature Power Generations”, **the 2015 Workshop on Compound Semiconductor Materials and Devices**, Isle of Palms, SC. Feb 16-19, 2015. **Invited Talk**
3. N. Lu, B. Kucukgok, A. Melton, I. Ferguson, “Nanostructuring Ternary Group III-Nitrides for High Temperature Thermoelectric and Photovoltaic Applications: Current Status and Future Perspectives”, Energy for Sustainability, **the 2013 Materials Research Society (MRS) Spring Conference**, San Francisco, CA. April 1-5, 2013. **Invited Talk.**
2. B. Kucukgok, A. Melton, I. Ferguson, and N. Lu, “Thermoelectric Study of InGaN-based Materials for Thermal Energy Harvesting”, **141st Annual TMS meeting and exhibition**, Orlando, FL. March 11-15, 2012. **Invited Talk.**
1. S. Oza, and N. Lu, “Structural and Thermal Stability Properties of Cellulose Nanocomposite with Polyactic Acid Matrix”, **141st Annual TMS meeting and exhibition**, Orlando, Florida, USA. March 11-15, 2012. **Invited Talk.**

Conference Presentations

60. B. Kucukgok, N. Lu, and I. Ferguson, “Development of III-Nitrides for Energy Harvesting Applications”, **the AVS 63rd International Symposium & Exhibition**, Nashville, Tennessee, November 6-11, 2016.
59. N. Lu & I. Ferguson, “High Temperature Energy Harvesting in Wide Bandgap Semiconductors”, **the 16th High-Capacity Optical Networks & Emerging/Enabling Technologies (HONET)**, Nicosia, Northern Cyprus. October 13-14, 2016.
58. B. Kucukgok, C. Zhou, I. Ferguson and N. Lu, “Investigation of Thermoelectric Properties in III-Nitrides Based Semiconductors”, **the 2016 International Workshop on Nitride Semiconductors (IWN 2016)**, Orlando, Florida, October 2-7, 2016.
57. E. Ghafari, S. Ghahari, L. Castano, Y. Feng, and N. Lu, “Poster: Thermoelectric concrete for energy harvesting in civil infrastructures”, **the 7th Advances in Cement-Based Materials**, Northwestern university, Evanston, Illinois. July 10-13, 2016.
56. S. A Ghahari, E. Ghafari, and N. Lu, “Hydration Behavior of Cement Past with Al-Zinc Oxide and Zinc Oxide Nanoparticles”, **the 7th Advances in Cement-Based Materials**, Northwestern University, Evanston, Illinois. July 10-13, 2016.
55. P. Panchmatia, R. Tokpatayeva, J. Olek, and N. Lu, “Nanosilica Coated Aggregates: Effects on Strength, Microstructure, and Transport Properties of Hydraulic Cement Mortars”, **the 7th Advances in Cement-Based Materials**, Northwestern University, Evanston, Illinois, July 10-13, 2016.

54. J. Xin, C. Chang, CH. Hsueh, JF Lee, JM. Chen, H. Lin, N. Lu, I. Ferguson, YJ Guan, LY. Wan, Q. Yang and ZC. Feng*, "X-ray Absorption Fine Structure of ZnO Thin Film on Si and Sapphire Grown by MOCVD", **the 5th International Symposium on Next-Generation Electronics**, Hsinchu, Taiwan, May 4-6, 2016
53. Y. Liu, CM Chang, CH Hsueh, JF Lee, HH Lin, Na Lu, Ian T. Ferguson, LY Wan and ZC Feng, "Gallium K-edge X-ray Absorption Spectroscopy Study of InXGa1-XN Films on Sapphire by Metalorganic Chemical Vapor Deposition", **The 5th International Symposium on Next-Generation Electronics**, Hsinchu, Taiwan, May 4-6 (ISNE 2016).
52. B. Kucukgok, I. Ferguson, and N. Lu, "Point Defect and Grain Boundary on Thermoelectric Property of Thin Film ZnO", **2015 Materials Research Society Fall Conference**, Boston, MA. November 29- December 4, 2015.
51. B. Kucukgok, N. Lu, N. Dietz, and I. Ferguson, "State-Of-The-Art High Efficiency Thermoelectric Material: III-Nitrides as a Wide Bandgap Semiconductor," EMPD session "III-N Nitrides for Optoelectronic Applications," **AVS 62nd International Symposium**; San Jose, CA, Oct. 18-23, 2015.
50. Z. Liu, B. Kucukgok, I. Ferguson, and N. Lu, "Thermoelectric Behavior of GaN Ternary Alloy with Various Indium Content", **the 23rd International conference on Composites Nano Engineering (ICCE-23)**, Chengdu, China, July 12-18, 2015. Invited Talk
49. B. Kucukgok, C. Zhou, I. Ferguson, and N. Lu, "Thermoelectric Effects of Wide Bandgap Nitrides and Nanostructures", **2015 Materials Research Society (MRS) Spring Conference**, San Francisco, CA. April 6-10, 2015.
48. B. Kucukgok, C. Zhou, I. Ferguson, and N. Lu, "Investigation of Thermoelectric Properties of p-type GaN Thin Films", **2015 Materials Research Society (MRS) Spring Conference**, San Francisco, CA. April 6-10, 2015.
47. B. Kucukgok, C. Zhou, I. Ferguson, and N. Lu, "Thermoelectric Properties of ZnO Thin Film Grown by Metal-Organic Chemical Vapor Deposition", **2015 Materials Research Society (MRS) Spring Meeting**, San Francisco, CA. April 6-10, 2015.
46. P. Mishar, R. Patel, J. Dulin; B. Hussain, J. Stansell, B. Kucukgok, M. Raja, N. Lu, and I. Ferguson, "Spatial Analysis of ZnO Thin Films Prepared by Vertically Aligned MOCVD", **IEEE 2014 High-capacity optical networks and emerging/enabling technologies (HONET)**, Charlotte, NC. December 15-17, 2014.
45. B. Kucukgok, B. Hussain, I. Ferguson and N. Lu, "Structural and Thermoelectric Properties of MOCVD Grown Zinc Oxide Thin Films", **International Conference on Thermoelectric**, Nashville, TN. July 6-10, 2014.

44. T. Korman, and N. Lu, "Challenges and Obstacles for Small Municipalities Seeking to Reduce Illicit Storm Water Discharges", **2014 Canada Society for Civil Engineering Technical Conference**, Halifax, Canada. May 28 -31, 2014.
43. B. Kucukgok, B. Hussain, I. Ferguson, Z.C. Feng, and N. Lu, "Structural and Optical Properties of Quaternary InAlGa_N Thin Films Grown by Metal-organic Chemical Vapor Deposition", **the 5th International Symposium on Growth of III-Nitrides (ISGN)**, Atlanta, GA. May 18-22, 2014.
42. N. Lu, and I. Ferguson, "Is ZnO as a Universal Semiconductor Material?" **SPIE Photonics West 2014**, San Francisco, CA. February 1-6, 2014.
41. B. Kucukgok, B. Wang, I. Ferguson, and N. Lu, "Thermoelectric (TE) Materials and Technology for Renewable Energy", **the 10th High-Capacity Optical Networks & Emerging/Enabling Technologies (HONET)**, Magosa, Cyprus. December 15-17, 2013.
40. N. Lu, and D. Kehrl, "Hybridization of Carbon Fiber with Flax Fiber for Wind Turbine Applications", **Society for the Advancement of Material and Process Engineering (SAMPE) 2013 Technical Conference**, Wichita, KS. October 21-24, 2013.
39. M. Tajabadi, S. Oza, and N. Lu, "The Effect of Fiber Aspect Ratio on Bulk Mechanical Properties of Kenaf Composites with High Density Polyethylene Matrix", **Society for the Advancement of Material and Process Engineering (SAMPE) 2013 Technical Conference**, Wichita, KS. October 21-24, 2013.
38. S. Oza, A. Carlson, M. Tajabadi, and N. Lu, "Mechanical and Thermo-mechanical Properties of Hemp-Poly (Lactic Acid) Composites", **Society for the Advancement of Material and Process Engineering (SAMPE) 2013 Technical Conference**, Wichita, KS. October 21-24, 2013.
37. A. Carlson, S. Oza, M. Tajabadi, and N. Lu, "Effect of Surface Functionalization of Hemp Fiber on Mechanical Properties of Fiber and Composites with Poly Lactic Acid (PLA) Matrix", **American Society of Composites 28th Technical Conference**, Penn State, PA. Sept. 9-11, 2013.
36. B. Wang, B. Kucukgok, A. Melton, N. Lu, and I. Ferguson, "Characterization of Undoped and Si-doped bulk GaN fabricated by Hybrid Vapor Phase Epitaxy", **the 10th International Conference on Nitride Semiconductors**, Washington DC. August 25-30, 2013.
35. B. Kucukgok, B. Wang, Q. He, A. Melton, N. Lu, and I. Ferguson, "Comparison of Thermoelectric Properties of GaN and ZnO Samples", **the 10th International Conference on Nitride Semiconductors**, Washington DC. August 25-30, 2013.

34. T. Korman, and N. Lu, "Applying Context Sensitive Solutions for Environmental Protection on Highway and Infrastructure Projects", **2013 Canadian ASCE Conference & the 4th Construction Specialty Conference**, Montreal, Canada. May 29- June 1, 2013.
33. B. Wang, B. Kucukgok, Q. He, A. Melton, N. Lu, and I. Ferguson, "Thermoelectric Properties of Undoped and Si-doped Bulk GaN", Material Research Society, **2013 MRS Spring Technical Conference**, San Francisco, CA. April 4-9, 2013.
32. A. Melton, B. Kucukgok, N. Dietz, N. Lu, and I. Ferguson, "Room Temperature GaN-based Spin Polarized Emitters", **the 2013 SPIE Photonics West Conference**, San Francisco, CA. February 2-7, 2013.
31. A. Melton, B. Kucukgok, N. Lu, and I. Ferguson, "The Development of a Universal Substrate Technology for the Growth of Light Emitting Diodes", **IEEE-HONET Conference**, Istanbul, Turkey. December 12-14, 2012.
30. B. Kucukgok, A. Muhammad, A. Melton, N. Lu, and I. Ferguson, "Low Dimensional Wide Bandgap Semiconductors for High Temperature Thermoelectric Applications", **2012 MRS Fall Technical Conference**, Boston, MA. November 25-30, 2012.
29. A. Melton, B. Kucukgok, B. Wang, N. Dietz, N. Lu, and I. Ferguson, "Development of Indium-rich InGaN Epilayers for Integrated Solar Tandem Solar Cells", **2012 MRS Fall Conference**, Boston, MA. November 25-30, 2012.
28. S. Oza, N. Lu, and T. Korman, "Effect of alkali treatment on the mechanical properties of hemp-HDPE composites: virgin versus recycled polymer matrix", **the 2nd International Conference on Sustainable Design, Construction and Engineering**, Fort Worth, TX. November 7-11, 2012.
27. S. Oza, and N. Lu, "Thermal Stability of Hemp-PLA Composites: two methods comparison", **2012 SAMPE Fall Technical Conference**, Charleston, SC. October 22-25, 2012.
26. A. Melton, Z. Liu, B. Kucukgok, N. Lu, and Ian Ferguson, "Spinning; Dazed and Confused: GaN-based Spin Polarized Emitters", **the 11th International Conference on Infrared Optoelectronics: Materials and Devices**, Chicago, IL. September 4-8, 2012.
25. S. Oza, and N. Lu, "Effect of Fiber Surface Treatments on Mechanical and Biodegradability of Hemp/Poly (Lactic Acid) PLA Composites", **the 15th European Conference on Composites Materials**, Venice, Italy. June 24-28, 2012.
24. N. Lu, and S. Oza, "Thermal and Thermo-Mechanical Properties of Hemp-high Density Polyethylene (HDPE) Composites - Effect of two different chemical treatments", **the 141st Annual TMS meeting and exhibition**, Orlando, Florida, USA. March 11-15, 2012.

23. A. Melton, Z. Liu, N. Lu, and I. Ferguson, "Development of Room Temperature Spin Polarised Emitters", **Material Research Society MRS Fall Technical Conference**, Boston, MA. November 28- December 2, 2011.
22. B. Kucukgok, E. Hurwitz, A. Melton, Z. Liu, N. Lu, and I. Ferguson (2011) "Thermoelectric Properties of Wide Bandgap Semiconductors", **Material Research Society MRS Fall Conference**, Boston, MA. November 28- December 2, 2011.
21. N. Lu, Z. Liu, E. Guo, L. Wang, A. Melton, and I. Ferguson, "Optical and Electrical Characteristics of GaN Vertical Light Emitting Diode with Current Block Layer", **Material Research Society MRS Fall Conference**, Boston, MA. November 28-December 2, 2011.
20. A. Melton, E. Hurwitz, B. Kucukgok, N. Lu, and I. Ferguson, "Thermoelectric Properties of Wide Bandgap Semiconductors and Nano-structures", **the 2nd International Conference on Semiconductors Materials and Nano Device**, Bahawalpur, Pakistan. October 10-12, 2011.
19. N. Lu, and S. Bhogaiah, "The Effect of Alkylation on the Thermal and Mechanical Properties of Hemp Fiber Composite with Recycled High Density Polyethylene Matrix", **the 26th American Society of Composite Technical Conference**, Montreal, CA. September 26-28, 2011.
18. N. Lu, "A Study of Surface Morphology and Flexural Strength of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **2011 International Conference on Green Building, Materials and Civil Engineering**, Shangri-La, Yunnan, China. August 22-24, 2011.
17. T. Korman, and N. Lu, "Sustainable Construction Operations: Review and Assessment of Current Applications", **the American Society of Civil Engineers (ASCE) Construction Research Congress 2011**, Ottawa, CA. July 14-17, 2011.
16. N. Lu, and R. Swan, "A Study of Flexural Properties of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **ASME Applied Mechanics and Materials 2011**, Chicago, IL. May 30- June 1, 2011.
15. N. Lu, and R. Swan, "A Study of Tensile Properties of Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix", **the Society of Advance Material Processing Engineering SAMPE Annual Technical Conference**, Long Beach, CA. May 23-27, 2011.
14. B. Kucukgok, L. Su, E. Hurwitz, A. Melton, Z. Liu, N. Lu, and I. Ferguson, "Spin Seebeck Effect in Gd Doped GaN Thin Films", **Materials Research Society MRS 2011 Spring Technical Conference**, San Francisco, CA. April 25- 29, 2011.

13. T. Korman, and N. Lu, “Innovation of Mechanical Electrical and Plumbing Systems for Modular Construction using Building Information Modeling”, **the American Society of Civil Engineers (ASCE) Architectural Engineering Institute 2011**, Oakland, CA. March 30- April 2, 2011.
12. N. Lu, “Engineering Sustainable Construction Material: Hemp Fiber Reinforced Composite with Recycled High Density Polyethylene Matrix”, **International Conference of Sustainable Design and Construction**, Kansas City, KS. March 23-25, 2011.
11. N. Lu, and T. Korman, “Review of Current Legislation, Codes, and Certifications Increasing the Sustainability Standards for Construction Operations”, **International Conference of Sustainable Design and Construction**, Kansas City, KS. March 23-25, 2011.
10. N. Lu, and Z. Guo, “Surface Treatment Effects on the Surface Morphology and Thermo-Stability Properties of Hemp Fiber Reinforced Composite with Polypropylene Matrix”, **the 10th Annual Technical Conference of American Institute of Chemical Engineers**, Salt Lake City, UT. November 7-12, 2010.
9. N. Lu, R. Swan, and L. Wang, “Mechanical Properties of Hemp Fiber Reinforced Polymeric Composite with Reclaimed HPDE”, **the 25th Annual Technical Conference of American Society of Composite held jointly with 14th US-Japan Conference on Composite Materials**, Dayton, OH. September 20-23, 2010.
8. N. Lu, Y. Zhang, and R. Tsu, “Synthesis Ultra-Strength Graphene-Silicon Superlattice Nanocomposite”, **the 16th International Conference on Superlattice Nano-structure and Nano-devices**, Beijing, China. July 18-23, 2010.
7. D. Cottrell, CS. Cho, N. Lu, and R. Swan, “Innovative Collaboration to Provide Hands-on Educational Opportunities for Engineering Students: Integrating Habitat for Humanity into a First Year Construction Material Course”, **2010 American Society for Engineering Education**, Louisville, AL. June 20-23, 2010.
6. N. Lu, E. Hurwitz, A. Melton, and I. Ferguson, “III-Nitride Materials for Next Generation Thermoelectric Devices”, **the 29th International Conference of Thermoelectricity**, Shanghai, China. May 31- June 4, 2010.
5. N. Lu, and T. Korman, “Implementation of Building Information Modeling (BIM) in Modular Construction”, **American Society of Civil Engineering 2010 Construction Research Congress Proceeding**, Calgary, Canada. May 8-10, 2010.
4. N. Lu, and T. Korman, “Opportunities for Advancement of Modular Construction Projects by Using Building Information Modeling (BIM)”, **American Society of Construction 2010 Conference Proceeding**, Boston, MA. April 22-25, 2010.

3. Ferguson, and N. Lu (2010) “Optimization of the Thermoelectric Effect in GaN-based Materials”, **American Physics Society (APS) 2010 March Meeting**, Portland, OR. March 15-19, 2010.
2. N. Lu, “The Current Use of Offsite Construction Techniques in the U.S. Construction Industry”, **American Society of Civil Engineers (ASCE) Construction Research Congress 2009**, Seattle, WA. April 5-7, 2009.
1. N. Lu, “Contractor’s Perspective on Modular Construction Techniques in US building Construction”, **the 44th annual ASC International Conference**, Gainesville, Florida. April 1-4, 2009.

Invited Seminar/ Colloquia

11. Broad Search of Cost Effective Thermoelectric Materials: a Materials Genome Approach, **Princeton University**, Princeton, NJ, Feb 15, 2017 (Host: Prof. Bruce Koel)
10. Materials Engineering for Energy Conversion and Production, **Materials Engineering Department MSE Seminar Series, Purdue University**, West Lafayette, IN September 16, 2016. (Host: Prof. David Bahr)
9. Future and Challenges of Wide Bandgap Materials for Next Generation of Thermoelectric Materials, **Xi’an Jiaotong University**, Xi’an, China. July 25, 2016. (Host: Prof. Liejin Guo)
8. Materials Engineering for Energy and Sustainability in Civil Infrastructures, **University of Illinois at Urbana- Champaign**, Champaign, IL, May 04, 2016 (Host: Prof. Paramita Mondal)
7. Nanostructured Wide Bandgap Materials towards High Temperature Thermoelectric Applications, **Argonne National Lab**, Chicago, IL, April 8, 2016 (Host: Dr. Xing Chen)
6. Multifunctional Nanocomposites for Energy and Environmental Sustainability”, **Purdue Birck Nanotechnology Center**, West Lafayette, IN. Oct 22, 2015 (Host: Prof. Ali Shakouri).
5. Thermoelectric Behavior of Low Dimensional Nitrides for Waste Heat Harvesting, **Chinese Academy of Science, Institute of Semiconductors**, Beijing, China, Oct 8, 2015 (Host: Dr. Xiaoliang Wang)
4. Materials Engineering for Renewable Energy and Sustainability: from Atomic Level to Large-scale Production, **GuangXi University**, Nanning, China. September 29, 2015 (Host: Prof. ZheChuan Feng)
3. Nitrides and Oxides for Energy Related Applications, **Xi’an Jiaotong University**, Xi’an, China. September 28, 2015 (Host: Prof. Lionel Vayssieres)

2. Sustainable Building Infrastructure: Materials and Energy, **Rutgers University**, New Brunswick, NJ. Feb 18, 2014 (Host: Prof. Nenad Gucunski)
1. Sustainable Building Infrastructure: Materials and Energy, **North Carolina State University**, Raleigh, NC. Jan 9, 2013 (Host: Prof. Edward Jaselskis)

Patents

2. N. Lu, R. Johnson, “Hemp Fiber Reinforced Composites with Recycled High Density Polyethylene and Production Thereof”, Publication No. US20120046394 A1
1. R. Tsu, N. Lu, J. Hauck “Graphene-based Superlattice Nanocomposite”, Provisional Patent, US patent filing No. 61/305,586

SERVICE

Journal Editorial Board

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Expert Review Panel

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- American Chemistry Society, Petroleum Research Fund 2013
- National Science Foundation, Nano-manufacturing Program 2013
- National Science Foundation, SBIR/STTR Program 2012
- National Science Foundation, Material Manufacturing and Processing 2012
- National Science Foundation, BRIDGE Program 2011

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- Semiconductor Science and Technology
- Journal of Composite Materials
- Journal of Reinforced Plastic and Composites
- Composite B
- Materials & Design
- Royal Society of Chemistry Advances (RSC Advances)

Professional Committee Member

- American Concrete Institute (ACI) 2016 – Present
- American Physical Society (APS) 2016 – Present
- Institute of Electrical and Electronic Engineers (IEEE) 2015 – Present
- Material Research Society (MRS) 2010 – Present
- American Society of Civil Engineers (ASCE) 2009 – Present
- American Society of Engineering Education (ASEE) 2009 – Present

Conference Organizing

- **International Conferences Organizing Committee**
 - 3- The 11th Annual High-capacity Optical Networks and Emerging Technologies (HONET) Institute of Electrical and Electronic Engineers (IEEE), Charlotte, NC, Dec 14-17, 2014.
 - 2- The 5th International Conference of White Light Emitting Diodes (WLED), Jeju, Korea, May 25-28, 2014.
 - 1- The 2nd International Conference on Sustainable Engineering, Design and Construction American Society of Civil Engineering (ASCE), Fort Worth, Texas, Nov. 7-9, 2012.
- **Symposium & Session Chair**
 - 3- The 20th International Conference on Composites or Nano-Engineering, Beijing, China. July 22-28, 2012.
 - 2- The 2010 American Society of Composites (ASC) Conference, Dayton, OH, Sept 20-22, 2010
 - 1- The 2010 ASCE Construction Research Congress, Banff, Canada, May 8-10, 2010