

Saniya A. LeBlanc

Assistant Professor, Mechanical & Aerospace Engineering
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EXPERTISE: *Energy Systems* *Nanomaterials* *Scalable Manufacturing* *Techno-economics*

EDUCATION

STANFORD UNIVERSITY	Stanford, CA	2006 – 2012
<i>Ph.D. in Mechanical Engineering, minor in Materials Science & Engineering</i>		2012
<i>M.S. in Mechanical Engineering</i>		2009
AMERICAN UNIVERSITY	Washington, D.C.	2006
<i>Graduate Certificate in Teaching</i>		
UNIVERSITY OF CAMBRIDGE	Cambridge, England	2005
<i>M. Phil. in Engineering</i>		
GEORGIA INSTITUTE OF TECHNOLOGY	Atlanta, GA	2003
<i>B.S. in Mechanical Engineering, minor in French, with highest honor</i>		

PROFESSIONAL EXPERIENCE

THE GEORGE WASHINGTON UNIVERSITY	Washington, DC	2014 – present
<i>Assistant Professor</i>		
<ul style="list-style-type: none">• Develop energy conversion technologies using advanced materials and manufacturing techniques.• Created new undergraduate and graduate level courses: Nanotechnology in Energy Applications, Nanotechnology Devices & Systems, Connecting Nanotechnology to Your World.		
ALPHABET ENERGY	Hayward, CA	2012 – 2013
<i>Research scientist</i>		
<ul style="list-style-type: none">• Joined an energy technology startup company as 15th employee and sole research scientist.• Developed research, development, and manufacturing characterization solutions for thermoelectric technologies. Evaluated potential of new materials. Conducted multi-university design competition.		
STANFORD UNIVERSITY	Stanford, CA	2005 – 2014
<i>Visiting scholar, NanoHeat Laboratory, Department of Mechanical Engineering</i>		
<i>Research assistant, NanoHeat Laboratory, Department of Mechanical Engineering</i>		
FIRELAKE CAPITAL	Palo Alto, CA	2008 – 2012
<i>Technical consultant</i>		
<ul style="list-style-type: none">• Assessed technology proposed to venture capital firm.		
TEACH FOR AMERICA	Washington, DC	2004 – 2006
<i>Corps member</i>		
<ul style="list-style-type: none">• Selective national corps of motivated young people who teach in the nation's lowest income communities for at least two years to eliminate educational inequity.		
BELL MULTICULTURAL HIGH SCHOOL	Washington, DC	2004 – 2006
<i>Teacher, Math and Physics</i>		
<ul style="list-style-type: none">• Developed and taught math and physics curricula for courses.		

BOSCH, RESEARCH AND TECHNOLOGY CENTER

Palo Alto, CA

Intern, Thermoelectrics initiative

- Developed finite element model in FLUENT of a thermoelectric module incorporated in a home water heater to determine the capacity for power generation.

SCHLUMBERGER, RIBOUD PRODUCT CENTER

Clamart, France

2002

Intern, Oilfield services mechanical team

- Tested force sensor prototype for oilfield well measurement processes.

VISTEON, NORTH PENN ELECTRONICS FACILITY

Lansdale, PA

1999 – 2001

Co-op Engineer, Manufacturing engineering

- Performed experiments to improve automotive electronics manufacturing processes and product quality. Developed a business plan to increase the product scope of the manufacturing plant.

GEORGIA INSTITUTE OF TECHNOLOGY

Atlanta, GA

1998 – 2003

Undergraduate researcher

SERVICE & ACTIVITIES

LBNL INSTITUTE FOR GLOBALLY TRANSFORMATIVE TECHNOLOGIES

2012 – present

Technical advisor

- Advise projects utilizing scientific/technological breakthroughs for sustainable global development.

AMERICAN SOCIETY FOR ENGINEERING EDUCATION

2009 – present

Vice president of finance & Co-founder, Stanford chapter

- Generate methods to improve practice and research of engineering education at Stanford..

STANFORD OFFICE OF SCIENCE OUTREACH

2011 – 2012

Program mentor

- Partnered with Industry Initiatives for Science and Math Education to mentor high school teacher. .
- Mentored underrepresented minority high school students in conducting research.

CAÑADA COLLEGE

Redwood City, CA

2009 – 2012

Volunteer, Math, Engineering, Science Achievement program

- Coach community college students in developing essays for scholarships and internships.
- Developed counseling workshops for National Science Foundation-sponsored summer math camp.

COLLEGE SUMMIT

Nationwide

2005 – present

College counselor, Workshop director

- Volunteer at college campuses in a program to enhance college enrollment of low-income students.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

1999 – present

MATERIALS RESEARCH SOCIETY

2009 – present

WOMEN IN SCIENCE AND ENGINEERING

Stanford, CA

2009 – 2012

FELLOWSHIPS & AWARDS

Sandia National Laboratories Fellowship

2010 – 2012

Stanford's Diversifying Academia, Recruiting Excellence Fellowship

2010 – 2012

ASME Materials Division Award

2012

National Science Foundation Graduate Research Fellowship

2006 – 2009

Winston Churchill Foundation Scholarship

2003 – 2004

PUBLICATIONS, SEMINARS, & REVIEWS

Journals:

- A. El-Desouky, M. Carter, M.A. Andre, P.M. Bardet, S. LeBlanc, "Rapid Processing and Assembly of Semiconductor Thermoelectric Materials for Energy Conversion Devices," *Materials Letters*, 2016.
- M. Orrill, S. LeBlanc, "Printed Thermoelectric Materials and Devices: Fabrication Techniques, Advantages, and Challenges," *J. of Applied Polymer Sciences*, 2016.
- T.J. Hendricks, S.K. Yee, S. LeBlanc, "Cost Scaling of a Real-World Exhaust Waste Heat Recovery Thermoelectric Generator: A Deeper Dive," *J. of Electronic Materials*, 2015.
- M.T. Dunham, M.T. Barako, S. LeBlanc, M. Asheghi, B. Chen, K.E. Goodson, "Power Density Optimization for Micro Thermoelectric Generators," *Energy*, October 2015.
- S. LeBlanc, "Thermoelectric Generators: Linking Material Properties and Systems Engineering for Waste Heat Recovery," *Sustainable Materials and Technologies*, December 2014. (*invited article*)
- S. LeBlanc, S.K. Yee, M.L. Scullin, C. Dames, K.E. Goodson, "Material and Manufacturing Cost Considerations for Thermoelectrics," *Renewable & Sustainable Energy Reviews*, February 2014.
- S.K. Yee, S. LeBlanc, M.L. Scullin, C. Dames, K.E. Goodson, "\$/W Metric for Thermoelectric Power Generation: Beyond ZT," *Energy & Environmental Science*, December 2013.
- S. LeBlanc, B. Swartzentruber, J. Martinez, G. Christoforo, T. Kodama, K.E. Goodson, "Nanoscale Manipulation, Heating, and Welding of Nanowires," Heat Transfer Photogallery, *J. of Heat Transfer*, vol. 134, August 2012, 080910-1.
- S. LeBlanc, S. Phadke, T. Kodama, A. Salleo, K.E. Goodson, "Electrothermal Phenomena in Zinc Oxide Nanowires and Contacts," *Applied Physics Letters*, vol. 100, April 2012.
- R. Luharuka, S. LeBlanc, J.S. Bintoro, Y.H. Berthelot, P.J. Hesketh, "Simulated and experimental dynamic response characterization of an electromagnetic microvalve," *Sensors and Actuators A*, vol. 143, 16 May 2008, 399-408.
- Y. Gao, A.M. Marconnet, M.A. Panzer, S. LeBlanc, S. Dogbe, Y. Ezzahri, A. Shakouri, K.E. Goodson, "Nanostructured Interfaces for Thermoelectrics," *J. of Electronic Materials*, 2009.

Book chapter:

- S. LeBlanc, S.K. Yee, M.L. Scullin, "Stationary Waste-Heat Recovery with Thermoelectrics: How and Why," *Thermoelectric Technology for Electrical Power Generation from Waste Heat Applications, Systems, Devices, and Materials*, G. Meisner, J. Yang, J. Salvador (Eds.). (*in preparation*)
- P. J. Hesketh *et al.*, "Microvalve for fuel cells and miniature gas chromatographic system," in *Sensors Update*, vol. 13, Weinheim: Wiley, Verlag GmbH & Co. KGaA, 2004.

Conferences:

- A. El Desouky, A. Read, P. Bardet, M. Andre, S. LeBlanc, "Selective Laser Melting of a Bismuth Telluride Thermoelectric Powder," *Proceedings of Solid Freeform Fabrication Symposium*, Austin, TX, August 2015.
- S. LeBlanc, S.K. Yee, M.L. Scullin, "\$/W Costs of Thermoelectric Waste-Heat Recovery for Stationary Applications," TechConnect 2014, Washington, DC.

S. LeBlanc, S.K. Yee, M.L. Scullin, C. Dames, K.E. Goodson, “Thermoelectric Power Generation: Material, Manufacturing, and System Costs in \$/W,” IMECE 2014, Montreal, Canada.

S. LeBlanc, M. Barako, J. Barnes, A. Salleo, K.E. Goodson, “Seebeck Coefficient of Doped Zinc Oxide Nanowire Films,” Materials Research Society Spring Meeting, San Francisco, California, 2013. (*Poster presentation*)

M. Dunham, M. Barako, S. LeBlanc, M. Asheghi-Roudheni, K.E. Goodson, B. Chen, “Modeling and Optimization of Small Thermoelectric Generators for Low-Power Electronics,” InterPACK 2013, July 16-23, Burlingame, California.

S. LeBlanc, S. Phadke, T. Kodama, A. Salleo, K.E. Goodson, “Electrothermal Characterization of Zinc Oxide Nanowire Contacts,” IMECE 2011, November 11-17, Denver, Colorado, USA. (*Talk*)

S. LeBlanc, S. Phadke, T. Kodama, A. Salleo, K.E. Goodson, “Electrothermal Characterization of Zinc Oxide Nanowire Contacts,” Micro/Nano Technology Forum, IMECE 2011, November 11-17, Denver, Colorado, USA. (*Poster presentation*)

S. LeBlanc, B. Swartzentruber, J. Martinez, G. Christoforo, T. Kodama, K.E. Goodson, “Nanoscale Manipulation, Heating, and Welding of Nanowires,” Photogallery, IMECE 2011, November 11-17, Denver, Colorado, USA. (*Poster presentation*)

S. LeBlanc, S. Phadke, T. Kodama, A. Salleo, K.E. Goodson, “Zinc Oxide Nanowires for Energy Conversion,” Society of Women Engineers 2011, October 13-15, Chicago, Illinois, USA. (*Poster presentation, national finalist*)

S. LeBlanc, S. Phadke, T. Kodama, A. Salleo, K.E. Goodson, “Thermoelectric Properties of Zinc Oxide Nanowires and Nanowire Films,” Materials Research Society Spring Meeting, April 25-29, San Francisco, California, 2011. (*Talk*)

S. Phadke, S. LeBlanc, Y.M. Park, T. Kodama, J.Y. Lee, P. Peumans, K.E. Goodson, A. Salleo, “Studying Charge Transport in ZnO Nanowire Thin Films Using Single Nanowire/Nanowire Junction Measurements,” Materials Research Society Spring Meeting, April 25-29, San Francisco, California, 2011. (*Talk*)

S. LeBlanc, K.E. Goodson, “Thermoelectric Characterization of Nanowire Films,” Proceedings for the 28th International Conference on Thermoelectrics, July 26 – 30, Freiburg, Germany, 2009. (*Poster presentation*)

S. LeBlanc, K.E. Goodson, “Thermoelectric Heat Recovery from a Tankless Water Heating System,” Proceedings of IMECE 2008, October 31-November 6, Boston, Massachusetts, USA. (*Talk*)

S. LeBlanc, A. Marconnet, J. Steinbrenner, M. David, M. Panzer, A. Rogacs, Y. Gao, J. Miler, K.E. Goodson, “Characterization of Nanostructured Materials,” Micro/Nano Poster Forum, IMECE2008, October 31-November 6, Boston, Massachusetts, USA. (*Poster presentation*)

Patent:

J. Reifenberg, S. LeBlanc, M.L. Scullin, “Bulk-size nanostructured materials and methods for making the same by sintering nanowires,” U.S. Patent US20140116491 A1, May 1, 2014.