

Robert Kelley Bradley, Ph.D.

Assistant Professor

Department of Industrial and Systems Engineering
Lamar University

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Education

Ph.D. Physical Chemistry, 2000, Rice University, Houston, TX

Thesis: *Large Scale Production of Single Wall Carbon Nanotubes*

Advisor: Prof. Richard Smalley

B.A. Biochemistry, 1996, Beloit College, Beloit, WI

Postdoctoral Experience

NASA Senior Postdoctoral Fellow, 2006-2007, Materials and Process Branch, Engineering Directorate,
NASA JSC/ORAU, Houston TX

Postdoctoral Fellow, 2000-2001, Electrical and Computer Engineering Department, Rice University,
Houston, TX

Professional & Academic Experience

Visiting Faculty Program, Summer 2021, ORNL, Oak Ridge, TN

Assistant Professor of Industrial & Systems Engineering, 2020-Present, Lamar University, Beaumont, TX

Director of the Lamar University Makerspace, 2019-2020, Lamar University, Beaumont, TX

Visiting Assistant Professor of Industrial Engineering, 2019-2020, Lamar University, Beaumont, TX

Director of Materials Engineering, 2014-Present, NeuroRex, Houston, TX

Director of Technology and Research, 2010-Present, NoPo Nanotechnologies India, Houston, TX

Classroom Teacher 2015-2018, South Houston High School, Houston, TX

Nanofabrication Facility Manager, 2010-2014, University of Houston, Houston, TX

Manager of Data Analysis, 2008-2009, Remicalm, Houston, TX

Senior Postdoctoral Fellow, 2006-2007, ORAU / NASA JSC, Houston, TX

Scientist, 2003-2005, USRA / NASA JSC, Houston, TX

Scientist, 2001-2002, Nanospectra / Nanospectra Biosciences, Houston, TX

Postdoctoral Fellow, 2000-2001, Rice University ECE Department, Houston, TX

Teaching Experience

ENGR 5332 Statistical Principles in Engineering
INEN 4320 Statistical Decision Making
INEN 4320 Statistical Decision Making (Online)
ENGR 5301 ST: Entrepreneurship
ENGR 4301 ST: Entrepreneurship (Online)
INEN 5339 Materials Science and Manufacturing Processes
INEN 5301 ST: Computational Methods (Online)
INEN 4323 IE Systems Design
INEN 4323 IE Systems Design (Online)
HNRS 3161 Honors Seminar: Nanotechnology (Online)
INEN 6110 Professional Seminar
INEN 2360 Computer Applications in IE
High School AP Physics
High School Physics
High School Integrated Chemistry and Physics

Outreach

Instructor, Project Engineer, 1 Week High School Camp, Lamar University 2019
Invited Instructor, Lee College STEM Camp, 1 Week High School Camp, Lee College 2019
Lumberton ISD, Student Spaceflight Experiment Program Review Board, 2019

Experience as a Trainer

Plastic Injection Molder, Manual Press
Laser Engraver/Cutter
Focused Ion Beam Microscopy/Lithography
Reactive Ion Etcher
Ultra-High Vacuum Magnetron Sputtering
Ion Mill Etching
Electron Beam Evaporation
Atomic Force Microscopy
Fourier Transform Infrared Spectroscopy
Scanning Electron Microscopy
Electron Beam Lithography
Spin Coater
Profilometer
Cleanroom Protocol
Lab Safety

Grants

- Process Development for Carding Single Wall Carbon Nanotubes, Primary Investigator, CICE, Lamar University, 2021, \$4,000.
- As-Produced Stereolithographic Nano- and Micro-scale Structures Observed and Actuated by Electron Beam, Visiting Faculty Member, DOE Visiting Faculty Program, ORNL, Oak Ridge, TN. Stipend.
- Using Non-Contact Surface Profiling for the Protected Replication of Babe Zaharias' AAU Medals, Mentor, Office of Undergraduate Research, Lamar University, 2020, \$1,000
- Carding to Align Dry As-Produced Single Wall Carbon Nanotubes, Mentor, Office of Undergraduate Research, Lamar University, 2020, \$1,000
- Education in Plastics Manufacturing, Primary Investigator, PISD Education Foundation, 2016, \$30,000
video: <https://youtu.be/FUsMfQol-4s>
- Vernier Sensors for 1 to 1, Primary Investigator, PISD Education Foundation, 2016, \$1,000

Publications

- Bradley, R.K. 2021. Education in Plastic Manufacturing: Aluminum Mold Making and Injection Molding. IJMEE. In Press.
- Bradley, R.K.; Curry, J.; Zaloom, V.; Craig, B.; Marquez, A.; Liu, X; Tokgoz, B.; Li, Y.; Hamidi, M.; Yentzen, G.; Kaneria, A.; Zhu, W. 2021. Results of the First 6 Years of a 2 + 2 Online BS Industrial Engineering Degree Pathway. ASEE Annual Conference.
- Gangoli, V.S.; Godwin, M.A.; Reddy, G.; Bradley, R.K.; Barron, A.R. 2019. The State of HiPco Single-Walled Carbon Nanotubes in 2019. C, 5, 65.
- Hoque, M.A.; Bradley, R.K.; Fan, J.; Fan, X. 2019. Effects of humidity and phosphor on silicone/phosphor composite in white light-emitting diode package. J Mater Sci: Mater Electron, v30, i23, pp. 20471-20478. <https://doi.org/10.1007/s10854-019-02393-8>
- Godwin, M. A.; Allannavar, A. B.; Joshi, S.; Reddy, G.; Abhishek, S. S.; Bradley, R. K. 2018. An Efficient Method to Completely Remove Catalyst Particles from HiPCO Single Walled Carbon Nanotubes. Journal of Nano Research, Vol. 53, pp. 64-75.
- Hatamleh, O; Smith, J; Cohen, D; Bradley, R. 2009. Surface roughness and friction coefficient in peened friction stir welded 2195 aluminum alloy. Applied Surface Science. V255. Pgs 7414-7426
- Charnay, C.; Lee, A.; Man, S.; Moran, C. E.; Radloff, C.; Bradley, R. K.; Halas, N. J. 2003. Reduced Symmetry Metallo-dielectric Nanoparticles: Synthesis and Plasmonic Properties, J. Phys. Chem. B. 107. 7327 Special Festschrift Issue honoring Professor Arnim Henglein
- Zimmerman, J L; Bradley, RK; Huffman, C B; Hauge, R H; Margrave, J. L. 2000. Gas-Phase Purification of Single Wall Carbon Nanotubes. Chemistry of Materials. V12. N5 Pgs 1361-1366.
- Nikolaev, P; Bronikowski, M J; Bradley, R K; Rohmund, F; Colbert, D T; Smith, K A; Smalley, R E. 1999. Gas-Phase Catalytic Growth of Single-Walled Carbon Nanotubes From Carbon Monoxide. Chemical Physics Letters. v 313. Pgs 91-97
- Ying, J; Bradley, R K; Jones, L B; Reddy, M S; Colbert, D T; Smalley, R E; Hardin, S H. 1999. Guanine-Rich Telomeric Sequences Stimulate DNA Polymerase Activity in Vitro. Biochemistry. v 38. n 50. Pgs 16461-16468.

Liu, J; Rinzler, A G; Dai, H; Hafner, J H; Bradley, R K; Boul, P J; Lu, A; Iverson, T; Shelimov, K; Huffman, C B; Rodriguez-Macias, F; Shon, Y; Lee, T R; Colbert, D T; Smalley, R E. 1998. Fullerene Pipes. Science. v 280. Pgs 1253-1256.

Patents

Sadeghian-Motahar, S.; Bradley, Robert Kelley. Bio-Potential Sensing Materials as Dry Electrodes and Devices. US Patent. Date of Patent: May 29, 2018. Patent No.: US9980659B2.

Halas, N.J.; Bradley, R. K. Method for Scalable Production of Nanoshells Using Salt Assisted Purification of Intermediate Colloid Seeded nanoparticles. US Patent. Date of Patent: June 21, 2005. Patent No.: US 6,908,496

Smalley, R. E.; Smith, K. E.; Colbert, D. T.; Nikolaev, P.; Bronikowski, M. J.; Bradley, R. K.; Rohmund, F. Gas-Phase Nucleation and Growth of Single-Wall Carbon Nanotubes From High Pressure CO. US Patent. Date of Patent: July 13, 2004. Patent No.: US6,761,870 B1

Halas, N. J.; Bradley, R. K. Partial Coverage Metal Nanoshells and Method of Making Same. US Patent. Date of Patent: Dec 9, 2003. Patent No.: US 6,660,381 B2.

Charnay, C.; Halas, N.J.; Bradley, R. K. Reduced Symmetry Nanoparticles. Patent Application. Pub. Date: Nov 20, 2003. Pub No.: US 2003/0215638 A1

Certifications

Teaching Certificate, 2016 Lone Star College, Kingwood, TX
Texas High School Science Composite
Texas High School Math Composite
Texas High School Computer Science

Additional Experience

Lamar University IISE Student Chapter Faculty Advisor, 2021-present
Lamar University Alpha Pi Mu Chapter Faculty Advisor, 2021-present
College of Engineering Materials Instrumentation Center Committee, 2020-present
GPA Midstream Association 3-Day Midstream Engineering course, Nov 6-8, 2020
Institutional Patent Committee, Lamar University, 2020-present
Building Preparations Committee, Lamar University, 2020-present
Large Strategic Planning Committee, Lamar University, 2019-present
Strategic Planning Subcommittee - Leadership in Research & Creativity, Lamar University, 2019-present
Office of Undergraduate Research Advisory Board, Lamar University, 2019-present
Navigate Steering Committee, Student Success Technologies, Lamar University, 2019-2020
Research Experience for Teachers in Advanced Manufacturing, Lamar University, 2017
High School Technology Committee, Member 2016-2018
High School Physics Curriculum Writing Committee, Member 2015-2016
NASA Lunar Airborne Dust Toxicology Assessment Group, Member 2006-2007
NASA USRA Speakers Bureau, Speaker 2003-2007

NNI Grand Challenge: Nanotechnology in Space Exploration. Co-chair, organizer and author for the Astronaut Health Management Section. Pgs 45-56. Aug 24-26th 2004, Palo Alto, CA. Report Available at http://www.nano.gov/sites/default/files/pub_resource/space_exploration_rpt_0.pdf