

Henry Angelo Sodano, Ph.D.

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EDUCATION

- Ph.D.** May 2005 in Mechanical Engineering, Virginia Polytechnic Institute and State University (Virginia Tech), Advisor: Dr. Daniel J. Inman
Dissertation Title: *Development of Novel Eddy Current Damping Mechanisms for the Suppression of Structural Vibrations*
- M.S.** July 2003 in Mechanical Engineering, Virginia Polytechnic Institute and State University (Virginia Tech), Advisor: Dr. Daniel J. Inman
Thesis Title: *Macro-Fiber Composites for Sensing, Actuation and Power Generation*
- B.S.** May 2002 in Mechanical Engineering, Virginia Polytechnic Institute and State University (Virginia Tech) – Selected Outstanding Alumnus in 2009

PROFESSIONAL EMPLOYMENT

Professor – Department of Aerospace Engineering, Appointment in Materials Science and Engineering and Macromolecular Science and Engineering, *University of Michigan*, Ann Arbor, MI, Sept. 2017 – Present

Associate Professor – Department of Aerospace Engineering, Appointment in Materials Science and Engineering and Macromolecular Science and Engineering, *University of Michigan*, Ann Arbor, MI, Sept. 2015 – Aug. 2017.

Daniel C. Drucker Faculty Fellow – Department of Mechanical and Aerospace Engineering, *University of Florida*, Gainesville, FL, Dec. 2013 – Sept. 2015

Professor – Joint Appointment Departments of Mechanical and Aerospace Engineering and Materials Science and Engineering, *University of Florida*, Gainesville, FL, Aug. 2015 – Sept. 2015

Associate Professor – Joint Appointment Departments of Mechanical and Aerospace Engineering and Materials Science and Engineering, *University of Florida*, Gainesville, FL, Jan. 2011 – August 2015

Associate Professor – Department of Mechanical and Aerospace Engineering, *Arizona State University*, Tempe, AZ, August 2010 – Dec. 2010, Affiliate position in Materials Science

Assistant Professor – Department of Mechanical and Aerospace Engineering, *Arizona State University*, Tempe, AZ, August 2007 – August 2010, Affiliate position in Materials Science

Adjunct Professor – Department of Mechanical Engineering – Engineering Mechanics, *Michigan Technological University*, Houghton, MI, May 2007 – Present

Assistant Professor – Department of Mechanical Engineering – Engineering Mechanics, *Michigan Technological University*, Houghton, MI, August 2005 – August 2007

Research Scientist – *Center for Intelligent Material Systems and Structures*, *Virginia Tech*, Blacksburg, VA, May 2005 – August 2005

Graduate Research Assistant – *Center for Intelligent Material Systems and Structures*, *Virginia Tech*, Blacksburg, VA, August 2002 – May 2005

PROFESSIONAL AWARDS AND SERVICE ACTIVITIES

- Editorial Activities
 - *Associate Editor*: Journal of Intelligent Material Systems and Structures (2009-Present)
 - *Associate Editor*: Smart Materials and Structures (2008-Present)
 - *Associate Editor*: Journal of Multifunctional Composites (2012 – Present)
 - *Associate Editor*: International Journal of Smart and Nano Materials (2013 – Present)
 - *Guest Editor and Organizer*: Journal of Intelligent Material Systems and Structures Special Issue on Energy Harvesting (March 2009)
 - *Guest Editor*: Experimental Mechanics Special Issue on Mechanics of Energy Harvesting (April 2018, Volume 58, Issue 4)
- Honors
 - ASME Fellow (2016)
 - AIAA Associate Fellow (2016)
 - TÜV Süd Visiting Professorship 2014
 - Fellow of Technical University of Munich Institute for Advances Studies
 - Inducted into the Virginia Tech Academy of Engineering Excellence, April 22, 2010
 - Invited Speaker at the National Academy's 2008 German-American Frontiers of Engineering Symposium for outstanding early-career German and American engineers, Irvine, CA, April 25-27, 2008 (one of six speakers from US)
- Best Papers
 - ASME's 2019 Best Paper Award in Structures and Structural Dynamics (selected from all refereed journal articles published in 2019 awarded by the Aerospace Division)
 - ASME Best Paper in Energy Harvesting (selected from all refereed journal articles published in 2015 awarded by the Aerospace Division)
 - ASME's 2013 Best Paper Award in Materials and Material Systems (selected from all refereed journal articles published in 2013 awarded by the Aerospace Division)
 - ASME's 2010 Best Paper Award in Materials and Material Systems (selected from all refereed journal articles published in 2010 awarded by the Aerospace Division)
 - Honorable Mention for Best Paper at the ASME's 2009 Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, September 21st-23rd Oxnard, CA.
 - Best Paper at SAMPE Fall Technical Conference, Memphis TN, Sept. 8-11, 2008
- Professional Awards
 - 2012 American Society for Composites Young Composites Researcher Award
 - NASA Tech Brief Award, 2010
 - Virginia Tech 2010 Outstanding Young Alumni Award
 - Recipient of the 2009 NSF CAREER Award
 - Recipient of the 2009 ASME Gary Anderson Award for Early Career Achievement
 - Arizona State University 2009 Faculty Achievement Award in Defining Edge Research (Top young professor in the university selected by the University President)
 - Selected for the 2007 Air Vehicles Directorate Summer Faculty Program with Dr. Brian Sanders
 - Los Alamos National Lab Directors Funded Post Doc, 2005 (Not Accepted to teach at MTU)
 - NASA Graduate Student Researcher Program Fellowship, 2003-2005

- Paul E. Torgersen Research Excellence Poster Award, 2005
- Paul E. Torgersen Research Excellence Award, 2004
- Patents
 - Henry Sodano, Ferroelectric Polymers from Dehydrofluorinated PVDF, United States Patent No. 10,584,189.
 - Henry Sodano and Aneesh Koka, Barium Titanate Nanowires Their Arrays and Array Based Devices, United States Patent No. 9,193,580 B1, Nov. 24 2015
 - Henry A. Sodano, Interlaminar Reinforced Composites Structures, United States Patent No. 9,358,756, June 6, 2016
 - Henry A. Sodano and Yunseon Heo, Shape Memory Self-Healing Polymer (SMSHPS), United States Patent No. US10202484B2.
- Consulting Activities
 - HARP Engineering LLC (Jan. 2010 – Present) – Start-Up Company (founded by Dr. Sodano) researching advanced materials and sensors.
 - Ping Inc. (January 2009 – April 2009) – Investigation of Golf Club Dynamics
 - Michigan Technological University (Jan. 2008 – Aug. 2009) – Development of chemical sensors
 - CSA Engineering (June 2005 – July 2005) – Cryogenic eddy current dampers
- Conference Activities
 - Chair of the 2016 Development and Characterization of Multifunctional Materials Symposium at the ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 28 – 30 Stowe, VT.
 - Chair of the 2015 Development and Characterization of Multifunctional Materials Symposium at the ASME's 7th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 21 – 23 Colorado Springs, CO.
 - Co-Chair of the 2014 Development and Characterization of Multifunctional Materials Symposium at the ASME's 7th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 8 – 10, Newport, RI.
 - Co-Chair of the 2013 Development and Characterization of Multifunctional Materials Symposium at the ASME's 6th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 16 – 19, Snow Bird, UT.
 - Co-Chair and Co-Organizer of Symposium W: Piezoelectric Nanogenerators and Piezotronics at the 2013 MRS Spring Meeting, San Francisco, CA, April 1-5, 2013.
 - Co-Chair of the 2012 Development and Characterization of Multifunctional Materials Symposium at the ASME's 5th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 19 – 21 Stone Mountain, GA.
 - Chair of the 2012 & 2013 Active and Passive Smart Structures and Integrated Systems Conference at the SPIE Smart Structures and Materials Symposium
 - International Advisory Board of CIMTEC 2012 Adaptive, Active and Multifunctional Smart Materials Systems symposium
 - Co-Chair of the 2009-2011 Active and Passive Smart Structures and Integrated Systems Conference at the SPIE Smart Structures and Materials Symposium
 - *Chair* of the Energy Harvesting Track at the 2008 SPIE Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring Conference
 - *Co-Organizer* Symposium on Energy Harvesting Technologies, 2008 SPIE Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring Conference
 - *Co-Organizer* Symposium on Micro/Nano Vibration-based Sensors and Energy Scavengers, ASME International Design Engineering Technical Conference, IDETC 2007
 - Session Chair
 - 2018 CIMTEC 14th International Ceramics Conference, June 4-8, Perugia, Italy
 - 2018 4rd Conference on Nanogenerators and Piezotronics, May 8-11 Seoul, South Korea

- 2018 MRS Spring Meeting and Exhibit, April 2 – 6 Phoenix, AZ.
 - 2017 ASME's 10th Annual SMASIS Conference, Sept. 18 – 20 Snow Bird, UT.
 - 2016 ASME's 9th Annual SMASIS Conference, Sept. 28 – 30 Stowe, VT.
 - 2016 3rd International Conference on Nanogenerators and Piezotronics, June 15th Rome, Italy
 - 2005-2018 SPIE International Conference on Smart Structures and Materials
 - 2015 ASME's 8th Annual SMASIS Conference, Sept. 21 – 23 Colorado Springs, CO.
 - 2014 1st International Conf. on Nanoenergy and Nanosystems, Dec. 8-10, Beijing, China.
 - 2014 ASME's 7th Annual SMASIS Conference, Sept. 8 – 10 Newport, RI.
 - 2013 ASME's 6th Annual SMASIS Conference, Sept. 16 – 19 Snow Bird, UT.
 - 2012 ASME's 5th Annual SMASIS Conference, Sept. 19 – 21 Stone Mountain, GA.
 - 2011 18th International Conference on Composite Materials, Jeju Island South Korea
 - 2010 JSME M&M International Symposium for Young Researchers at Cal Tech
 - 2011 ASME's 4th Annual SMASIS Conference, Scottsdale, AZ.
 - 2010 ASME's 3rd Annual SMASIS Conference, Philadelphia, PA.
 - 2009 ASME's 2nd Annual SMASIS Conference, Oxnard, CA.
 - 2007 ASME International Design Engineering Technical Conference
 - 2005 & 2006 SEM's Annual International Modal Analysis Conference
- Manuscript Reviewer for the following Journals:
Nature Nanotechnology, Advanced Materials, Advanced Functional Materials, Applied Physics Letters, Journal of Materials Chemistry A, Journal of Applied Physics, ACS Applied Materials & Interfaces, Materials Chemistry and Physics, Journal of Materials Science, Composites Science and Technology, Journal of Intelligent Materials Systems and Structures, Smart Materials and Systems, IEEE Transactions on Ultrasonic, Ferroelectric and Frequency Control, Journal of Composite Materials, ASME Journal of Vibration and Acoustics, ASME Journal of Dynamic Systems, Measurement and Control, Mechanical Systems and Signal Processing, Journal of Sound and Vibration, Shock and Vibration Digest, Journal of Infrastructure Systems, ASME Journal of Computational and Nonlinear Dynamics, and International Journal of Structural Health Monitoring.
- Technical Committees
 - Chair ASME Active and Multifunctional Materials Technical Committee, 2015 – 2016
 - Co-Chair ASME Active and Multifunctional Materials Technical Committee, 2014 – 2015
 - AIAA Adaptive structures Technical Committee (Member, 2016 – Present)
 - ASME Adaptive Structures Branch (Member, 2014 – Present)
 - ASME Active and Multifunctional Materials Technical Committee (Member, 2013 – Present)
 - ASME Adaptive Structures Technical Committee (Member, 2005 – 2013)
- Professional Societies
 - American Society of Mechanical Engineers (ASME) – Fellow
 - American Institute of Aeronautics and Astronautics (AIAA) – Associate Fellow
 - Materials Research Society (MRS)
 - American Ceramic Society (ACerS)
 - Society of Photonics Engineers (SPIE)
 - Society for Experimental Mechanics (SEM)
- Short Courses and Workshops
 - Invited speaker at AFOSR/ARO/ONR's 2nd Multifunctional Materials for Defense Workshop, July 30 – Aug. 1st 2012, Arlington, VA
 - Invited speaker at ARO's 2011 workshop on Revolutionary Energy Harvesting Technologies, April 7, 2011, Austin Texas
 - Invited speaker at AFOSR's 2009 workshop on Energy Harvesting Technologies, Aug. 12, 2009, Virginia Tech, Blacksburg, VA

- Invited and speaker in 2nd Fraunhofer Symposium Micro Energy Technology, Freiburg Germany, Nov. 27, 2007
- Invitee and participant in the Los Alamos National Laboratory 2005 power harvesting workshop

TEACHING EXPERIENCE

Taught the following course at the University of Michigan

- AEROSP 315 – Aircraft and Spacecraft Structures, Winter 2020 (Evaluation: 3.8/5.0)
- AEROSP 516 – Mechanics of Fibrous Composites, Fall 2019 (Evaluation: 4.6/5.0)
- AEROSP 315 – Aircraft and Spacecraft Structures, Winter 2019 (Evaluation: 3.3/5.0)
- AEROSP 516 – Mechanics of Fibrous Composites, Fall 2018 (Evaluation: 3.6/5.0)
- AEROSP 315 – Aircraft and Spacecraft Structures, Winter 2018 (Evaluation: 3.55/5.0)
- AEROSP 516 – Mechanics of Fibrous Composites, Fall 2017 (Evaluation: 4.42/5.0)
- AEROSP 516 – Mechanics of Fibrous Composites, Fall 2016 (Evaluation: 3.83/5.0)
- AEROSP 516 – Mechanics of Fibrous Composites, Fall 2015 (Evaluation: 4.04/5.0)

Taught the following course at the University of Florida

- EMA 6808 – Error Analysis and Optimization Methods in Materials Research, Spring 2015 (Evaluation: 4.75/5.0)
- EML 4240 – Mechanical Vibrations, Fall 2014 (Evaluation: 4.64/5.0)
- EMA 6808 – Error Analysis and Optimization Methods in Materials Research, Spring 2013 (Evaluation: 4.0/5.0)
- EML 4314C – Control System Design Laboratory, Fall 2012 (Evaluation: 3.64/5.0)
- EMA 4645 – Ceramics Processing, Spring 2012 (Evaluation: 4.0/5.0)
- EMA 6448 – Ceramics Processing, Spring 2012 (Evaluation: 4.17/5.0)
- EML 4314C – Control System Design Laboratory, Fall 2011 (Evaluation: 3.07/5.0)

Taught the following course at Arizona State University

- MAE 415 – Vibration Analysis, Fall 2010 (No evaluation due to parental leave)
- MAE 417 – Control System Design, Spring 2010 (Evaluation: 4.2/5.0)
- MAE 598 – Smart Materials Systems, Fall 2009 (Evaluation: 4.48/5.0)
- MAE 417 – Control System Design, Spring 2009 (Evaluation: 4.1/5.0)
- MAE 598 – Smart Materials Systems, Fall 2008 (Evaluation: 4.62/5.0)
- MAE 417 – Control System Design, Spring 2008 (Evaluation: 4.49/5.0)
- MAE 318 – Sensors and Controls, Fall 2007 (Evaluation: 4.47/5.0)

Taught the following course at Michigan Tech

- MEEM 3700 – Mechanical Vibrations, Fall 2005, Spring 2005, and Spring 2006

Co-taught the following graduate course at Virginia Tech

- ME 5514 – Advanced Mechanical Vibrations, Spring 2005

RESEARCH AND TEACHING INTERESTS

- **Research Interests**
 - Nanowire Synthesis
 - Energy Harvesting

- Multifunctional Materials
- Structural Health Monitoring
- Vibration Control
- Active Nanocomposites
- Ultra high Energy Density Capacitors
- MEMS/NEMS Sensors

- **Teaching Interests**

- Mechanics of Composite Materials
- Mechanical Vibrations and Structural Dynamics
- Signal Processing and Instrumentation
- Smart Materials and Adaptive Structures
- Dynamics and Classical Controls
- Ceramics and Ceramics Processing

RESEARCH SUPPORT

Air Force Office of Scientific Research, “Interfacial Reinforcement through Hierarchical Polymer Nanofiber Interfaces,” \$520,000, 10/15/20 – 10/14/24, PI: Henry Sodano (100%), Contract # FA9550-21-1-0019.

Collins Aerospace, “Evaluation of Piezoelectric Nanowire Growth for Embedded Sensing of Polymer Composite Structures,” \$40,000, 4/1/20 – 12/31/20, PI: Henry Sodano (100%)

Air Force, “Self-Healing Electrospray Thruster Array,” \$80,000, 12/3/20 – 9/30/20, PI: Benjamin Jorns

National Science Foundation, “EFRI C3 SoRo: Integration of Avian Flight Control Strategies with Self Adaptive Structures for Stable Flight in Unknown Flows,” \$1,529,330, Grant # EFRI-1935216, PI: Daniel J. Inman.

Luna Innovations, Inc., “Energy Scavenging to Power Fielded Unmanned Aerial Systems,” \$50,000, 6/3/19 – 12/3/19, PI: Henry Sodano (100%).

Actasys, Inc., “Synthetic Jet-Based Active Flow Control System for Commercial Aircraft,” \$40,000, 6/1/18 – 8/31/18, PI: Henry A. Sodano (100%).

BASF Corporation, “Nanoparticle sizing for enhanced Interfaces in Fiber Reinforced Composites,” \$25,000, August 2018 – November 2018, PI: Henry A. Sodano (100%).

National Science Foundation, Multifunctional Fibers for Damage Detection in Reinforced Composites, \$340,623, September 2018 – September 2021, PI: Henry A. Sodano (100%), Grant # CMMI-1762369

Army Research Office, “Mechanical Behavior of Aramid Nanofibers and Nanocomposites,” \$514,663, November 2017 – November 2021, PI: Henry A. Sodano (100%), Contract # W911NF-18-1-0061.

Air Force Office of Scientific Research, “DURIP: Avian Inspired Morphing Manufacturing and Measurement System”, \$499,700 (\$290,540), September 15, 2017 – September 14, 2018, PI: Dan Inman, Project Role: Co-PI (58.1%), Contract # FA9550-17-1-0454.

National Science Foundation, “MRI: Acquisition of a Scanning Electron Microscope for Real-time Studies of Novel Materials Processes and Functionality,” \$724,730, PI: Emmanuelle Marquis, Co-PIs: Henry Sodano, Rebecca Peterson, Bart Bartlett, John Mansfield, Equipment Grant (0%), Sept. 1, 2016 – August 31, 2019, Gant #: DMR-1625671.

The Michigan Translational Research and Commercialization (MTRAC) Program, “Generating Seamless and Structurally Differentiated Composite Materials with CNC Knitting Technology,” \$75,000, June 2016 – June 2017, PI: Henry A. Sodano (\$50,000), Sean Ahlquist (Co-PI), Wes Mcgee (Co-PI)

Army Research Office, “Mechanics of Nanowire Interfaces Across Strain Rates,” \$493,251, May 1, 2016 – April 31, 2019, PI: Henry A. Sodano (100%), Contract # W911NF-16-1-0229

Taubman College of Architecture and Urban Planning - Research through Making Grant, "Morphable Architectures," \$20,000, PIs Sean Ahlquist, Wes McGee and Henry A. Sodano, May 11, 2016 – March 5, 2017.

Air Force Office of Scientific Research, "Avian Inspired Morphing Aircraft," \$4,686,787 (\$800,000), PI: Dan Inman, July 2015 - July 2020 (17.1%) – Project Role: Co-PI, Contract # FA9550-16-1-0087.

National Science Foundation, "UNS: Collaborative Research: Wall Shear Stress Sensor for Engineering Fluid Dynamics in Biomedical Systems," \$185,000 June 1, 2015 – May 31, 2018, PI: Henry Sodano (100%) – Award # CBET-1510855.

National Science Foundation, "MRI: Acquisition of a High Resolution Electron Probe Micro-Analyzer," \$904,540, 8/1/14 – 7/3/17, Equipment Grant (0%), Project Role: Co-PI.

Air Force Research Laboratory, "Dynamic Characterization of Barium Titanate Fibers For Air Flow Mechanosensing," \$19,991 / Aug 15 2014 – Aug 14 2015, PI: Henry Sodano (100%) – Contract # FA8651-08-D-0108.

National Science Foundation, "Enhancing Strain Transfer in Multiferroics through Pure Phase Functional Gradients," \$322,657 / Sept 2013 – Aug 2016, PI: Henry Sodano (100%) – Award # CMMI-1333818.

National Science Foundation, "Nanowire Interfaces for Composites with High Strength Across Strain Rates," \$280,000 / Sept 2013 – Aug 2016, PI: Henry Sodano (100%) – Award # CMMI-1333825.

Army Research Office, "Tailored Interfaces for High Strength Composites Across Strain Rates," \$50,000 / Sept 2012 – May 2013, PI: Henry Sodano (100%) – Award # W911NF-12-1-0362.

National Science Foundation, "Self-Healing Materials Enabled through Embedded Sensing and Stimulus Delivery," \$249,163 / May 2012 – April 2015, PI: Henry Sodano (100%) – Grant # CMMI- 1132416.

Air Force Office of Scientific Research, "Active Structural Fibers for Multifunctional Composite Materials," \$352,892 / March 2012 – February 2015, PI: Henry Sodano (100%) – Award #: FA9550-12-1-0132.

Army Research Office, "Photoresponsive Polymers for Autonomous Structural Materials with Controlled Toughening and Healing," \$640,000 / January 2012 – October 2016, PI: Henry Sodano (100%) – Award #: W911NF-12-1-0014.

National Science Foundation, "U.S. Australia International Research Experiences for Students (IRES): Materials for Energy Technologies," \$146,880 / October 2011 – September 2014, PI: Jacob Jones – Award # IRES/DDEP 1129412), (0%)

Air Force Office of Scientific Research, "Near Wall Shear Stress Modification Using an Active Piezoelectric Nanowire Surface," \$148,329 / June 2011 – June 2012, PI: Henry Sodano (100%) – Award #: FA9550-11-1-0140.

Florida Consortium for Advanced Smart Sensor Technologies, "Multiferroics for Multifunctional Sensors: Interfaces, Nanostructures, and Composites," \$120,000 / January 1, 2011 – December 31, 2012, PI: Jacob Jones (25%)

Air Force Office of Scientific Research, "ZnO Nanowire Fiber/Matrix Interface for Multifunctional Composites with enhanced Strength," \$300,000 / May 2009 – April 2011, PI: Henry Sodano (100%) – Award # FA9550-09-1-0356

National Science Foundation, "CAREER: Nanowire Interfaces for Increased Strength and Multifunctionality," \$410,478, July 2009 – June 2015, PI: Henry Sodano (100%) – Grant # CMMI- 0846539

Western Alliance to Expand Student Opportunities, "Control Theory for Self-Healing Polymers," \$1,600, January 2009 – June 2009, PI: Henry Sodano (100%) – Grant # S09UR021/S2009ur0030)

Boeing Phantom Works, "Evaluation of Continuous processes for producing nano-diameter carbon fibers," \$15,000 / November –December 2008, PI: Henry Sodano (100%)

Army Research Office, "Investigation of ZnO Nanowire Interfaces for Multi-Scale Composites," \$330,000 / August 2008 – July 2011, PI: Henry Sodano (100%) – Award # W911NF0810382)

National Science Foundation, "Investigation of Structure-Property Relations in Active Piezoelectric Nanocomposites," \$106,000 / August 2008 – January 2010, PI: Henry Sodano (90%) – Grant # CMMI-0826159)

Arizona Department of Public Safety, "Mechanical Evaluation of Repelling Device," \$25,585 / March 2008 – June 2008, PI: Henry Sodano (100%) – Award # 2008-199)

NASA Jet Propulsion Laboratory, "Lightweight Polymer Fiber Reinforced Composites Structurally Enhanced through a Nanowire Interphase," \$60,000 / March 2008 – Feb. 2009, PI: Henry Sodano (100%) – Award # 1340346

Air Force Office of Scientific Research, "Active Structural Fibers for Multifunctional Composite Materials," \$300,000 (\$272,000) / April 2008 – March 2011, PI: Henry Sodano (91%) – Award # FA9550-08-1-0383

National Science Foundation, "Multifunctional Piezoelectric Carbon Fibers for Enhanced Structural Safety and Performance," \$121,500 / Aug. 2007 – July 2010, PI: Henry Sodano (100%) - Grant # CMMI-0700304

National Science Foundation, "Biologically Inspired Autonomic Structural Materials with Controlled Toughening and Healing," \$231,000 / May 2007 – April 2010, PI: Henry Sodano (100%) – Grant # CMMI-0700309

State of Michigan – 21st Century Job Fund, "Optimizing Chemo-Mechanical Structure for MEMS Chemical Vapor Sensor Arrays," \$808,832 (\$168,000), PI: Michele Miller, Nov. 2006 - Oct. 2009 (20%)

NanoSonic Inc. (Phase 1 Navy STTR), "Harvesting Electric Power through an Instrumented PVDF Backpack Harness," \$55,141 / Aug. 2006 – March 2007, PI: Henry Sodano (100%)

State of Michigan – Research Excellence Fund, "Multifunctional Piezoelectric Carbon Fibers," Total Project Funding: \$41,064 / Aug. 2006 – July 2007, PI: Henry A Sodano (100%)

Honeywell Space Systems, "Active Thin Films for Antenna Applications," Project Funding: \$10,000 grant / December 2003, PI: Daniel J. Inman, Co-PI: Henry Sodano and Eric J. Ruggiero

LIST OF PUBLICATIONS

Book Chapters:

1. Lin, Y. and Sodano, H.A., 2013, Fabrication and Electromechanical Characterization of Active Fiber Composites, *Mechanics and Design of Smart Composites: Materials, Structures and Sensing*, ISBN: 978-1439895917, CRC Press, pp. 99-130.
2. Sodano, H. A., 2009, "Energy Harvesting from the Straps of a Backpack Instrumented with Piezoelectric Materials," *Energy Harvesting Technologies*, ISBN 978-0-387-76463-4, Springer, pp. 431-458.

3. Sodano, H.A., 2012, Energy Harvesting from Ambient Vibration for Aerospace Structures," *AIAA Progress in Aeronautics and Astronautics*, In Press.
4. Inman, D. J. and Sodano H. A., 2009 "Energy Harvesting using Thermoelectric Materials," *Encyclopedia of Structural Health Monitoring*, ISBN: 978-0-470-05822-0, Wiley, Hoboken, NJ, pp. 1351-1360.
5. Inman, D.J., Grisso, B.L. and Sodano, H.A., 2006, "Smart Structures in Structural Health Monitoring," *Mechanical Vibrations: Where do we stand?*, ISBN: 978-3-211-68586-0, Springer, New York, USA, pp. 179-188.
6. Ruggiero, E., Sodano, H.A., Park, G. and Inman, D.J., 2002, "Active Vibration Suppression of a Gossamer Spacecraft," *Mechanics of Electromagnetic Material Systems and Structures*, ISBN: 1-85312-920-8, WIT Press, South Hampton, UK, pp. 287-293.

Journal Papers in Press:

1. Ruowen, Tu, and Sodano, H.A., 2020, Precipitation Printed High β Phase PVDF for Energy Harvesting, *ACS Applied Materials and Interfaces*, In Press.
2. Steinke, K., Groo, L., Nasser, J., and Sodano, H.A., Laser Induced Graphene for In-Situ Ballistic Impact Damage and Delamination Detection in Aramid Fiber Reinforced Composites, *Composites Science and Technology*, In Press.

Journal Papers in Review:

3. Groo, L., Nasser, J., and Sodano, H.A., Laser Induced Graphene for In Situ Damage Sensing in Aramid Fiber Reinforced Composites, *Composite Science and Technology*, In Press.
4. Groo, L., Nasser, J., and Sodano, H.A., Direct Printed Laser Induced Graphene Strain Gauges on Fiberglass for Embedded Sensing, *Composites Part B*, In Review

Journal Papers in Print:

5. Jung, J.-H. and Sodano, H.A., Aramid nanofiber reinforced rubber compounds for the application of tire tread with high abrasion resistance and fuel saving efficiency, *ACS Applied Polymer Materials*, **2**(11), 4874–4884.
6. Yuan, T., Zhang, L. and Sodano, H.A., 2020, 3D Printing of Self-Healing, High Strength, and Re-processable Thermoset, *Polymer Chemistry*, **11**, 6441 – 6452 (Cover Article).
7. Nasser, J., Zhang, L. and Sodano, H.A., Laser Induced Graphene Interlaminar Reinforcement for Tough Carbon Fiber/Epoxy Composites, *Composite Science and Technology*, **201**: 108493.
8. Nasser, J., Steinke, K., Zhang, L. and Sodano, H.A., 2020, Enhanced interfacial strength of hierarchical fiberglass composites through an aramid nanofiber interphase, *Composites Science and Technology*, **192**: 108109.
9. Groo, L., Nasser, J., and Sodano, H.A., 2020, Laser Induced Graphene in Fiberglass-Reinforced Composites for Strain and Damage Sensing, *Composite Science and Technology*, **199**: 108367.
10. Nasser, J., Zhang, L. and Sodano, H.A., 2020, Aramid Nanofibers Reinforced Polymer Nanocomposites via Amide-Amide Hydrogen Bonding, *ACS Applied Polymer Materials*, **2**(7): 2934–2945.

11. Ruowen, Tu, and Sodano, H.A., 2020, Precipitation Printing Towards Diverse Materials, Mechanical Tailoring and Functional Devices, *Additive Manufacturing*, **35**: 101358.
12. Nasser, J., Zhang, L. and Sodano, H.A., 2020, Aramid Nanofiber Interlayer for Improved Interlaminar Properties of Carbon Fiber/Epoxy Composites, *Composites Part B*, **197**: 108130.
13. Lin, J., Malakooti, M.H. and Sodano, H.A., 2020, Thermally Stable PVDF for High-Performance Printable Piezoelectric Devices, *ACS Applied Materials and Interfaces*, **12**(19): 21871–21882.
14. Nasser, J., Lin, J. and Sodano, H.A., 2020, Laser Induced Graphene Printing of Spatially Controlled Super-hydrophobic/hydrophilic Surfaces, *Carbon*, **162**: 570-578.
15. Jung, J.-H. and Sodano, H.A., 2020, High Strength Epoxy Nanocomposites Reinforced by Epoxy Functionalized Aramid Nanofibers, *Polymer*, **195**, 122438.
16. Nasser, J., Steinke, K. and Sodano, H.A., 2020, ZnO Nanostructured Interphase for Multifunctional and Lightweight Glass Fiber Reinforced Composite Materials Under Various Loading Conditions, *ACS Applied Nano Materials*, **3**(2): 1363-1372.
17. Zhang, L., Lin, J. and Sodano, H.A., 2020, Isocyanurate Transformation Induced Healing of Isocyanurate-Oxazolidone (ISOX) Polymers, *Journal of Applied Polymer Science*, **137**(20): 48698.
18. Nasser, J., Groo, L., Zhang, L. and Sodano, H.A., 2020, Laser Induced Graphene Fibers for Multifunctional Aramid Fiber Reinforced Composites, *Carbon*, **158**: 146-156.
19. Nasser, J., Steinke, K., Hwang, H.-S. and Sodano, H.A., 2020, Nanostructured ZnO Interphase for Carbon Fiber Reinforced Composites with Strain Rate Tailored Interfacial Strength, *Advanced Material Interfaces*, **7**: 1901544.
20. Nasser, J., Steinke, K., Groo, L.A. and Sodano, H.A., 2019, Improved Interyarn Friction, Impact Response and Stab Resistance of Surface Fibrilized Aramid Fabric, *Advanced Materials Interfaces*, **6**, 1900881.
21. Groo, L., Steinke, K., Inman, D.J. and Sodano, H.A., 2019, Vibration Damping Mechanism of Fiber Reinforced Composites with Integrated Piezoelectric Nanowires, *ACS Applied Materials and Interfaces*, **11**: 47373-47381.
22. Safaei, M., Sodano, H.A. and Anton, S., 2019, A Review of Energy Harvesting using Piezoelectric Materials: State-of-the-Art a Decade Later (2008-2018), *Smart Materials and Structures*, **28**: 113001.
23. Nasser, J., Hwang, H.-S. and Sodano, H.A., 2019, Piezoelectric Stack Actuator for Measurement of Interfacial Shear Strength at High Strain Rates, *Experimental Mechanics*, **59**(7): 979-990.
24. Nasser, J., Lin, J. and Sodano, H.A., 2019, Enhanced Interfacial Strength of Aramid Fiber Reinforced Composites through Self-Assembled Aramid Nanofiber Coatings, *Composite Science and Technology*, **174**: 125-133.
25. Nafari, A. and Sodano, H.A., 2019, Tailored Nanocomposite Energy Harvesters with High Piezoelectric Voltage Coefficient through Controlled Nanowire Dispersion, *Nano Energy*, **60**: 620-629.
26. Nafari, A. and Sodano, H.A., 2019, Electromechanical Modeling and Experimental Verification of a Direct Write Nanocomposite, *Smart Materials and Structures*, **28**(4): 045015.
27. Malakooti, M.H., Jule, F. and Sodano, H.A., 2018, Printed Nanocomposite Energy Harvesters with Controlled Alignment of Barium Titanate Nanowires, *ACS Applied Materials & Interfaces*, **10**(44): 38359–38367.

28. Zhang, L., Tian, X., Malakooti, M. and Sodano, H.A., 2018, Novel Self-Healing CFRP Composites with High Glass Transition Temperatures, *Composite Science and Technology*, **168**: 96-103.
29. Malakooti, M. and Sodano, H.A., 2018, Enhanced Piezoelectric Energy Harvesting through Hybrid Nanostructure of Vertically Aligned PZT Nanowires, *Nano Energy*, **52**: 171-182.
30. Nasser, J., Lin, J. and Sodano, H.A., 2018, High Strength Fiber Reinforced Composites with Surface Fibrillized Aramid Fibers, *Journal of Applied Physics*, **124**: 045305.
31. Groo L.A., Inman, D.J. and Sodano, H.A., 2018, In Situ Damage Detection for Fiber-Reinforced Composites Using Integrated Zinc Oxide Nanowires, *Advanced Functional Materials*, **28**: 1802846.
32. Liao, Y. and Sodano, H.A., 2018, Optimal Power, Power Limit and Damping of Vibration Piezoelectric Power Harvesters, *Smart Materials and Structures*, **27**(7): 075057.
33. Torah, R., Lawrie-Ashton, J., Li, Y., Arumugam, S., Sodano H.A. and Beeby, S., 2018, Energy Harvesting Materials for Smart Fabrics and Textiles, *MRS Bulletin*, **43**(3): 214-219.
34. Patterson, B.A., Malakooti, M.H., Lin, J., Okorom A. and Sodano, H.A., 2018, Aramid Nanofibers for Multiscale Fiber Reinforcement of Polymer Composites, *Composite Science and Technology*, **161**: 92-99.
35. Abdeljaber, O., Kiranyaz, S., Boashash, B., Sodano, H.A. and Inman, D.J., 2017, 1-D CNNs for structural damage detection: Verification on a structural health monitoring benchmark data, *Neurocomputing*, **275**: 1308-1317.
36. Nafari, A. and Sodano, H.A., 2017, Surface morphology effects in a vibration based triboelectric energy harvester, *Smart Materials and Structures*, **27**(1): 015029.
37. Malakooti, M.H., Hwang, H.S., Goulbourne, N. and Sodano, H.A., 2017, Role of ZnO Nanowire Arrays on the Impact Response of Aramid Fabrics, *Composite Part B*, **127**: 222-231.
38. Bowland, C.C. and Sodano, H.A., 2017, Hydrothermal Synthesis of Tetragonal Phase BaTiO₃ on Carbon Fiber with Enhanced Electromechanical Coupling, *Journal of Material Science*, **52**: 7893–7906.
39. Lin, J., Bang, S.H., Malakooti, M.H. and Sodano, H.A., 2017, Isolation of Aramid Nanofibers for High Strength and Toughness Polymer Nanocomposites, *ACS Applied Materials and Interfaces*, **9**(12): 11167–11175.
40. Kazemi-Lari, M.A., Malakooti, M.H. and Sodano, H.A., 2017, Active Photo-Thermal Self-Healing of Shape Memory Polyurethanes, *Smart Materials and Structures*, **26**: 055003.
41. Zhang, L., Jule, F. and Sodano, H.A., 2017, High Service Temperature, Self-Mendable Polymers Networked by Isocyanurate Rings, *Polymer*, **114**: 249-256.
42. Bowland, C.C., Malakooti, M.H. and Sodano, H.A., 2017, Barium Titanate Film Interfaces for Hybrid Composite Energy Harvesters, *ACS Applied Materials and Interfaces*, **9**(4): 4057–4065.
43. Nafari, A. and Sodano, H.A., 2017, Ultra-Long Vertically Aligned Lead Titanate Nanowire Arrays for Energy Harvesting in Extreme Environments, *Nano Energy*, **31**: 168:173.
44. Patterson, B.A. and Sodano, H.A., 2016, Enhanced Interfacial Strength and UV-Shielding of Aramid Fiber Composites through ZnO Nanoparticles, *ACS Applied Materials and Interfaces*, **8**(49): 33963-33971.

45. Bauer, M., Snyder, C.S., Bowland, C., Uhl, A.M., Budi, M.A.K., Villancio-Wolter, M., Sodano H.A and Andrew, J.S., 2016, Structure-Property Relationships in Aligned Electrospun Barium Titanate Nanofibers, *Journal of the American Ceramic Society*, **99**(12): 3902–3908.
46. Heo, Y., Malakooti, M.H. and Sodano, H.A., 2016, Self-Healing Polymers and Composites for Extreme Environments, *Journal of Materials Chemistry A*, **4**: 17403 - 17411.
47. Zhou, Z., Bowland, C.C., Patterson, B., Malakooti, M. and Sodano, H.A., 2016, Conformal BaTiO₃ Films with High Piezoelectric Coupling through an Optimized Hydrothermal Synthesis, *ACS Applied Materials and Interfaces*, **8**(33): 21446–21453.
48. Zhou, Z., Bowland, C.C. Malakooti, M. and Sodano, H.A., 2016, Lead-Free 0.5Ba(Zr_{0.2}Ti_{0.8})O₃–0.5(Ba_{0.7}Ca_{0.3})TiO₃ Nanowires for Energy Harvesting, *Nanoscale*, **8**: 5098-5105.
49. Malakooti, M.H., Patterson, B.A., Hwang, H.-S., and Sodano, H.A., 2016, ZnO Nanowire Interfaces for High Strength Multifunctional Composites with Embedded Energy Harvesting, *Energy and Environmental Science*, **9**(2): 634-643.
50. Malakooti, M.H., Zhou, Z., Spears, J.H., Shankwitz, T.J. and Sodano, H.A., 2015, Biomimetic Nanostructured Interfaces for Hierarchical Composites, *Advanced Materials Interfaces*, 2015, 1500404.
51. Tang, H., Zhou, Z., Bowland, C.C. and Sodano, H.A., 2015, Growth of Highly Textured PbTiO₃ films on Conductive Substrate Under Hydrothermal Conditions, *Nanotechnology*, **26**(34): 345602.
52. Heo, Y. and Sodano, H.A., 2015, Thermally Responsive Self-Healing Composites with Continuous Carbon Fiber Reinforcement, *Composite Science and Technology*, **118**: 244-250.
53. Patterson, B.A., Galan, U. and Sodano, H.A., 2015, Adhesive Force Measurement between HOPG and Zinc Oxide as an Indicator for Interfacial Bonding of Carbon Fiber Composites, *ACS Applied Materials & Interfaces*, **7**(28): 15380-15387.
54. Hwang, H.-S., Malakooti, M.H., and Sodano H.A., 2015, Tailorable Interyarn Friction of ZnO Nanowire-Aramid Fiber Composite Fabrics by Controlling Morphology of ZnO Nanowires, *Composites Part A: Applied Science and Manufacturing*, **76**: 326-333.
55. Bowland, C.C., Malakooti, M.H., Zhou, Z. and Sodano, H.A., 2015, Highly Aligned Arrays of High Aspect Ratio Barium Titanate Nanowires via Hydrothermal Synthesis, *Applied Physics Letters*, **106**: 222903.
56. Malakooti, M.H. and Sodano H.A., 2015, Piezoelectric Energy Harvesting Through Shear Mode Operation, *Smart Materials and Structures*, **24**(5): 055005.
57. Sigamani, N., Ounaies, Z., Ehlert, G. and Sodano, H.A., 2015, “Electromechanical response of reduced graphene oxide - polyvinylidene fluoride nanocomposites prepared through in-situ thermal reduction, *Journal of Applied Physics*, **117**(15): 154102. (Featured Article and Cover Article)
58. Sodano, H.A., Koka, A, Guskey, C.R., Seigler, T.M. and Bailey, S.C.C., 2015, Introducing Perturbations into Turbulent Wall-Bounded Flow with Arrays of Long TiO₂ Nanowires, *ASME Journal of Fluids Engineering*, **137**(2): 024501.
59. Malakooti, M.H., Hwang, H.-S. and Sodano H.A., 2015, Morphology-Controlled ZnO Nanowire Arrays for Tailored Hybrid Composites with High Damping, *ACS Applied Materials & Interfaces*, **7**(1): 332-339.

60. Hwang, H.-S., Malakooti, M.H., Patterson, B. and Sodano H.A., 2015, Increased Interyarn Friction through ZnO Nanowire Arrays Grown on Aramid Fabric, *Composites Science and Technology*, **107**(11): 75-81.
61. Zhou, Z., Tang, H. and Sodano, H. A., 2014, Scalable Synthesis of Morphotropic Phase Boundary Lead Zirconium Titanate Nanowires for Energy Harvesting, *Advanced Materials*, **26**(45): 7547 – 7554. (Cover Article)
62. Bowland, C., Zhou, Z. and Sodano, H. A., 2014, Multifunctional Barium Titanate Coated Carbon Fibers, *Advanced Functional Materials*, **24**(40): 6303-6308.
63. Koka, A., Zhou, Z., Tang, H. and Sodano, H.A., 2014, Controlled Synthesis of Ultra-long Vertically Aligned BaTiO₃ Nanowire Arrays, *Nanotechnology*, **25**(37): 375603. (Cover Article)
64. Paneri, A., Heo, Y.-S., Sodano, H.A. and Moghaddam, S., 2014, Proton Selective Ionic Graphene-based Laminate, *Journal of Membrane Science*, **467**: 217-225.
65. Ehlert, G.J. and Sodano, H.A., 2014, Strain Sensors with Carbon Nanotubes Self Assembled to Aramid Fibers, *Journal of Intelligent Material Systems and Structures*, **25**(17): 2117–2121.
66. Koka, A., Zhou, Z., Tang, H. and Sodano, H.A., 2014, Low Frequency Energy Harvester from Ultra-long Vertically Aligned BaTiO₃ Nanowire Arrays, *Advanced Energy Materials*, **4**(11): 1301660. (Cover Article)
67. Heo, Y. and Sodano, H.A., 2014, Self-healing Polyurethanes with Shape Recovery, *Advanced Functional Materials*, **24**(33): 5261-5268. (Cover Article)
68. Malakooti, M.H., Anderson, P.L. and Sodano, H.A., 2014, “Toughening Mechanism of Heterogeneous Aliphatic Polyurethanes” *Polymer*, **55**(8): 2086-2093.
69. Tang, H., Zhou Z. and Sodano, H. A., 2014, Large-scale Synthesis of Ba_xSr_{1-x}TiO₃ Nanowires with Controlled Stoichiometry, *Applied Physics Letters*, **104**: 142905.
70. Malakooti, M.H., and Sodano, H.A., 2014, Toughening Response of a Crack-tip Surrounded by a Local Elastic Gradient, *Smart Materials and Structures*, **23**(3): 035009.
71. Sankar, V., Sanchez, J.C., McCumiskey, E., Brown, N., Taylor, C.R., Ehlert, G.J. Sodano H.A. and Nishida T., 2014, A High Compliance Two Dimensional Microelectrode Array for Front-End Strain Relief in Chronic Neural Implants, *Frontiers in Neuroprosthetics*, **4**: 124, 10.3389/fneur.2013.00124.
72. Koka, A., Zhou, Z. and Sodano, H.A., 2014, Synthesis and Characterization of Vertically Aligned BaTiO₃ Nanowire Arrays for Energy Harvesting, *Energy and Environmental Science*, **7**(1): 288 - 296.
73. Zhou, Z., Tang, H. and Sodano, H.A., 2013, Vertically Aligned Arrays of BaTiO₃ Nanowires, *ACS Applied Materials & Interfaces*, **5**(22): 11894–11899.
74. Koka, A. and Sodano, H.A., 2013 “Ultra Long Vertically Aligned Barium Titanate Nanowire Arrays for High Sensitivity NEMS Accelerometer, *Nature Communications*, **4**: 2682. (Awarded ASME Best Paper in Materials)
75. Zhou, Z., Lin, Y., Tang, H. and Sodano, H.A., 2013, Hydrothermal Growth of Textured Ba_{1-x}Sr_xTiO₃ Films, *Nanoscale*, **5**(22): 10901-10907.
76. Galan, U. and Sodano, H.A., 2013, Intermolecular Interactions dictating Adhesion between ZnO and Graphite, *Carbon*, **63**: 517-522.

77. Malakooti, M.H., and Sodano, H.A., 2013, "Direct Measurement of Piezoelectric Shear Coefficient," *Journal of Applied Physics*, **113**(21): 214106.
78. Lin, Y., Zhou, Z. and Sodano, 2013, "Barium Titanate and Barium Strontium Titanate Coated Carbon Fibers for Multifunctional Structural Capacitors," *Journal of Composite Materials*, **47**(12): 1527-1533.
79. Ehlert, G.J., Galan, U. and Sodano, H.A., 2013, Role of Surface Chemistry in Adhesion between ZnO Nanowires and Carbon Fibers in Hybrid Composites, *ACS Applied Materials and Interfaces*, **5**(3) 635-645.
80. Malakooti, M. and Sodano, H.A., 2013, Noncontact and Simultaneous Measurement of the d_{33} and d_{31} Piezoelectric Strain Coefficients, *Applied Physics Letters*, **102**: 061901.
81. Zhou, Z., Lin, Y., Tang, H. and Sodano, H.A., 2013, Hydrothermal Growth of Highly Textured BaTiO₃ Films Composed of Nanowires, *Nanotechnology*, **24**: 095602.
82. Malakooti, M. and Sodano, H.A., 2013, Multi-Inclusion Modeling of Multiphase Piezoelectric Composites, *Composites Part B: Engineering*, **47**: 181-189.
83. Galan, U. and Sodano, H.A., 2012, Molecular Dynamics Prediction of Interfacial Strength and Validation through Atomic Force Microscopy, *Applied Physics Letters*, **101**: 151603.
84. Liao, Y. and Sodano, H.A., 2012, "Optimal Placement of Piezoelectric Material for Maximum Piezoelectric Damping and Power Harvesting Efficiency, *Smart Materials and Structures*, **21**: 105014.
85. Ehlert, G.J., Meeks, N., Tang, H. and Sodano, H.A., 2012, "Poly(vinylidene fluoride) Interleaves for Multifunctional Fiber Reinforced Composites," *Advances in Science and Technology*, **77**: 138 - 145.
86. Ehlert, G. and Sodano, H.A., 2011, "Carbonyl Functionalization of Carbon Fibers through a Grafting Reaction that Preserves Fiber Tensile Strength, *Carbon*, **49**(13): 4246-4255.
87. Andrews, C., Lin, Y., Tang, H. and Sodano H.A., 2011, "Influence of aspect ratio on effective electromechanical coupling of nanocomposites with lead zirconate titanate nanowire inclusion," *Journal of Intelligent Material Systems and Structures*, **22**(16): 1879-1876.
88. Lin, Y., Ehlert, G. and Sodano, H.A., 2011, "Super Hydrophobic Functionalized Graphene Aerogels," *ACS Applied Materials & Interfaces*, **3**(7): 2200-2203.
89. Galan, U., Lin, Y., Ehlert, G. and Sodano, H.A., 2011, "Effect of Nanowire Morphology on Interfacial Strength of Nanowire Coated Carbon Fibers," *Composite Science and Technology*, **71**: 946-954 (2011).
90. Ehlert, G., Yirong, L., Galan, U. and Sodano, H.A., 2010, "Interaction of ZnO Nanowires with Carbon Fibers for Hierarchical Composites with High Interfacial Strength," *International Journal of Mechanics and Materials Engineering*, **4**(11): 1687-1698.
91. Lin, Y., Shaffer, J.W. and Sodano, H.A., 2010, Electrolytic Deposition of PZT on Carbon Fibers for Multifunctional Composites, *Smart Materials and Structures*, **19**: 124004 (Invited paper).
92. Garcia, M., Lin, Y. and Sodano, H.A., 2010, "Autonomous Materials with Controlled Toughening and Healing," *Journal of Applied Physics*, **108**(9): 093512.
93. Lin, Y. and Sodano, H.A., 2010, "Enhanced piezoelectric properties of lead zirconate titanate sol-gel derived ceramics using single crystal PbZr_{0.52}Ti_{0.48}O₃ cubes," *Journal of Applied Physics*, **108**, 064108.

94. Liao, Y. and Sodano, H.A., 2010, "Damping of Resistively Shunted Piezoelectric Beams and Optimal Tuning for Maximum Damping," *Journal of Vibration and Acoustics*, **132**(4): 041014.
95. Liao, Y. and Sodano, H.A., 2010, "Modeling and Comparison of Bimorph Power Harvesters with Piezoelectric Elements Connected in Parallel and Series," *Journal of Intelligent Material Systems and Structures*, **21**(2): 149-159.
96. Lin, Y. and Sodano, H.A., 2010, "Double Inclusion Model for Multiphase Piezoelectric Composites," *Smart Materials and Structures*, **19**: 035003.
97. Andrews, C., Lin, Y. and Sodano, H.A., 2010, "Effect of Inclusion Aspect Ratio and Orientation on the Electromechanical Coupling of Piezoelectric Nanocomposites," *Smart Materials and Structures*, **19**: 025018.
98. Lin, Y., Liu, Y. and Sodano, H.A., 2009, "Hydrothermal Synthesis of Vertically Aligned PZT Nanowires," *Applied Physics Letters*, **91**: 122901.
99. Ehlert, G. and Sodano, H.A., 2009, "Zinc Oxide Nanowire Interphase for Enhanced Lightweight Polymer Fiber Composites," *ACS Applied Materials & Interfaces*, **1**(8): 1827–1833.
100. Lin, Y. Ehlert, G. and Sodano, H.A., 2009, "Increased Interface Strength in Carbon Fiber Composites through a ZnO Nanowire Interphase," *Advanced Functional Materials*, **19**: 2654-2660.
101. Lin, Y. and Sodano, H.A., 2009, "Electromechanical Characterization of a Multifunctional Active Structural Fiber Lamina," *Composites Science and Technology*, **69**: 1825–1830.
102. Liao, Y. and Sodano, H.A., 2009, "Optimal Parameters and Power Characteristics of Piezoelectric Energy Harvesters with an RC Circuit," *Smart Materials and Structures*, **18**: 045011.
103. Liao, Y. and Sodano, H.A., 2009, "On Structural Effects and Energy Conversion Efficiency of Power Harvesting," *Journal of Intelligent Material Systems and Structures*, **20**: 505-514.
104. Lin, Y. and Sodano, H.A., 2009, "Fabrication and Electromechanical Characterization of a Piezoelectric Structural Fiber for Multifunctional Composites," *Advanced Functional Materials*, **19**: 592-598.
105. Liao, Y. and Sodano, H.A., 2008, "Model of a Single Mode Energy Harvester and Properties for Optimal Power Generation," *Smart Materials and Structures*, **17**: 065026.
106. Sodano H.A. and Cheah, S.-K., 2008, "Novel Eddy Current Damping Mechanism for Passive Magnetic Bearings," *Journal of Vibration and Control*, **14**(11): 1749-1766.
107. Feenstra, J. and Sodano, H.A., 2008, "Enhanced Active Piezoelectric 0-3 Nanocomposites Fabricated through Electrospun Nanowires," *Journal of Applied Physics*, **103**: 124108.
108. Lin, Y. and Sodano, H.A., 2008, "Concept and Model of a Piezoelectric Structural Fiber for Multifunctional Composites," *Composites Science and Technology*, **68** (7-8): 1911-1918.
109. Sodano, H.A. and Inman, D.J., 2008, "Modeling of a New Active Eddy Current Vibration Control System," *ASME Journal of Dynamic Systems, Measurement and Control*, **130**(2): 021009-1-11.
110. Feenstra, J., Granstrom, J. and Sodano, H.A., 2008, "Mechanically Amplified Piezoelectric Stack Actuators for Harvesting Electrical Energy from a Backpack," *Mechanical Systems and Signal Processing*, Vol. **22**(3): 721-734.

111. Simmers, G.E., Sodano, H.A., Park, G. and Inman, D.J., 2007, "Thermal Protection for a Self-Sensing Piezoelectric Control System," *Smart Materials and Structures*, **16**: 2492-2500.
112. Granstrom, J., Feenstra, J., Sodano, H.A. and Farinholt, K., 2007, Energy Harvesting from a Backpack Instrumented with Piezoelectric Shoulder Straps, *Smart Materials and Structures*, **16**(5): 1810-1820.
113. Sodano, H.A. and Inman, D.J., 2007, "Closure: Improved Concept and Model of Eddy Current Damper," *ASME Journal of Vibration and Acoustics*, **129**(4): 530.
114. Sodano, H.A. and Inman, D.J., 2007, "Non-Contact Vibration Control System Employing an Active Eddy Current Damper," *Journal of Sound and Vibration*, **305**(4-5): 596-613.
115. Sodano, H.A., 2007, "Development of an Automated Eddy Current Structural Health Monitoring Technique with Extended Sensing Region," *International Journal of Structural Health Monitoring*, **6**(2): 111-119.
116. Anton, S.R. and Sodano, H.A., 2007, "A Review of Power Harvesting Using Piezoelectric Materials (2003-2006)," *Smart Materials and Structures*, **16**: R1-R21.
117. Sodano, H.A., Simmers, G.E., Dereux, R., and Inman, D.J., 2007, "Recharging Batteries using Energy Harvested from Thermal Gradients," *Journal of Intelligent Material Systems and Structures*, **18**(1): 3-10.
118. Simmers, G.E., Sodano, H.A., Park, G., and Inman, D.J., 2006, "Detection of Corrosion using Piezoelectric Impedance Based Structural Health Monitoring," *AIAA Journal*, **44**(11): 2800-2803.
119. Sodano, H.A., 2006, "Non-Contact Eddy Current Excitation Method for Vibration Testing," *Experimental Mechanics*, **46**(5): 627-635.
120. Sodano, H.A., Lloyd, J. and Inman, D.J., 2006, "An Experimental Comparison between Several Active Composite Actuators for Power Generation," *Smart Materials and Structures*, **15**: 1211-1216.
121. Sodano, H.A., Inman, D.J., and Belvin, W.K., 2006, "Development of a New Passive-Active Magnetic Damper for Vibration Suppression," *ASME Journal of Vibration and Acoustics*, **128**: 318-327.
122. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2006, "Improved Concept and Model of Eddy Current Damper," *ASME Journal of Vibration and Acoustics*, **128**: 295-302.
123. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2006, "Modeling and Application of Passive Eddy Current Damper for the Suppression of Membrane Vibrations," *AIAA Journal*, **44**(3): 541-549.
124. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2005, "Concept and Model of Eddy Current Damper for Vibration Suppression of a Beam," *Journal of Sound and Vibration*, **288**: 1177-1196.
125. Sodano, H.A., Park, G., and Inman, D.J., 2005, "Comparison of Piezoelectric Energy Harvesting Devices for Recharging Batteries," *Journal of Intelligent Material Systems and Structures*, **16**(10): 799-807.
126. Sodano, H.A., Park, G. and Inman, D.J., 2005, "Multiple Sensors and Actuators for Vibration Suppression of an Inflated Torus," *AIAA Journal of Spacecraft and Rockets*, **42**(2): 370-373.
127. Sodano, H.A., Park, G. and Inman, D.J., 2005, "Generation and Storage of Electricity from Power Harvesting Devices," *Journal of Intelligent Material Systems and Structures*, **16**(1): 67-75.
128. Sodano, H.A., Park, G. and Inman, D.J., 2004, "Estimation of Electric Charge Output for Piezoelectric Energy Harvesting," *Strain*, **40**: 49-58.

129. Sodano, H.A. and Bae, J.S., 2004, "Eddy Current Damping in Structures," *Shock and Vibration Digest*, **36**(6): 469-478.
130. Sodano, H.A., Park, G. and Inman, D.J., 2004, "A Review of Power Harvesting Using Piezoelectric Materials," *Shock and Vibration Digest*, **36**(3): 197-206.
131. Sodano, H.A., Park, G. and Inman, D.J., 2003, "An Investigation into the Performance of Macro-Fiber Composites for Sensing and Structural Vibration Applications," *Mechanical Systems and Signal Processing*, **18**(3): 683-697.

Conference Papers Accepted by Peer Review:

1. Malakooti, M.H., Jule, F. and Sodano, H.A., 2018, Energy Harvesting Performance of Printed Barium Titanate Nanocomposites, ASME 2018 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 10-12, San Antonio, TX.
2. Kimber, A., Jorns, B. and Sodano, H.A., 2018, "Dielectric Materials with Roll-On Electrode Layers for Electro spray Arrays," 2018 AIAA/SAE/ASSEE Joint Propulsion Conference, July 9-11 Cincinnati, OH.
3. Moosavian, A., Malakooti, M.H., Lin, J., Sodano, H.A. and Inman, D.J., 2017, "Design and Manufacturing of a Morphing Trailing Edged Using a 3D-Printed Piezoelectric Polymer," 8th ECCOMAS Thematic Conference on Smart Structures and Materials SMART, June 5 – 30, Madrid, Spain.
4. Zhou, Z., Patterson, B.A., Bowland, C.C. and Sodano, H.A., 2016 "Conformal Growth of Textured Barium Titanate Films on Patterened Silicon Wafer," ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 27 – 30 Stowe, VT.
5. Zhou, Z., Bowland, C.C., Patterson, B.A. and Sodano, H.A., 2016 "Optimized Parameters for Synthesis of BaTiO₃ Films with High Electromechanical Coupling," ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 27 – 30 Stowe, VT.
6. Heo, Y. and Sodano, H.A., 2016, "Development of a Novel Self-Healing Polymer with High Temperature Stability, AIAA SciTech Conference, January 4 – 8 San Diego, CA
7. Nafari, A. and Sodano, H.A., 2015 "Impact Driven Triboelectric Energy Harvester," ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 21 – 23 Colorado Springs, CO.
8. Nafari, A., Bowland, C.C. and Sodano, H.A., 2015 "Ultra-Long Vertically Aligned Lead Titanate Nanowires for Energy Harvesting," ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 21 – 23 Colorado Springs, CO.
9. Heo, Y. and Sodano, H.A., 2015, "Thermo-Responsive Shape Memory Self-Healing Polyurethanes and Composites with Continuous Carbon Fiber Reinforcement," ASME's 8th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 21 – 23 Colorado Springs, CO.
10. Malakooti, M.H., Hwang, H., and Sodano, H.A., 2014, "Vibration Damping Enhancement in Hybrid Carbon Fiber Composites with ZnO Nanowire Interphase" ASME's 7th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 8 – 10 Newport, RI.
11. Malakooti, M.H., Anderson, P.L. and Sodano, H.A., 2014, "Visualization of Particle-Toughening Mechanism in Transparent Polyurethanes" ASME's 7th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 8 – 10 Newport, RI.
12. Koka, A and Sodano, H.A., 2014, "Ultra-long Barium Titanate Nanowire Arrays for Low Frequency

Energy Harvesting Applications,” ASME’s 7th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 8 – 10 Newport, RI.

13. Malakooti, M. and Sodano, H.A., 2013, “Electromechanical Characterization of Piezoelectric Shear Actuators,” ASME’s 6th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 16 – 19 Snow Bird, UT.
14. Koka, A and Sodano, H.A., 2013, “Energy harvesting from Arrays of Long Barium Titanate nanowires,” ASME’s 6th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 16 – 19 Snow Bird, UT.
15. Hwang, H.-S., Patterson B. A., Malakooti, M. and Sodano, H.A., 2013, "Modification of Pullout Behavior of Kevlar Fabric by Zinc Oxide Nanowire Reinforcement," Proceedings of the ASME 2013 International Mechanical Engineering Congress & Exposition, Nov. 15 - 21, San Diego, CA.
16. Patterson, B.A. and Sodano, H.A., 2013, “Effect of Zinc Oxide Nanowire Length on the Interfacial Strength of Carbon Fiber Composites,” Proceedings of ASME 2013 International Mechanical Engineering Congress and Exposition, November 15-21, San Diego, CA
17. Bailey, S.C.C. Calhoun, J.C., Guskey, C.R. Siegler, T.M., Aneesh K. and Sodano H.A., 2012 "Exploring the Potential of Turbulent Flow Control Using Vertically Aligned Nanowire Arrays" 65th Annual Meeting of the APS Division of Fluid Dynamics, San Diego, USA, Bulletin of the American Physical Society, Vol. 57.
18. Koka, A and Sodano, H.A., 2012, “Vibration sensing and energy harvesting using ultra-long vertically aligned array of barium titanate nanowires,” ASME’s 5th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 19 – 21 Stone Mountain, GA.
19. Malakooti, M. and Sodano, H.A., 2012, “Fracture Modeling of an Embedded Crack in Self-healing Polymers,” ASME’s 5th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 19 – 21 Stone Mountain, GA.
20. Sigamani, N., Ounaies, Z. and Sodano, H.A., 2012, “Synthesis and Characterization of PVDF-Based SWNT/GO Hybrid Films,” ASME’s 5th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 19 – 21 Stone Mountain, GA.
21. Malakooti, M. and Sodano, H.A., 2012, “Micromechanics Modeling of Multiphase Piezoelectric Composites,” ASME’s 5th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 19 – 21 Stone Mountain, GA.
22. Tang, H., Lin, Y. and Sodano, H.A., 2011, Enhanced Energy Storage in Nanocomposites through aligned PZT Nanowires, ASME’s 4th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, October 18 – 21 Phoenix, AZ.
23. Tang, H., Lin, Y., Andrews, C. and Sodano, H.A., 2010, “Nanocomposites with Increased Energy Density through High Aspect Ratio PZT Nanowires,” ASME’s 3rd Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept 28 – Oct. 1 Philadelphia, PA.
24. Lin, Y. and Sodano H.A., 2009, “Characterization of Multifunctional Structural Capacitors for Embedded Energy Storage,” ASME’s 2nd Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, September 21st-23rd Oxnard, CA.
25. Lin, Y. and Sodano, H.A., 2009, "Double Inclusion Model for Multifunctional Piezoelectric Composites," Proceedings of the 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference (SDM), May 4-7th, Palm Springs, CA.

26. Ehlert, G., and Sodano, H.A., 2009, "Zinc Oxide Nanowire Interphase for Enhanced Lightweight Polymer Fiber Composites, Proceedings of the 50th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference (SDM), May 4-7th, Palm Springs, CA.
27. Lee, S., Youn, B. and Sodano, H.A., 2008 "Stochastic Topology Optimization for Energy Harvester Design," Proceedings of the 12th AIAA/ISSMO Multidisciplinary Analysis and Optimization (MAO) Conference, Sept. 10-12, Victoria, British Columbia, Canada.
28. Feenstra, J., Granstrom, J. and Sodano, H.A., 2007 "Amplified Piezoelectric Stack Actuators for Harvesting Electrical Energy from a Backpack," Proceedings of the International Design Engineering Technical Conference, Sept. 4-7, Las Vegas, Nevada, USA.
29. Wells, L., Lin, Y., Sodano, H.A. and Youn, B., 2007, "Geometric Optimization of a Piezoelectric Power Harvesting Plate for Increased Bandwidth," Proceedings of the International Design Engineering Technical Conference, Sept. 4-7, Las Vegas, Nevada, USA.
30. Sodano, H.A. and Chaeh, S.K., 2007, „Novel Eddy Current Damping Mechanism for Passive Magnetic Bearings," Proceedings of the 48th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics and Materials Conference (SDM), April 22-26th, Honolulu HI.
31. Sodano, H.A. and Kneeland, P., 2006, "Small Thermoelectric Energy Source using Various Fuels," Proceedings of 2006 ASME International Mechanical Engineering Congress and Exposition, November 5-10, Chicago, IL.
32. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2005, "Model of Eddy Current Damper for the Suppression of Transverse Membrane Vibrations," Proceedings of the 46th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics and Materials Conference (SDM), April 18-21st, Austin, TX.
33. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2004, "Model of Eddy Current Damping mechanism for the Suppression of Beam Vibrations," Proceedings of ASME's International Mechanical Engineering Congress and Exposition, November 13-19th, Anaheim, CA.
34. Sodano, H.A., Park, G., Leo, D. and Inman, D.J., 2003, "Model of Piezoelectric Power Harvesting Beam," Proceedings of ASME's International Mechanical Engineering Congress and Exposition, November 16-21st, Washington D.C.
35. Sodano, H.A., Park, G. and Inman, D.J., 2003, "Vibration Testing and Control of an Inflatable Torus Using Multiple Sensors/actuators," Proceedings of the 44th AIAA/ASME/ASCE/AHS Structures, Structural Dynamics and Materials Conference (SDM), April 7-10th, Norfolk, VA, AIAA Paper 2003-1644.

Conference Papers Accepted by Abstract:

36. Nasser, J., Groo, L., Zhang, L., Sodano, H. A., 2020 "Hierarchical and multifunctional aramid fiber reinforced composites through laser induced graphene", The Society for the Advancement of Material and Process Engineering (SAMPE®), Seattle, WA.
37. Nasser, J., Sodano, H. A., 2020, "Aramid nanofibers for Improved fracture toughness of carbon fiber reinforced composites", The Society for the Advancement of Material and Process Engineering (SAMPE®), Seattle, WA.
38. Nasser, J., Lin, J., Stienke, K. and Sodano, H.A., 2019, "Tailored ZnO Interphases in Carbon Fiber Reinforced Composites Across Strain Rates," 22nd International Conference on Composite Materials (ICCM), August 11-16, Melbourne, Australia.
39. Zhang, L. and Sodano, H.A., 2019, "Self-Healing CRFP Composites with High Thermal Stability," 22nd International Conference on Composite Materials (ICCM), August 11-16, Melbourne, Australia

40. Nasser, J., Steinke, Sodano, H. A., 2019 "Tailored Zinc Oxide Interphase in Carbon Fiber Reinforced Composites Across Strain Rates", International Conference on Composite materials, August 11-16 Melbourne, Australia.
41. Nasser, J., Lin, J., Stienke, K. and Sodano, H.A., 2019, Absorbed Aramid Nanofiber Interphase for Enhanced Aramid Fiber Reinforced Composites, AIAA SciTech, Jan. 7-11, San Diego, CA.
42. Nafari, A. and Sodano, H.A., 2019, Experimentally verified models to predict the voltage coefficient of a piezoelectric nanogenerator, SPIE's 26th Annual International Symposium on Smart Structures and Materials, March 3-7, Denver, CO.
43. Nafari, A., Bowland, C.C. and Sodano, H.A., 2018, Ultra-long Vertically Aligned Lead Titanate Nanowire Arrays for Energy Harvesting in Extreme Environments, CIMTEC 14th International Ceramics Conference, June 4-8, Perugia, Italy.
44. Lin, J. and Sodano, H.A., 2018, A Novel Electrospun 3D Printing Method for Piezoelectric Polymers, MRS Spring Meeting and Exhibit, April 2-6, Phoenix, AZ.
45. Nafari, A. and Sodano, H.A., 2018, "Electromechanical Modeling of a 3D Printed Nanocomposite," SPIE's 25th Annual International Symposium on Smart Structures and Materials, March 4-8, Denver, CO.
46. Lin, J. and Sodano, H.A., 2018, "Isolation of Aramid Nanofibers for High Strength Multiscale Fiber Reinforced Composites," SPIE's 25th Annual International Symposium on Smart Structures and Materials, March 4-8, Denver, CO.
47. Groo, L.A., Sodano, H.A. and Inman D.J., 2017, Piezoelectric Zinc Oxide Nanowires for Use in Acoustic Emission Testing, American Society for Composites 32nd Annual Technical Conference, October 23 - 25th, West Lafayette, IN.
48. Lin, J., Bang, S.H., Malakooti, M.H. and Sodano, H.A., 2017, Isolation of Aramid Nanofibers for High Strength and Toughness Polymer Nanocomposites, 26th Annual International Materials Research Conference, Cancun, Mexico, August 20 – 25.
49. Malakooti, M.H., Nafari, A., Jule, F. and Sodano, H.A., 2017, Direct Writing of BaTiO₃ Nanocomposites with Tailored Microstructure for Energy Harvesting, IEEE Joint International Symposium on Applications of Ferroelectrics (ISAF), International Workshop on Acoustic Transduction Materials and Devices (IWATMD), and Piezoresponse Force Microscopy Workshop (PFM), Atlanta, GA, May 7-11.
50. Malakooti, M.H., Patterson, B.A., Bowland, C., Hwang, H.-S., and Sodano, H.A., 2017, Piezoelectric Interfaces to enable energy harvesting and tailored damping in fiber reinforced composites, 254th Annual SPIE Smart Structures and NDE Conference, March 25-29, 2017, Portland, Oregon
51. Moosavian, A., Malakooti, M.H., Lin, J., Sodano H.A. and Inman, D.J., 2017, Design and Manufacturing of a Morphing Trailing Edge using a 3D-Printed Piezoelectric Polymer, 8th ECOMAS Conference on Smart Structures and Materials, June 5-8, Madrid, Spain.
52. Sodano, H.A., 2017, Piezoelectric Nanowires: A Novel Technology for High Strength Composites, Sensors and Energy Systems, 7th JNRSE Conference, May 9-10, Lyon, France (Invited).
53. Malakooti, M.H. and Sodano, H.A., 2017, Graded Nanowire Interfaces for Efficient Energy Conversion, The American Ceramic Society Conference on Electronic Materials and Applications, January 18-20, Orlando, Florida.

54. Malakooti, M.H., M.H., Patterson, B.A., Hwang, H.-S., and Sodano, H.A., 2016, CIMTEC 5th International Conference Smart and Multifunctional Materials, Structures and Systems, June 5-9, Perugia, Italy.
55. Sodano, H.A., International Workshop on Piezoelectric Materials and Applications (IWPMMA) and Energy Conversion Materials and Devices (ECMD), August 21-24, 2016, Jeju, South Korea. **(Plenary Talk)**
56. Malakooti, M.H., Zhou, Z., Spears, J.H., Shankwitz, T.J. and Sodano, H.A., 2016, "Strain Analysis of Nanowire Interfaces in Multiscale Composites" SPIE's 23rd Annual International Symposium on Smart Structures and Materials, March 20-24, Las Vegas, Nevada.
57. Malakooti, M.H., Patterson, B.A., Hwang, H., and Sodano, H.A., 2016, "Development of Multifunctional Fiber Reinforced Polymer Composites through ZnO Nanowire Arrays" SPIE's 23rd Annual International Symposium on Smart Structures and Materials, March 20-24, Las Vegas, Nevada.
58. Malakooti, M.H., Zhou, Z., and Sodano, H.A., 2016, "Energy Harvesting from Vertically Aligned PZT Nanowire Arrays" SPIE's 23rd Annual International Symposium on Smart Structures and Materials, March 20-24, Las Vegas, Nevada.
59. Bowland, C.C., Malakooti, M.H., Hwang, H. and Sodano, H.A., 2015, "Fiber Reinforced Piezoelectric Composites," 20th International Conference on Composite Materials, July 19-24, Copenhagen, Denmark.
60. Malakooti, M.H., Hwang, H., and Sodano, H.A., 2015, "Power Generation from Base Excitation of a Kevlar Composite Beam with ZnO Nanowires" SPIE's 22nd Annual International Symposium on Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, March 8-12, San Diego, California.
61. Malakooti, M.H., Miller, A.T., and Sodano, H.A., 2015, "Characterization of Lead Zirconate Titanate Microwires Using Digital Image Correlation" SPIE's 22nd Annual International Symposium on Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, March 8-12, San Diego, California.
62. Zhou, Z., Patterson, B., Christopher, B. and Sodano, H.A., "Conformal growth of textured BaTiO₃ film on Si and its piezoelectric property," 2014 MRS Fall Meeting & Exhibit, Nov. 30 – Dec. 5, Boston, MA.
63. Zhou, Z., Tang, H. and Sodano, H.A., "Large Scale Fabricated Lead Zirconium Titanate Nanowires for Energy Harvesting," 2014 MRS Fall Meeting & Exhibit, Nov. 30 – Dec. 5, Boston, MA.
64. Tang, H. and Sodano, H. A. 2013, "Ultra High Energy Density of Nanocomposite Capacitors," 2014 TMS Annual Meeting & Exhibition, Feb 16 – 20, San Diego CA.
65. Tang, H., Malakooti, M.H. and Sodano, H. A. 2013, "Investigation of Relationship between Orientation Factor of PZT NWs and Dielectric Permittivity of Nanocomposites," The 24th international conference on adaptive structures technologies, October 6-9, Palm Beach, Aruba
66. Sigamani, N., Ounaies Z. and Sodano, H.A., "Effect of graphene oxide on the ferroelectric properties of P(VDF-TrFE) (56/44)," American Society for Composites 28th Technical Conference, September 9-11, 2013, University Park, Pennsylvania, USA
67. Bowland, C., Zhou, Z., and Sodano, H.A., "Electromechanical Characterization of Barium Titanate Coated Carbon Fibers," 19th International Conference on Composite Materials, Symposium on Composites with Sensing, Actuation, and Energy Transduction Capabilities, July 28-August 2, 2013, Montreal, Canada (Invited Speaker).

68. Zhou, Z., Tang, H. and Sodano, H.A., 2013, "Synthesis and Electromechanical Characterization of Vertically Aligned Arrays of BaTiO₃ Nanowires," E-MRS 2013 Spring Meeting, May. 27 – 31, Strasbourg, France.
69. Malakooti, M.H., and Sodano, H.A., 2013, "Simultaneous Measurement of Longitudinal and Lateral Piezoelectric Strain Coefficients using Digital Image Correlation" SPIE's 20th Annual International Symposium on Smart Structures and Materials, March 10-14, San Diego, California.
70. Malakooti, M.H., and Sodano, H.A., 2013, "Shear-Mode Energy Harvesting of Piezoelectric Sandwich Beam" SPIE's 20th Annual International Symposium on Smart Structures and Materials, March 10-14, San Diego, California.
71. Tang, H. and Sodano, H. A. 2013, "Ultra High Energy Density and Fast Discharge Nanocomposite Capacitors," SPIE's 20th Annual International Symposium on Smart Structures and Materials, March 10-14, San Diego, CA (1st Place Best Student Paper Award).
72. Koka, A. and Sodano, H.A., 2013, "Energy Harvesting Using Arrays of Long Barium Titanate Nanowires," Materials Research Society - Spring Meeting, April 1-5, San Francisco, CA.
73. Paneri, A., Ehlert, G.J., Sodano, H.A. and Moghaddam, S., "Graphene-based Proton Exchange Membrane for Direct Methanol Fuel Cell (DMFC)," Nanotech Conference and Expo, June 18-21, 2012, Santa Clara, CA.
74. Galan, Ulises, and Henry A. Sodano. "Adhesive Energy of Zinc Oxide and Graphite, Molecular Dynamics and Atomic Force Microscopy Study." *MRS Proceedings*. Vol. 1479. Cambridge University Press, 2012.
75. Ehlert, G.J., Meeks, N., Tang, H. and Sodano, H.A., "High Dielectric Nanocomposite Interleaves for Multifunctional Structural Composites," 4rd International Conference on Smart Materials and Structures Systems, June 10-14, 2012, Montecatini Terme, Italy.
76. Riddick, J.C, Hall, A., Ayes, J.T., Ghoshal, A. and Sodano, H.A. "Real-Time Stress Estimation Using Embedded Piezoresistive Fibers and the Eshelby Equivalent Inclusion Method, SAMPE 2012, May 21-24th 2012, Baltimore, MD.
77. Ehlert, G.J. and Sodano, H.A., "Adhesion of ZnO Nanowire Interphase to Carbon Fiber for Enhanced Interfacial Strength," Proceedings of the 53th AIAA/ASME/ASCE/AHS/ASC Structures, Structural Dynamics and Materials Conference (SDM), April 23-26th, Honolulu, HI.
78. Tang, H. and Sodano, H.A., High energy density nanocomposites based on high aspect ratio surface-functionalized BaTiO₃ NWs, SPIE's 19th Annual International Symposium on Smart Structures and Materials, March 11th-15th, San Diego, CA.
79. Nirmal, S., Ounaies, Z. and Sodano, H.A., Electromechanical Actuation Response of PVDF-Based SWNT/GO Hybrid Films, SPIE's 19th Annual International Symposium on Smart Structures and Materials, March 11th-15th, San Diego, CA.
80. Zhou, Z., Lin, Y. and Sodano, H.A., Synthesis and Characterization of Textured BaTiO₃ Thin Films, 36th International Conference and Expo on Advanced Ceramics and Composites, January 22 – 27, 2012, Daytona Beach, FL.
81. Sodano, H.A., 2011, "Nanowire Interfaces for Simultaneously Increased Strength and Functionality, Composites at Lake Louise Conference, October 30th – November 4th, Alberta, Canada (Invited Speaker).

82. Sodano, H.A., 2011, "Multifunctional Materials and Nanocomposites for Energy Storage," Nanotechnology for Defense Conference (NT4D), October 24 – 27, Bellevue, WA (Invited Speaker).
83. Sodano, H.A., 2011, "Multifunctional Solutions for Piezoelectric Energy Harvesting," International Symposium on Green Manufacturing and Applications (ISGMA 2011), October 6 – 7, Seoul National University, Seoul, Korea (Keynote Speaker).
84. Lin, Y., Zhou, Z. and Sodano, H.A., 2011, "Multifunctional Structural Capacitors Consisting of Barium Titanate and Barium Strontium Titanate Coated Carbon Fibers, 18th International Conference on Composite Materials, August 21-26, Jeju Island, South Korea.
85. Liao, Y. and Sodano, H.A., 2011, "Optimal Parameters and Power Characteristics of Piezoelectric Energy Harvesters with an RC Circuit," SPIE's 18th Annual International Symposium on Smart Structures and Materials, March 6th-10th, San Diego, CA.
86. Tang, H., Lin, Y., and Sodano, H.A., 2011, "Improved Energy Density of Nanocomposites with Aligned PZT Nanowires" SPIE's 18th Annual International Symposium on Smart Structures and Materials, March 6th-10th, San Diego, CA.
87. Lin, Y. and Sodano H.A. 2011 "Multifunctional Structural Capacitors Consisting of Barium Strontium Titanate Coated SiC Fibers," Electronic Materials and Applications 2011, Jan. 19th–21st Orlando, FL (Invited).
88. Ehlert, G.J., Lin, Y. and Sodano H.A. 2010 "Self-Assembly of Carbon Nanotubes to Aramid Fibers for Enhanced Electrical Conductivity," Materials Research Society Fall Meeting, Nov 29th - Dec 3rd, Boston, MA.
89. Ehlert, G.J. and Sodano H.A. 2010, "Non-Oxidative Carboxyl Functionalization of Carbon Fibers with Meldrum's Acid," 2010 SAMPE Fall Technical Conference, Oct. 11th -14th, Salt Lake City, UT.
90. Lin, Y. and Sodano, H.A., 2010, Enhanced Piezoelectric Properties of Lead Zirconate Titanate (PZT) Sol-Gel derived Ceramics using Single Crystal PZT Cubes, SPIE's 17th annual International Symposium on Smart Structures and Materials, March 7th-11th, San Diego, CA.
91. Garcia, M.E. and Sodano H.A., 2010, Biologically Inspired Autonomous Structural Materials with Controlled Toughening and Healing, SPIE's 17th annual International Symposium on Smart Structures and Materials, March 7th-11th, San Diego, CA.
92. Lin, Y. Ehlert, G. and Sodano, H.A., 2010, ZnO Nanowire Interphase for Increased Interfacial Strength in Fiber Reinforced Composites, Proceedings of the 2010 M&M International Symposium for Young Researchers, March 1-3, 2010, California Institute of Technology, Pasadena, CA, USA (invited)
93. Shaffer, J.W., Lin, Y. and Sodano, H.A., 2009, Electrolytic Deposition of PZT on Carbon Fibers for Multifunctional Composites, Proceeding of the 15th International Conference on Adaptive Structures and Technologies (ICAST), October 20th – 22nd, Hong Kong, China.
94. Lin, Y. Ehlert, G. and Sodano, H.A., 2009, "Advanced Multiscale Carbon Fiber Composites with a ZnO Nanowire Interface," 17th International conference on Composite Materials, July 27th - 31st, Edinburgh, UK.
95. Galan U., Ehlert, G., Lin, Y. and Sodano, H.A., 2009, "Effect of Size and Morphology of ZnO Nanowire Interfaces in Carbon Fiber Composites," Materials Research Society Spring Meeting, April 13th-17th, San Francisco, CA.

96. Lin, Y. and Sodano, H.A., 2009, "Electromechanical Characterization of a Single Fiber Lamina for Multifunctional Composites," SPIE's 16th annual International Symposium on Smart Structures and Materials, March 8th-12th, San Diego, CA.
97. Andrews, C., Lin, Y. and Sodano, H.A., 2009, "Investigation of Aspect Ratio on the Electroelastic Properties of Nanocomposites," SPIE's 16th annual International Symposium on Smart Structures and Materials, March 8th-12th, San Diego, CA.
98. Liao, Y. and Sodano, H.A., 2009, "On Structural Effects and Energy Conversion Efficiency of Power Harvesting," SPIE's 16th annual International Symposium on Smart Structures and Materials, March 8th-12th, San Diego, CA.
99. Lin, Y. and Sodano, H.A., 2008, "Fabrication and Electromechanical Characterization of a Piezoelectric Structural Fiber for Multifunctional Composites," 2008 SAMPE Fall Technical Conference, Sept. 8-11th, Memphis, TN.
100. Fenster, J. and Sodano, H.A., 2008, "Enhanced Active Piezoelectric Nanocomposites Fabricated through Electrospun Nanowires," 3rd International Conference on Smart Materials and Structures Systems, June 8-13, Acireale, Sicily, Italy.
101. Magoteaux, K., Sanders, B. and Sodano, H.A., 2008, "Investigation of an energy harvesting small unmanned air vehicle," SPIE's 15th annual International Symposium on Smart Structures and Materials, March 9th-13th, San Diego, CA.
102. Lin, Y. and Sodano, H.A., 2008, "Concept and Model of a Piezoelectric Structural Fiber for Multifunctional Composites," SPIE's 15th annual International Symposium on Smart Structures and Materials, March 9th-13th, San Diego, CA.
103. Liu, Y. and Sodano, H.A., 2008, "An Investigation into Active Piezoelectric Nanocomposites for Distributed Energy Harvesting," SPIE's 15th annual International Symposium on Smart Structures and Materials, March 9th-13th, San Diego, CA.
104. Sodano, H.A., 2007, "Power Harvesting Using Piezoelectric Materials," Power MEMS, Nov. 28-29, Freiburg, Germany.
105. Sodano, H.A., Granstrom, J., Fenster, J. and Farinholt, K., 2007, "Harvesting of Electrical Energy from an Backpack with a Piezoelectric Strap," SPIE's 14th annual International Symposium on Smart Structures and Materials, February 26th – March 2nd, San Diego, CA.
106. Van Karsen, C., Avitabile, P. Sodano, H., Blough, J. and Evensen, H., 2006 "Implementation of Some Dynamic Systems Material into the Mechanical Engineering Curriculum," 2006 ASEE Annual Conference & Exposition, June 18-21, Chicago, IL.
107. Sodano, H.A. and Inman, D.J., 2006, "Experimental Validation of an Active Eddy Current Vibration Control Scheme," SPIE's 13th annual International Symposium on Smart Structures and Materials, February 26th – March 2nd, San Diego, CA.
108. Sodano, H.A. and Inman, D.J., 2006, "Model of an Active Eddy Current Vibration Control System," SPIE's 13th annual International Symposium on Smart Structures and Materials, February 26th – March 2nd, San Diego, CA.
109. Sodano, H.A., 2006, "New Non-Contact Excitation Method for Vibration Testing," Proceedings of the 24th annual International Modal Analysis Conference (IMAC), Jan. 30 - Feb. 2, St. Louis, MO.

110. Sodano, H.A., 2006, "Design of Automated Eddy Current Structural Health Monitoring Techniques with Extended Sensing Region," Proceedings of the 24th annual International Modal Analysis Conference (IMAC), Jan. 30 - Feb. 2, St. Louis, MO.
111. Simmers, G.E., Sodano, H.A., and Inman, D.J., 2005, "Self-Sensing Active Control in the Presence Temperature Changes," Proceeding of the 15th International Conference on Adaptive Structures and Technologies (ICAST), October 9-12th, Paris, France.
112. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2005, "Passive-Active Eddy Current Damper," SPIE's 12th annual International Symposium on Smart Structures and Materials, March 7-10th, San Diego, CA.
113. Simmers, G.E., Sodano, H.A., Park, G., and Inman, D.J., 2005, "Impedance Based Corrosion Detection" SPIE's 12th annual International Symposium on Smart Structures and Materials, March 7-10th, San Diego, CA.
114. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2005, "Improved Eddy Current Damping Model for Transverse Vibrations," Proceedings of the 23rd annual International Modal Analysis Conference (IMAC), Jan. 31 - Feb. 3, Orlando, FL.
115. Simmers, G.E., Sodano, H.A., Park, G., and Inman, D.J., 2005, "Impedance Based Structural Health Monitoring to Detect Corrosion," Proceedings of the 23rd annual International Modal Analysis Conference (IMAC), Jan. 31 - Feb. 3, Orlando, FL.
116. Inman, D.J., Sodano, H.A. and Park, G., 2004, "Piezoelectric Materials for Structures: A State of the Art and Future of Harvesting," The Air Force/Army/NSF Joint Workshop on Multifunctional Structures for Energy Harvesting & Storage, Dec., Palo Alto, CA.
117. Sodano, H.A., Dereux, R., Simmers, G.E. and Inman, D.J., 2004, Power Harvesting Using Thermal Gradients for Charging Batteries," Proceeding of the 15th International Conference on Adaptive Structures and Technologies (ICAST), October 25-27th, Bar Harbor, ME.
118. Sodano, H.A., Bae, J.S., Inman, D.J. and Belvin, W.K., 2004, "Improved Eddy Current Damping Mechanism for Transverse Vibrations," Proceeding of the 15th International Conference on adaptive Structures and Technologies (ICAST), October 25-27th, Bar Harbor, ME.
119. Sodano, H.A., Lloyd, J. and Inman, D.J., 2004, "An Experimental Comparison between Several Active Composite Actuators for Power Generation," SPIE's 11th annual International Symposium on Smart Structures and Materials, March 14-18th, San Diego, CA.
120. Salehian, A., Sodano, H. A., Cliff, E. M., Herdman, T.L., Burns, J. A. and Inman, D. J., 2004, "Slewing Issues in LSS/ISAT (Integration of Smart Materials)," presented in NASA-LaRC, Hampton, VA.
121. Sodano, H.A., Park, G., and Inman, D.J., 2004, "Review of Power Harvesting Advances and Applications," Proceedings of the 22st annual International Modal Analysis Conference (IMAC), January 26-29th, Dearborn, MI.
122. Sodano, H.A., Park, G., Leo, D.J. and Inman, D.J., 2003, "Use of Piezoelectric Energy Harvesting Devices for Charging Batteries," SPIE's 10th annual International Symposium on Smart Structures and Materials, March 2-6th, San Diego, CA.
123. Sodano, H.A., Magliula, E.A., Park, G. and Inman, D.J., 2002, "Electric Power Generation Using Piezoelectric Devices," Proceeding of the 13th International Conference on adaptive Structures and Technologies (ICAST), October 7-9th, Potsdam/Berlim, Germany.

124. Sodano, H.A., Peairs, D.M., Magliula, E.A., Park, G. and Inman, D.J., 2003, "The Use of Macro-Fiber Composites in Structural Vibration Applications," Proceeding of the 21st International Modal Analysis Conference (IMAC), February 3-6th, Kissimmee, FL.
125. Ruggiero, E., Sodano, H.A., Park, G. and Inman, D.J., 2002, "Active Vibration Suppression of a Gossamer Spacecraft," Proceedings of the 14th U.S. National Congress of Theoretical and Applied Mechanics, Blacksburg, VA.

Conference Presentations Without Paper

1. L. Groo, D. J. Inman, and H. A. Sodano, 2018, Damage Localization in Fiber-Reinforced Composites Using an Integrated Zinc Oxide Nanowire Interphase, 29th International Conference on Adaptive Structures and Technologies (ICAST), Seoul, South Korea.
2. Sodano, H.A., 2018, Ultra-Long Vertically Aligned Lead Titanate Nanowire Arrays for Energy Harvesting in Extreme Environments, 4th International Conference on Nanogenerators and Piezotronics, May 8-11 Seoul, South Korea (Invited).
3. Sodano, H.A., Ferroelectric Nanowires for Highly Coupled Nanocomposite Energy Harvesting, MRS Spring Meeting and Exhibit, April 2-6, Phoenix, AZ (Invited).
4. Sodano, H.A., 2017, Piezoelectric Nanowires for Energy Harvesting, ASME's 9th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 18 – 20, Snowbird, UT.
5. Malakooti, M. and Sodano, H.A., 2017, Piezoelectric Energy Harvesters based on Lead Zirconate Titanate Nanowires and Films, International Workshop on Piezoelectric Materials and Applications (IWPMA) and the 12th Annual Energy Harvesting Workshop, Sept. 11 – 14, Fall Church, VA (Invited Talk).
6. Lin, J.J. and Sodano, H.A. Isolation of Aramid Nanofibers for High Strength and Toughness Polymer Nanocomposites, XXV International Materials Research Congress (IMRC), August 21-24, 2017, Cancun, Mexico
7. Sodano, H.A., 2017, Piezoelectric Nanowires: A Novel Technology for High Strength Composites, Sensors and Energy Systems, 7th JNRSE Conference, May 9-10, Lyon, France (Invited).
8. Sodano, H.A., International Workshop on Piezoelectric Materials and Applications (IWPMA) and Energy Conversion Materials and Devices (ECMD), August 21-24, 2016, Jeju, South Korea. (Plenary Talk)
9. Sodano, H.A., Hydrothermal Synthesis of Ferroelectric Nanowires with Enhanced Ferroelectric Properties for Power Scavenging, XXV International Materials Research Congress (IMRC), August 14-19, 2016, Cancun, Mexico
10. Sodano, H.A., Hydrothermal Synthesis of Conformal Textured BaTiO₃ Films with Enhanced Ferroelectric Properties, E-MRS Spring 2016, May 2-6, 2016, Lille France.
11. Sodano, H.A., 2016, ZnO Interfaces for High Strength Multifunctional Composites with Embedded Energy Harvesting, 3rd International Conference on Nanogenerators and Piezotronics, June 15th Rome, Italy (Invited).

INVITED SEMINARS, LECTURES AND PRESENTATIONS

1. Zhang, L. and Sodano, H.A., 2019, "Self-Healing CRFP Composites with High Thermal Stability," 22nd International Conference on Composite Materials (ICCM), August 11-16, Melbourne, Australia. (Invited)

2. Sodano, H.A., Towards a Paradigm Shift in Multifunctional Materials, Notre Dame University, South Bend, IN, December 4, 2018 (Graduate Seminar in Mechanical and Aerospace Engineering)
3. Sodano, H.A., 2018, Ultra-Long Vertically Aligned Lead Titanate Nanowire Arrays for Energy Harvesting in Extreme Environments, 4th International Conference on Nanogenerators and Piezotronics, May 8-11 Seoul, South Korea (Invited).
4. Sodano, H.A., 2018, Ferroelectric Nanowires for Highly Coupled Nanocomposite Energy Harvesting, MRS Spring Meeting and Exhibit, April 2-6, 2018 Phoenix, AZ (Invited).
5. Sodano, H.A., Towards a Paradigm Shift in Multifunctional Materials, Ohio State University, Columbus, Ohio, November 1, 2017 (Graduate Seminar in Mechanical and Aerospace Engineering)
6. Sodano, H.A., 2017, Piezoelectric Nanowires for Energy Harvesting, ASME's 9th Annual Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Sept. 18 – 20, Snowbird, UT (Invited Talk).
7. Sodano, H.A., 2017, Piezoelectric Energy Harvesters based on Lead Zirconate Titanate Nanowires and Films, International Workshop on Piezoelectric Materials and Applications (IWPMA) and the 12th Annual Energy Harvesting Workshop, Sept. 11 – 14, Fall Church, VA (Invited Talk).
8. Sodano, H.A., 2017, Piezoelectric Nanowires: A Novel Technology for High Strength Composites, Sensors and Energy Systems, 7th JNRSE Conference, May 9-10, Lyon, France (Invited Talk).
9. Sodano, H.A., 2016, ZnO Interfaces for High Strength Multifunctional Composites with Embedded Energy Harvesting, 3rd International Conference on Nanogenerators and Piezotronics, June 15th Rome, Italy (Invited Talk)
10. Sodano, H.A. 2016, Vertically Aligned Ferroelectric Nanowire Arrays for Energy Harvesting, University of New Orleans, New Orleans, LA Feb. 19th 2016 (Graduate Seminar)
11. Sodano, H.A. 2016, Towards a Paradigm Shift in Multifunctional Materials, University of Minnesota, Minneapolis MN, Sept. 19th 2015 (Graduate Seminar)
12. Sodano, H.A. 2015, "High Energy Density Polymer Nanocomposite Capacitors using Nanowires," ACERS Electronic Materials and Applications Conference, Jan. 21-23, Orlando, FL.
13. Sodano, H.A. 2015, "Piezoelectric Nanowires: A Novel Technology for High Strength Composites, Sensors and Energy Systems, University of Michigan, Materials Science and Engineering, January 19th (Graduate Seminar).
14. Sodano, H.A. 2014, Synthesis of Morphotropic Phase Boundary PZT Nanowires for Energy Harvesting," 1st International Conference on Nanoenergy and Nanosystems, Dec. 8-10, Beijing, China.
15. Sodano, H.A. 2014, "Nanowire Interphases for High Strength Multifunctional Composites, University of Florida, Chemical Engineering, Oct. 20th (Graduate Seminar).
16. Sodano, H.A. 2014, "Nanowire Interphases for High Strength Composites" TÜV Süd Headquarters, July 7th, Munich, Germany.
17. Sodano, H.A. 2014, "Vertically Aligned Barium Titanate Nanowires Arrays for Energy Harvesting," Institute for Nanoelectronics at the Technical University of Munich, June 26, Munich, Germany.
18. Sodano, H.A. 2014, "Vertically Aligned Barium Titanate Nanowires Arrays for Energy Harvesting," Institute for Microelectronics at the Technical University of Munich, June 2, Munich, Germany.

19. Sodano, H.A. 2014, "Vertically Aligned Barium Titanate Nanowires Arrays for Energy Harvesting," MRS Spring conference, April 21 - April 25, San Francisco, CA
20. Sodano, H.A., 2014, "Nanowire Interphases for High Strength Multifunctional Composites," University of Michigan, Aerospace Engineering Department, April 3, 2014 (Graduate Seminar).
21. Tang, H. and Sodano, H.A. 2014, Ultra High Energy Density of Nanocomposite Capacitors," TMS 143rd Annual Meeting & Exhibition, Feb. 16-20, 2014 San Diego, CA (Invited Presentation)
22. Sodano, H.A., 2014, "Tailored Interphases for High Strength Multifunctional Composites," University of Illinois – Urbana Champaign, Aerospace Engineering Department, February 10, 2014 (Graduate Seminar).
23. Bowland, C., Zhou, Z., and Sodano, H.A., "Electromechanical Characterization of Barium Titanate Coated Carbon Fibers," 19th International Conference on Composite Materials, Symposium on Composites with Sensing, Actuation, and Energy Transduction Capabilities, July 28-August 2, 2013, Montreal, Canada (Invited Speaker).
24. Sodano, H.A., 2012, "New Avenues for Functional Composites and Nanoscale Sensors," NASA Langley Research Center, Nov. 5th, Langley VA.
25. Sodano, H.A., 2012, "Multifunctional Composite Materials and Sensors with Nanowire Interfaces," ARL Aberdeen Proving Grounds, Oct. 24th, Aberdeen, MD.
26. Sodano, H.A., 2012, "Functionally Graded Interfaces in Composites via Nanowire Coated Fibers," Technical University of Munich, Sept. 28th, Munich Germany.
27. Sodano, H.A., 2012, "Functionally Graded Interfaces in Composites via Nanowire Coated Fibers," University of Wisconsin at Madison, March 8th, Madison, WI (Materials Science Graduate Seminar).
28. Sodano, H.A., 2011, "Nanowire Interfaces for Simultaneously Increased Strength and Functionality," Composites at Lake Louise Conference, October 30th – November 4th, Alberta, Canada
29. Sodano, H.A., 2011, "Multifunctional Materials and Nanocomposites for Energy Storage," Nanotechnology for Defense Conference (NT4D), October 24 – 27, Bellevue, WA.
30. Sodano, H.A., 2011, "Multifunctional Solutions for Piezoelectric Energy Harvesting," International Symposium on Green Manufacturing and Applications (ISGMA 2011), October 6 – 7, Seoul National University, Seoul, Korea (Keynote Speaker).
31. Sodano, H.A., "Multifunctional Composites with Functionally Graded Interfaces," Los Alamos Dynamic Summer School, Los Alamos National Laboratory, June 16th, 2011.
32. Sodano, H.A., "Nanowires for Functionally Graded Interfaces in Composites," Graduate Seminar Iowa State University, April 28th 2011, Ames Iowa, (Materials Science Graduate Seminar).
33. Sodano H.A., "Multifunctional Fibers for Embedded Energy Generation and Storage," Workshop on Revolutionary Fundamental Research in Support of Energy Harvesting, April 7th 2011, Austin, TX
34. Sodano H.A. "Multifunctional Structural Capacitors Consisting of Barium Strontium Titanate Coated SiC Fibers," Electronic Materials and Applications, Jan. 20st 2011 Orlando, FL (Invited Conference Presentation)
35. Sodano, H.A., "Graphene Nanocomposites for Thermal Interfaces" Intel, October 25th 2010.

36. Sodano, H.A., "Multifunctional Composites Enabled through a Ceramic Interphase," Army Research Laboratory at Aberdeen Proving Ground, Composites and Hybrid Materials Branch, June 17th 2010.
37. Sodano, H.A., "Multifunctional Composites for Energy Generation and Storage," Army Research Laboratory at Adelphi, Sensors and Electronic Devices Directorate, June 15th 2010.
38. Lin, Y. Ehlert, G. and Sodano, H.A., 2010, ZnO Nanowire Interphase for Increased Interfacial Strength in Fiber Reinforced Composites, Proceedings of the 2010 JSME M&M International Symposium for Young Researchers, March 1-3, 2010, California Institute of Technology, Pasadena, CA, USA.
39. Sodano, H.A., "Multifunctional Composites with a Responsive Interphase," Johns Hopkins University, Department of Mechanical Engineering, February 1, 2010 (Graduate Seminar)
40. Sodano, H.A., "Multifunctional Composites with a Piezoelectric Interphase," University of Florida, Mechanical and Aerospace Engineering Department, January 14, 2010 (Graduate Seminar)
41. Sodano, H.A., "Multifunctional Composites with a Piezoelectric Interphase," Texas A & M University – Aerospace Engineering Department, October 1, 2009 (Graduate Seminar)
42. Sodano, H.A., "Multifunctional Structures for Energy Harvesting," Texas A & M University – Mechanical Engineering Department, September 30, 2009 (Graduate Seminar)
43. Sodano, H.A., "Smart Materials for Multifunctional Structures," AIAA Phoenix Section Dinner Meeting, September 16, 2009.
44. Sodano, H.A., "Piezoelectric Based Energy Harvesting for Self-Powered Systems," University of Nevada – Reno, Department of Mechanical Engineering, October 24, 2008 (Graduate Seminar)
45. Sodano, H.A., "Energy Harvesting using Piezoelectric Materials," University of Nebraska – Lincoln, Engineering Mechanics Department, September 23, 2008 (Graduate Seminar)
46. Sodano, H.A., "Energy Harvesting for Self-Power Medical Electronics," 3rd Annual MicroElectronics Packaging & Test Engineering Council - Medical Electronics Symposium, September 25, 2008.
47. Sodano, H.A., "Eddy Current Damping in Structures," The Engineering Institute, Los Alamos National Laboratory, July 10, 2008.
48. Sodano, H.A., "Piezoelectric Based Energy Harvesting for Self-Power Systems," National Academy German-American Frontiers of Engineering, Irvine, CA, April 25-27, 2008.
49. Sodano, H.A., "Multifunctional Structures for Energy Harvesting," University of Illinois – Urbana Champaign, Aerospace Engineering Department, February 25, 2008 (Graduate Seminar)
50. Sodano, H.A., "Power Harvesting Using Piezoelectric Materials," PowerMEMS, Freiburg, Germany, November 28-29, 2007.
51. Sodano, H.A., "Harvesting of Ambient Energy for the Development of Self-Power Sensors," Wright Patterson Air Force Base, Dayton, OH, July 2007.
52. Sodano, H.A., "Multifunctional Materials for Enhanced Safety and Performance of Mechanical Systems, Department of Mechanical and Aerospace Engineering, Arizona State University, Tempe, AZ, March 2007 (Graduate Seminar)
53. Sodano, H.A., "Harvesting of Ambient Energy for the Development of Self-Power Sensors, Department of Mechanical Engineering, Virginia Tech, Blacksburg, VA, 2006.

54. Sodano, H.A., "Development of Eddy Current Damping Mechanisms for the Suppression of Structural Vibrations" Department of Aerospace Engineering, University of Colorado, Boulder, CO, Feb. 2005.
55. Sodano, H.A., "Development of Eddy Current Damping Mechanisms for the Suppression of Structural Vibrations" Department of Mechanical Engineering – Engineering Mechanics, Michigan Technological University, Houghton, MI, March 2005.

UNIVERSITY SERVICE

- Aerospace Engineering Search Committee (UM) – Department Level (2015-2018)
- Materials Science and Engineering Preeminence Search Committee (UF) – Department Level (2014-2015)
- Mechanical and Aerospace Search Committee (UF) – Department Level (2013-2014)
- Chemical Engineering Search Committee, External Member (UF) – College Level (2013-2014)
- Graduate Affairs Committee (ASU) – Department Level (2007-2009)
- Faculty Search Committee (ASU) – Department Level (2009)
- Undergraduate Affairs Committee (ASU) – Department Level (2009-2010)
- College Curriculum Committee (ASU) – College Level (2009-2010)

GRADUATE AND UNDERGRADUATE STUDENTS SUPERVISED

Current Students

- Kelsey Steinke (September 2016 – Present) Ph.D. Candidate
- Jalal Nasser (January 2017 – Present) Ph.D. Candidate
- LoriAnne Groo (July 2016 – Present) Ph.D. Candidate
- Jaehyun Jung (September 2018 – Present), Ph.D. Candidate
- Ruowen Tu (September 2019 – Present), Ph.D. Candidate

Graduated PhD Students

- Lisha Zhang, (January 15th, 2020) Ph.D. in Macromolecular Science and Engineering, University of Michigan, "Novel Self-Healable Thermosets and Their Carbon Fiber Reinforced Polymer (CFRP) Composites," 3M Aerospace.
- Alireza Nafari (May 17th, 2019), PhD in Aerospace Engineering, University of Michigan, "Flexible Piezoelectric Nanocomposite Energy Harvester for Extreme Temperature Applications,"
- Jiajun Lin (November 16, 2018) Dehydrofluorination Induced High Piezoelectric Poly (Vinylidene Fluoride) and Applications, PhD in Macromolecular Science and Engineering, University of Michigan, Consultant Engineer at Exponent, Shanghai, China.
- Hyun-Sik Hwang (March 22, 2017) PhD in Materials Science and Engineering, University of Florida, "Zinc Oxide Nanowire Interphase for Interfacial Reinforcement at High Strain Rates," Samsung Electronics, South Korea.
- Brendan Patterson (November 18th, 2016) PhD in Materials Science and Engineering, University of Florida, "The Study of Pearson Hard Soft Interactions for Nanoparticle Reinforced Fiber Composite Interfaces," Army Research Laboratory, Aberdeen Proving Grounds
- Chris Bowland (May 24th, 2016) PhD in Materials Science and Engineering, University of Florida, "Conformal Growth Methods of Ferroelectric Materials for Multifunctional Composites," Oak Ridge National Laboratory.

- Yun Seon Heo (December 2, 2015) PhD in Materials Science and Engineering, University of Florida, "Thermo-Responsive Self-Healing Polymers and Self-Healing Carbon Fiber Reinforced Composites,"
- Mohammad Malakooti (March 31, 2015) PhD in Mechanical Engineering, University of Florida, "Development of Piezoelectric Nanostructured Interfaces for Multifunctional Composites," Currently Assistant Professor at University of Washington.
- Zhi Zhou (November 19, 2014) Ph.D. in Materials Science and Engineering, University of Florida, "Scalable Synthesis of Ferroelectric Nanowires and Textured Films" Currently at Sonavation Inc
- Aneesh Koka (March 24, 2014) Ph.D. in Mechanical Engineering, University of Florida, "Dynamic Response Analysis of Piezoelectric Nanowire Arrays Based Nano-Electromechanical Systems" Currently at Lam Research
- Ulises Galan (July 11, 2013) Ph.D. in Mechanical Engineering, Arizona State University, "Interface Adhesive Properties of Wurtzite Materials for Carbon Fiber Composites" Currently at Universidad Autónoma de Querétaro
- Haixiong Tang (March 1, 2013) Ph.D. in Materials Science and Engineering, University of Florida, "Investigation of Structure-Property Relations in Nanocomposites for Energy Storage" Currently at Powdermet Inc.
- Gregory J. Ehler (May 3, 2012) Ph.D. in Mechanical Engineering, University of Florida, "Development of a Zinc Oxide Nanowire Interphase for Enhanced Structural Composites" Currently Research Staff at Wright Patterson Air Force Base
- Yirong Lin (August 21, 2009) Ph.D. in Mechanical Engineering, Arizona State University, "Multifunctional Piezoelectric Fiber Composites," Currently Assistant Professor at UTEP

Graduated MS Students with Thesis

- Michael Garcia (November 9, 2010) MS in Aerospace Engineering, Arizona State University, "Autonomous Structural Materials with Controlled Toughening and Healing," Currently at Intel
- Magdian Ulises GalanVera (April 28, 2010) MS in Mechanical Engineering, Arizona State University, "Zinc Oxide Nanowire Interphase for Carbon Reinforced Composites"
- Clark Andrews (March 31, 2010) M.S. in Mechanical Engineering, Arizona State University, "Electromechanical Coupling of Active 0-3 Nanocomposites with Lead Zirconate Titanate Nanowires," Currently at Boeing.
- Jonathan Granstrom (Dec. 2007) M.S. in Mechanical Engineering, Michigan Tech, "Smart Polymers for use in Power harvesting, Noise Control, and Self-Healing Polymers," Currently at Caterpillar Inc.
- Joel Feenstra (Dec. 2007) M.S. in Mechanical Engineering, Michigan Tech, "Piezoelectric Materials with Application to Power Harvesting and Sensing," Currently at MathWorks Inc.
- Sze Kwan Cheah (July 2006) M.S. in Mechanical Engineering, Michigan Tech, "Modeling and Application of an Eddy Current Damper for a Rotating System," Currently at Cummins Inc.

Post Docs

- Mohammad Malakooti (May 2015 – Sept. 2017) – Currently Post Doc at Carnegie Mellon
- Yirong Lin (Sept. 2009 – July 2011) – Currently Associate Professor at U. of Texas at El Paso
- Haixiong Tang (July 2013 – Sept. 2013) – Currently at Powdermet Inc.

Undergraduate Research Assistants:

- Kristin Lewis (Oct 2019 – March 2020) B.S. Chemical Engineering, University of Michigan
- Ruowen Tu (May 2017 – May 2019) B.S. Aerospace Engineering, University of Michigan – SURE Participant
- Zhi Ming Lin (June 2018 – August 2018) B.S. Aerospace Engineering, University of Michigan

- Daniel Wu (January 2018 – May 2018) B.S. Aerospace Engineering, University of Michigan
- Xuanzhe Tian (May 2017 – August 2017) B.S. Aerospace Engineering, University of Michigan – SURE Participant
- Hanxiang Li (May 2016 – August 2016) B.S. Aerospace Engineering, University of Michigan – SURE Participant
- Angelica Okorom (January 2016 – May 2016) B.S. Materials Science and Engineering, University of Michigan
- James Holper (January 2016 – May 2016) B.S. Aerospace Engineering, University of Michigan
- Douglas Ivanoff (May 2014 – August 2014) B.S. from University of Florida, MAE – REU Student
- Timothy Shankwitz (May 2014 – Dec 2014) B.S. from University of Florida, MAE – REU Student
- Alex Miller (May 2014 – Dec 2014) B.S. from University of Florida, MAE – REU Student
- John Hunter Spears (May 2014 – May 2015) B.S. from University of Florida, MAE – REU Student
- Peishi Chang (August 2013 – April 2015) B.S. from University of Florida, MSE
- Jason Baum (August 2012 – May 2014) B.S. from University of Florida, MSE
- Natalie Meeks (October 2011 – May 2013) B.S. from University of Florida, MSE – REU Student
- Nathan Sauder (December 2012 – May 2013) B.S. from University of Florida, MAE
- Jacob Mingear (December 2012 – May 2015) B.S. from University of Florida, MSE – REU Student
- Patrick Anderson (May 2012 – August 2013) B.S. from Calvin University, ME – REU Student
- Ethan Miller (October 2011 – August 2012) B.S. from University of Florida, MSE – REU Student
- Brent Dodson (May 2010 – December 2010) B.S. from Arizona State University
- Josh Romero (Feb. 2010 – August 2011) B.S. from Arizona State University – REU Student
- Colin Mothershead (Aug. 2009 – May 2010) B.S. from Arizona State University
- Zhenzhen huang (Jan. 2010 – April 2010) B.S. from Arizona State University
- Bassem Ziadeh (May 2009 – Sept. 2009) B.S. University of Jordan
- Nicholas Grapsas (January 2009 – May 2009) B.S. from Arizona State University
- Michael Garcia (January 2008 – August 2009) B.S. from Arizona State University
- Jeffery Mode (January 2009 – April 2009) B.S. from Arizona State University
- Guadalupe Ramirez (June 2008 – Sept. 2008) B.S. from Arizona State University
- John-Paul Deitz (December 2007 – March 2009) B.S. from Arizona State University
- Regal Ferrulli (February 2008 – May 2008) B.S. from Arizona State University
- Isaac Ziskin (December 2007 – February 2008) B.S. from Arizona State University
- Phillip Kneeland (December 2004 – August 2006) B.S. from Michigan Tech
- Steven Anton (December 2004 – August 2006) B.S. from Michigan Tech
- Scott M. Heibel (May 2005 – August 2005) B.S. from Virginia Tech
- Hunter Moore (Jan. 2005 – May 2005) B.S. from Virginia Tech
- Justin Green (May 2004 – August 2004) B.S. from Virginia Tech
- Remi Dereux (Aug. 2004 – Jan. 2005) B.S. Institut Catholique d’Arts et Metiers, Toulouse, France
- Garnett E. Simmers (Sept. 2003 – Aug. 2004) B.S. from Virginia Tech
- Andrew Wallace (June – Aug. 2003) B.S. from Virginia Tech
- Richard Grudet (Aug-Dec. 2002) B.S. from Institut Catholique d’Arts et Metiers, Toulouse, France
- Philip Gabler (May – Aug. 2003) B.S. from Virginia Tech
- Elizabeth Magliula (May-Aug. 2002) B.S. from Cooper Union University, NY