

John Youngsman, Ph.D.

1910 University Drive, Boise, ID 83725

johnyoungsman@boisestate.edu

PROFILE

Skilled research engineer with doctorate in engineering science. Interest in materials and structures for renewable energy, and sensing.

EDUCATION

Doctor of Philosophy, Engineering Science May 2009

Washington State University

Dissertation topic: Piezoelectric materials for energy harvesting, including materials behavior and improvements

Master of Science, Materials Science May 2006

Boise State University

Thesis topic: Mini- and Micro-Channel Devices in Low Temperature Co-fired Ceramics

Bachelor of Science, Mechanical Engineering May 2004

Boise State University

Bachelor of Arts, Economics May 1984

Whitman College

EXPERIENCE

Research Assistant Fall 2006-June 2009

Washington State University, Pullman, WA

Research focused on piezoelectric materials for energy harvesting.

- Experience in cleanroom environment through development of MEMs devices utilizing PZT
- Developed a vibration harvester that utilized PVDF piezoelectric films
- Improved device performance through geometry and materials changes
- Developed predictive model for device performance

Research Engineer Internship Summer 2006

Waters Corporation, Milford, MA

Team member in the development of a new technique of sample delivery utilized in current HPLC equipment

- Used expertise in mini-channel flow in LTCC to help develop new product
- Brought expertise in thick film LTCC processing to the lab

Research Assistant May 2004-May 2006

Boise State University

Conducted research utilizing Low Temperature Co-fired Ceramics as a materials system for meso-scale devices

- Developed procedures to generate small channels in LTCC
- Developed prototype field flow fractionation device
- Developed package and interconnects for an electrochemical sensor

Professor's Assistant

Aug 2005-Dec 2005

Boise State University

Assisted and instructed undergraduate students in classroom settings

Inventory Manager (part time)

Aug 2001-May 2004

Chelton Flight Systems, Boise, ID

Developed and maintained an inventory control system for the avionics company

- Generated part number system and bills of materials
- Trained shipping receiving/personnel
- Complied with FAA mandated supply chain requirements
- Worked with engineering to source parts
- Worked with accounting to provide accurate inventory reports

Various Positions

Nov 1987-Aug 2001

Vectra Fitness, Kent, WA

Facilities manager, inventory control, purchasing, special projects, shop supervisor, product development

Professional Associations and Affiliations

Materials Research Society, Materials Advantage, Tau Beta Pi

Honors and Awards

Materials Science Intern Award: F2006, S2007, F2007, S2008

Govilla Scholarship: F2006, S2007, F2007, S2008

Saupe Excellence Award: F2006, S2007, F2007, S2008

NASA SpaceGrant Science Opportunity Fellowship: Sum2007

CEA Interdisciplinary Research Fellowship: F2006, S2007

Center for Materials Research Scholarship: F2006, S2007, F2007, S2008

Patent #5,378,216 Adjustment system for exercise machines

Patent provisional #61/024,496 Frequency-tunable extensional-mode resonator for vibration energy harvesting

PUBLICATIONS**Master's Thesis**

Youngsman, J., "Mini- and Micro-Channel Devices in Low Temperature Co-fired Ceramics," Boise State University, 2006

Ph.D. Dissertation

Youngsman, J., "An Extensional Mode Resonator for Vibration Harvesting," Washington State University, 2009

Refereed JournalsYoungsman, J., Marx, B., Wolter, S., Glass, J., and Moll, A., *Miniature multi-electrode electrochemical cell in LTCC*. Journal of Microelectronics and Electronic Packaging, 2007. 4(1): p. 31.Morris, D.J., Youngsman, J.M., Anderson, M.J., and Bahr, D.F., *A resonant-frequency tunable, extensional mode piezoelectric vibration harvesting mechanism*. Smart Materials and Structures, 2008. 17(6): 065021.Youngsman, J., Luedeman, T., Morris, D., Anderson, M., Bahr, D., *A Model for an Extensional Mode Resonator Used as a Frequency-Adjustable Vibration Energy Harvester*, Journal of Sound and Vibration 2009. (accepted)**Conference Proceedings**

Youngsman, J., Plumlee, D.G., Schimpf, M., and Moll, A.J., *Mini- and Micro-Channel Devices in LTCC*, IMAPS/ACerS Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT), Baltimore, MD, April 10-13, 2005.

Youngsman, J., Marx, B., Wolter, S., Glass, J. and Moll, A.J., *Miniature Multi-electrode Electrochemical Cell in LTCC*, IMAPS/ACerS Ceramic Interconnect and Ceramic Microsystems Technologies (CICMT), Denver, CO, April 25-27, 2006.

Youngsman, J., Marx, B., Schimpf, M., Wolter, S., Glass, J., and Moll, A. *Low temperature co-fired ceramics for micro-fluidics*. 2006. San Diego, CA, United States: Institute of Electrical and Electronics Engineers Inc., Piscataway, NJ 08855-1331, United States.

Moeller, K., Besecker, J., Hampikian, G., Moll, A., Plumlee, D., Youngsman, J., and Hampikian, J.M. *A prototype continuous flow polymerase chain reaction LTCC device*. 2007. Vancouver, Canada: Trans Tech Publications Ltd, Stafa-Zuerich, CH-8712, Switzerland.

National and External Presentations (not already appearing in Proceedings list)

Youngsman, J., Morris, D., Bahr, D., Anderson, M. *The power behavior of a resonant frequency tunable piezoelectric vibration harvester*. Materials Research Society Spring Meeting, San Francisco, April 2008.

Youngsman, J., Morris, D., Anderson, M., Fleig, P., Lakeman, C., Bahr, D., *A frequency tunable piezoelectric vibration harvester for structural health monitoring*. MS&T08, Pittsburgh, October 2008.