Allison K. Murray

Marquette University *j* Department of Mechanical Engineering
414.288.3543 *j* allison.murray@marquette.edu

Education

Purdue University *j* West Lafayette, Indiana
Doctor of Philosophy, Mechanical Engineering (December 2019)
- Dissertation: *Exploring the Inkjet Printing of Functional Materials and Their Use in Energetic Systems and Sensing Applications*

Master of Science, Mechanical Engineering (August 2018)
Bachelor of Science, Mechanical Engineering (December 2015)

Professional Experience

Marquette University *j* Milwaukee, Wisconsin
Assistant Professor of Mechanical Engineering (2020-Present)
- Lead a research group focused on additive manufacturing and vibrations
- Study strategies to understand and enhance minoritized student experiences in engineering programs
- Instruct courses including: dynamics and vibrations

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Student Engagement

Marquette University j Milwaukee, Wisconsin
Assistant Professor, GEEN 2120: Dynamics (Fall 2020)
- Number of students: 18

Purdue University j West Lafayette, Indiana
Instructor, ME 274: Basic Mechanics II (Spring 2019)
- Number of students: 83
- Instructed 3-credit dynamics class with a 4.9/5 instructor rating and 4.4/5 course rating

Research Mentor (2016-2020)
- Number of students: 7
- Advised undergraduate students on projects relating to additive manufacturing, structural vibrations, sensor design, and software development
- Undergraduates published 3 journal papers, 1 patent, and 4 conference presentations

Stamps Scholar Graduate Student Advisor (2016-2020)
- Number of students: 52
- Advised executive board to develop student-led service initiatives
- Oversaw scholar-led organization of national conference for undergraduates demonstrating excellence in scholarship, leadership, and service

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Professional Engagement

- Ray W. Herrick Laboratories Industrial Advisory Meeting Student Chair (2018-2020)
- ASME Student Member (2015-2020)
- Control Engineering Practice Journal Reviewer (2018)
- ASME Dynamic Systems and Control Conference Reviewer (2020)

Select Awards and Honors

Purdue University j West Lafayette, Indiana
Ward A. Lambert Teaching Fellow (2018-2019)
- Identified for previous teaching successes and a desire to become a faculty member
- Received instructional training from a renowned educator and taught a course as the instructor-of-record

William E. Fontaine Graduate Research Fellow (2018-2019)
- Recognized for meaningful research contributions and engagement with the community

National Defense Industrial Association j Arlington, Virginia
Women in Defense HORIZONS Scholar (2018)
- Recognized for contributions to national security through research advancements

Stamps Charitable Foundation j Atlanta, Georgia
Stamps Scholar (2012-2015)
- Nationally identified as a student demonstrating excellence in scholarship, leadership, and service

2. M. J. Wadas, M. Tweardy, N. Bajaj, **A. K. Murray**, G. T.-C. Chiu, E. A. Nauman, and J. F. Rhoads. *Method of Detecting a Substance*. US Patent. Filed: July 19, 2018. US Patent Application 16/040,504.
3. T. J. Fleck, **A. K. Murray**, S. Son, G. T.-C. Chiu, I. Gunduz, and J. F. Rhoads. *3D Printed Fluoropolymer-based Energetic Compositions.* US Patent. Filed: March 14, 2018. US Patent Application 15/920,509.

Conference Abstracts and Presentations

Presenting author indicated by *

1. Z. A. Siefker*, **A. K. Murray**, X. Zhao, B. W. Boudouris, N. Bajaj, G. T.-C. Chiu, J. F. Rhoads. *A Resonant CO_2 Sensor Functionalized with a Polymerized Ionic Liquid.* IEEE Sensors. 30 October 2019.
2. **A. K. Murray**, J. R. Meseke*, N. Bajaj, J. F. Rhoads. *Addressing Sensing Statistics through Oscillator-Based Sensing Arrays*. IEEE Sensors. 28 October 2019.
3. **A. K. Murray***, J. R. Meseke, N. Bajaj, J. F. Rhoads. *An FPGA Controlled Oscillator Based Volatile Organic Compound Sensing Array*. ASME International Design Engineering Technical Conferences. 19 August 2019.
4. **A. K. Murray***, W. A. Novotny, N. Bajaj, I. E. Gunduz, S. F. Son, G. T.-C. Chiu, J. F. Rhoads. *Piezoelectric Inkjet Printed Metallic Igniters*. Printing for Fabrication 2018. 25 September 2018.
5. **A. K. Murray***, L. K. May, G. T.-C. Chiu, J. F. Rhoads. *Modeling the Transverse Vibration of Additively Manufactured Heterogeneous Beams*. ASME International Design Engineering Technical Conferences. 27 August 2018.
6. M. P. McConnell*, **A. K. Murray**, B. W. Boudouris, J. F. Rhoads. *Inkjet Printed, Conductive Polymer Spark Igniters*. ASME International Design Engineering Technical Conferences. 27 August 2018.
7. **A. K. Murray***, L. K. May, G. T.-C. Chiu, J. F. Rhoads. *Exploring the Transverse Vibration of Additively Manufactured Inhomogeneous Beams*. United States National Congress on Theoretical and Applied Mechanics. 8 June 2018.
8. **A. K. Murray***, W. A. Novotny, T. J. Fleck, I. E. Gunduz, S. F. Son, G. T.-C. Chiu, J. F. Rhoads. *Two-Component Additive Manufacturing of Nanothermite by Reactive Inkjet Printing*. American Physical Society, Shock and Compression of Condensed Matter. 13 July 2017.
9. **A. K. Murray***, W. A. Novotny, T. J. Fleck, I. E. Gunduz, S. F. Son, G. T.-C. Chiu, J. F. Rhoads. *Piezoelectric Inkjet Printing as a Method for the Selective Deposition of Energetic Material*. Society of Experimental Mechanics, Annual Conference. 15 June 2017.