Paris R. von Lockette, Ph. D

ASSOCIATE PROFESSOR, MECHANICAL ENGINEERING

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EDUCATION

- Ph.D. in Mechanical Engineering, University of Michigan, Ann Arbor, MI, 1999
- Master of Science in Mechanical Engineering, University of Michigan, Ann Arbor, MI, 1996
- Bachelor of Science in Engineering Science, Trinity University, San Antonio, TX, 1993

RESEARCH INTERESTS

- Multifield/Multifunctional Materials Development and Devices
  - Electromagnetically (EM) active polymer composites
  - Additive manufacturing of EM sensitive components
  - Multi-field processing – micro-architecture – property simulations
  - Magnetic field-powered mechanisms and locomotion
  - Magneto-active polymers in active vibration control
  - Origami Engineering
- Mechanics
  - Multi-physics modeling
  - Micro-architecture – property relationships
  - Hyperelastic smart materials
- Polymer Physics
  - Monte Carlo simulation of network formation
  - Optical and mechanical modeling / experimentation
  - Raman spectroscopy, birefringence

PROFESSIONAL EXPERIENCE

- Associate Professor, Mechanical Engineering Penn State University, University Park, PA, (2013 – present)
- Visiting Scientist, Mechanical and Aerospace Engineering, Rutgers, the State University of New Jersey, Piscataway, NJ (2011 – 2012)
- Associate Professor, Mechanical Engineering Rowan University, Glassboro, NJ (2004 – 2013)
- Assistant Professor, Mechanical Engineering Rowan University, Glassboro, NJ (1999 – 2004)
- Assistant Engineer, Winzen International Inc., San Antonio, Texas, (1992)

GRANTS AND FUNDING

- Funding Total: $6.5M ($1.5M Share)
- NSF Subtotal: $4.9M (Includes $2.6M Research/$1.3M Education/$0.9M Equipment)

G28. "Multi-material properties via multi-field processing on a single constituent set", NSF - CMMI-176218, $496,743, Paris von Lockette (PI), (2018 – 2021).

G27. "Multifunctional origami structures - Advancing the emerging frontier of active compliant mechanisms", NSF-EFRI-ODISSEI 1240459, $2,000,000, P. von Lockette (co-PI), (2012 – 2017).

G26. "Improving Problem-based Learning in a Large Junior-Level Mechanical Design Course," The Leonhard Center for Enhancement of Engineering Education, Penn State. $40,000.00, von Lockette, P. R. (co-PI), (2015 – 2016).

G25. "MRI R2: Acquisition of a Four Circle X-Ray Diffractometer for Use in Undergraduate Materials Research and Education", NSF DMR-0960003 , $263,000, (2010 – 2012), Paris von Lockette (co-PI)

G24. "MRI-R2: Acquisition of an X-ray Computed Tomography System", NSF CMMI-0959415, $296,650, Paris von Lockette (co-PI), (2010 – 2012).

G23. "Magneto-Mechanical Coupling in Isotropic vs. Anisotropic, Hard- vs. Soft-Magnetic Magnetorheological Elastomers (MREs)", NSF CMMI – 0927326, $78,000, P. von Lockette (PI), (2010 – 2012).

G22. "STEM Academy at Rowan (STAR) Program", Rowan University Non-Salary Faculty Grant Competition, $12,000, P. von Lockette (PI), (2009 – 2011).

G21. "S-STEM: Scholarships to Enhance the High-Tech Workforce of Southern New Jersey", NSF DUE-0806600, P. von Lockette (co-PI), $600,000, (2008 – 2013).

G20. "Investigation of Production Methods for DCG Holograms", RL Associates, Inc. Chester, PA, $6500, P. von Lockette (PI), (2012 – 2013).

G19. "Acquisition of a Clustered Computing System for Multidisciplinary Use", Dean's Indirect Award, $19,000, P. von Lockette (PI), (2011 – 2012).

G18. "MRI: Acquisition of a wavelength dispersive x-ray fluorescence spectrometer for use in undergraduate materials science and forensic research and education", NSF DMR-0821406 ,$227,422, 7/08 – 8/09, Paris von Lockette (Co-PI)

G17. "Strengthening of Aramid Fiber Composites", Absecon Mills, Cologne, NJ, $10,000, 8/08 – 5/09, Paris von Lockette (PI)

G16. "Formation of Atmospheric Ice Clouds for Laser Attenuation Experiments", Paris von Lockette (PI), RL Associates, Inc., Chester, PA, $5,000, 08/07 – 05/08.

G15. "Development of a Fog Chamber of Laser Attenuation Experiments", Paris von Lockette (PI), RL Associates, Inc., Chester, PA, $5,000, 08/05 – 05/06.

G14. "Development of a Tunable Optical Filter", Paris von Lockette (PI), RL Associates, Inc., Chester, PA, $5000, 8/03 – 5/04.

G13. "NSF REU in Pollution Prevention and Sustainability", NSF, Paris von Lockette (Senior Personnel), $240,513, 03/04 – 02/07.

G12. "NSF CCLI Digital Imaging Across the Curriculum", NSF, Paris von Lockette, (Senior Personnel), $221,466, 03/03 – 02/06.

G11. "NJ State Initiative on Science and Technical Research – Materials Outreach and Education", New Jersey Commission on Science and Technology, Paris von Lockette (PI), $50,000, 9/02 – 8/05.

G10. "MRI: Acquisition of an Atomic Force Microscope for Research and Education", NSF DMR-0216795, Paris von Lockette (PI), $153,000, 9/02 – 8/03.

G9. "Development of Computational Materials Science Laboratory at Rowan University", Sun Microsystems Educational Equipment Grant, Paris von Lockette (PI), $12,000, 2/02.

G8. "Virtual Synthesis Techniques: Monte-Carlo Optimization of Polymer Networks", Lindback Foundation, Paris von Lockette (PI), $14,000, 8/01 – 7/02.

G7. "Hands-On Learning in an Interdisciplinary Materials Science Curriculum", NSF DUE-0126657, Paris von Lockette (co-PI), $68,000, 06/01 – 05/03.

G6. "Center for Materials Research: Materials Science Research and Education at Rowan University", New Jersey High-Tech Workforce, Paris von Lockette (co-PI), 09/01 – 08/04, $1,400,000.

G5. "Hands on the Human Body", NSF Award No. DUE-0088437, Paris von Lockette (senior personnel), 06/01 – 05/03, $162,000.

G4. "Design of Elastomeric-Piezoceramic Smart Structures for Use as Tunable Resonators", P. von Lockette (PI), NSF CMS-0116240, 09/01 – 08/02, $84,820.

G3. "Visual Beams for Statics and Solid Mechanics", P. von Lockette (co-PI), NSF DUE-087683, 12/00 – 12/02, $40,000.

G2. "Development of Smart Rubber Active Motor Mount", P. von Lockette (co-PI), Continental Tire, Germany, 6/00 – 5/01, $5,000.

G1. "Acquisition of Two Applied Test Systems, Series 2330 Creep Machines", Mobil Technology Company, P. von Lockette (co-PI), 05/99, $29,300.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

J22. Breznak, C., and vonLockette, P. (2019) "Three-Dimensional Printing of Magnetic Data Storage Structures", *MRS Advances*, available currently online only.

J21. Erol, A., Ahmed, S., Ouanies, Z., and von Lockette, P. (2019) "A microstructure-based approach to modeling electrostriction that accounts for variability in spatial locations of domains", *Journal of the Mechanics and Physics of Solids*, **124**.

J20. Butler, J., Bowen, L., Wilcox, E., Shrager, A., Frecker, M., von Lockette, P., Simpson, T. W., Lang, R. J., Howell L.L., and Magleby, S.P. (2018) "A Model for Multi-Input Mechanical Advantage in Origami-Based Mechanisms", *Journal of Mechanisms and Robotic*, **10**:6.

J19. Cowan, B., von Lockette, P. (2017), "Fabrication, characterization, and heuristic trade space exploration of magnetically actuated Miura-Ori origami structures", *Smart Materials and Structures*, **26**:4.

J18. Bowen, L., K. Springsteen, S. Ahmed, E. Arrojado, M. Frecker, T. Simpson, Z. Ounaies, and P. VonLockette (2017), "Design, fabrication, and modeling of an electric-magnetic self-folding sheet", *ASME Journal of Mechanisms and Robotics*, **9**:2.

J17. Breznak, C. and P. VonLockette (2017), "Anisotropic Magnetic Fibers Produced *via* a Magnetic Drawing Process", *MRS Advances*, **2**:16.

J16. Breznak, C. and P. VonLockette (2016), "Evolution of the magnetization response of magneto-active elastomers made with hard-magnetic M-type barium hexaferrite particles", *MRS Advances*, **1**:1.

J15. Crivaro,A., Sheridan, R., Frecker,M., Simpson, T., and P. vonLockette (2016), "Bistable compliant mechanism using magneto active elastomer actuation", *Journal of Intelligent Material Systems and Structures*, **27**:15.

J14. Bowen, L., Springsteen, K., Feldstein, H., Frecker, M., Simpson, T.W., and von Lockette, P. (2015), "Development and Validation of a Dynamic Model of Magneto-Active Elastomer Actuation of the Origami Waterbomb Base", *Journal of Mechanisms and Robotics*, **7**:1.

J13. Sheridan, R. Roche, J., Lofland, S.E., and von Lockette P. (2014), "Numerical simulation and experimental validation of the large deformation bending and folding behavior of magneto-active elastomer composites", *Smart Materials and Structures*: *Special Issue on Origami Engineering*, **23**:9.

J12. Anderson, K., Bravoco, R., Hargrave, W., Roche, J., von Lockette, P. and Lofland, S.E. (2015)",Dynamic shear response of hard versus soft magnetic magnetoactive elastomers", *Smart Materials and Structures,* **24**:2.

J11. von Lockette, P. Lofland, S., Mineroff, J., Roche, J., Babock, M. (2011) "Investigating new symmetry classes in magneto-rheological elastomers: cantilever bending behavior", *Smart Materials and Structures,* **20**:10.

J10. Dahm, K., Riddell, W., Constans, E., Courtney, J., Farrell, S., Harvey, R., Jansson, P., von Lockette, P. (2009), "Implementing the converging – diverging model of design in a sequence of sophomore projects", *Advances in Engineering Education,* **1**:3.

J9. von Lockette, P., Lofland, S., Koo, J, Kadlowec, J, Dermond, M (2008) "Dynamic characterization of bimodal particle mixtures in silicone rubber magnetorheological materials", *Polymer Testing* **27**:8.

J8. Riddell, W., Courtney, J., Constans, E., Dahm, K., Harvey, R., von Lockette, P. (2008) "Connections between engineering design and technical writing in an integrated instructional setting", *Design Principles and Practices,* **2**:4.

J7. von Lockette, P. (2008), "Examination of the effects of computationally determined network topology on an analytical constitutive model for bimodal elastomers", *Polymer,* **49**:23.

J6. Kadlowec, J., Bhatia, K., Chandrupatla, T., Chen, J., Constans, E., Hartman, H., Marchese, A., von Lockette, P., Zhang, H. (2007) "Design integrated in the mechanical engineering curriculum: Assessment of the engineering clinics", *ASME Journal of Mechanical Design*, **129**:7.

J5. Jahan, K., Chen, J., Mandayam, S., Krchnavek, R., Sukumaran, B., Mehta, Y., Kadlowec, J., von Lockette, P., Polikar, R. (2004) "Digital imaging experiences for undergraduate engineering students", *World Transactions on Engineering and Technology Education,* **3**:2.

J4. von Lockette and E.M. Arruda (2002), "Mesoscale modeling of bimodal elastomer networks: Mechanical and optical theory and results" *Macromolecules,* **35**:18.

J3. von Lockette, P., and Arruda, E.M. (2001) "Computational annealing of simulated bimodal networks", *Computational and Theoretical Polymer Science*, **11:**6.

J2. von Lockette, P., and Arruda, E.M. (1999) "A network description of the non-Gaussian stress-optic and Raman scattering responses of elastomer networks", *Acta Mechanica* **134:**1.

J1. von Lockette, P. and E. M Arruda (1999) "Topological studies of bimodal networks", *Macromolecules* **32:**6.

TECHNICAL CONFERENCE PROCEEDINGS AND/OR PRESENTATIONS

TC26. Erol, A., Frecker, M., von Lockette, P. (2018) "Multi-field, Multi-layer, and Segmented Composite Beam Optimization for Shape, Work, and Cost", to be presented at *ASME International Mechanical Engineering Congress & Exposition (IMECE)*. Pittsburgh, PA. IMECE2019-89910.

TC25. Erol, A., Frecker, M. von Lockette, P. (2018) "A Microstructure-Based Modeling Approach for Electrostriction in Relaxor Ferroelectrics", to be presented at *ASME International Mechanical Engineering Congress & Exposition (IMECE)*. Pittsburgh, PA. IMECE2019-89912.

TC24. Masud, M.A.A., Ounaies, Z., von Lockette, P. (2018) "Multi-Field Processing of Micro-platelets for Magneto-Active Applications", in *Proceedings of the ASME 2018 Conference on Smart Materials Adaptive Structures and Intelligent Systems*. San Antonio, TX, SMASIS2018-8080.

TC23. Erol, A., von Lockette, P., Frecker, M. (2018) "Parameter Study of a Multi-Field Actuated, Multilayered, Segmented Flexible Composite Beam, in *Proceedings of the ASME 2018 Conference on Smart Materials Adaptive Structures and Intelligent Systems*. San Antonio, TX, SMASIS2018-8215.

TC22. Wei Zhang; Anil Erol; Saad Ahmed; Sarah Masters; Paris von Lockette; Zoubeida Ounaies; Mary Frecker (2017) Finite Element Analysis of Electroactive and Magnetoactive Coupled Behaviors in Multi-Field Origami Structures in *Proceedings of the ASME 2017 Conference on Smart Materials Adaptive Structures and Intelligent Systems*. Snowbird, UT, SMASIS2017-3850

TC21. Anil Erol; Saad Ahmed; Paris von Lockette; Zoubeida Ounaies (2017) Analysis of Microstructure-Based Network Models for the Nonlinear Electrostriction Modeling of Electro-Active Polymers, in *Proceedings of the ASME 2017 Conference on Smart Materials Adaptive Structures and Intelligent Systems*. Snowbird, UT, SMASIS2017-3979.

TC20. Md Abdulla Al Masud; Noel D'Souza; Paris von Lockette; Zoubeida Ounaies (2017) On the Dielectrophoretic and Magnetic Alignment of Magnetoactive Barium Hexaferrite-PDMS Nanocomposites , in *Proceedings of the ASME 2017 Conference on Smart Materials Adaptive Structures and Intelligent Systems.* Snowbird, UT, SMASIS2017-3988.

TC19. Cowan, B. and vonLockette, P. (2017) Trade Space Exploration of a Magnetically Actuated Miura-Ori Structure, *Proceedings of the ASME 2017 Conference on Smart Materials Adaptive Structures and Intelligent Systems*. Snowbird, UT, SMASIS2017- 3867.

TC18. Rodriguez-Aurelio, M. and P. von Lockette (2017) Evolution of texture in the fabrication of magneto-active elastomers. in *Proceedings of the ASME 2017 Conference on Smart Materials, Adaptive Structures, and Intelligent Systems.* Snowbird, UT: ASME.

TC17. Anil Erol, Sarah Masters, Paris von Lockette and Zoubeida Ounaies (2016) On the Modeling and Experimental Validation of Multi-Field Polymer-Based Bimorphs. in *Proceedings of the ASME 2016 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*. Stowe, VT., SMASIS2016-9178.

TC16. Elaine Sung, Anil Erol, Mary Frecker and Paris von Lockette (2016) Characterization of Self-Folding Origami Structures Using Magneto-Active Elastomers, *Proceedings of the ASME 2016 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Charlotte, NC, DETC2016-59919.

TC15. Carlye Lauff; Timothy W. Simpson; Mary Frecker; Zoubeida Ounaies; Saad Ahmed; Paris von Lockette; Rebecca Strzelec; Robert Sheridan; Jyh-Ming Lien (2014) Differentiating Bending From Folding in Origami Engineering Using Active Materials , *Proceedings ASME. 46377; Volume 5B: 38th Mechanisms and Robotics Conference*, Buffalo, NY, DETC2014-34702.

TC14. Sheridan, R., Tedesco, C., von Lockette, P. and Frecker, M. (2014) Modeling Magneto Active Composites Using the Finite Element Method. *Proceedings of the ASME 2014 Conference on Smart Materials Adaptive Structures and Intelligent Systems.*Newport, RI, SMASIS2014-7705.

TC13. von Lockette, P. R. (2014) Fabrication and Performance of Magneto-active Elastomer Composite Structures. *Proceedings of the ASME 2014 Conference on Smart Materials, Adaptive Structures, and Intelligent Systems*. New Port, RI, SMASIS2014-7590.

TC12. vonLockette, P., Sheridan, R, Folding Actuation and Locomotion in Novel Magneto-Active Elastomer (MAE) Composites, *Proceedings of the ASME 2013 Smart Materials, Adaptive Structures, and Intelligent Systems Conference*, Snowbird, UT, SMASIS2013-3222

TC11. vonLockette, PR, Sheridan, R (2013) "Folding Actuation and Locomotion in Novel Magneto-Active Elastomer (MAE) Composites", *Proceedings of the ASME 2013 Smart Materials, Adaptive Structures, and Intelligent Systems Conference*, Snowbird, UT, SMASIS2013-3222

TC10. Saad Ahmed; Carlye Lauff; Adrienne Crivaro; Kevin McGough; Robert Sheridan; Mary Frecker; Paris von Lockette; Zoubeida Ounaies; Timothy Simpson; Jyh-Ming Lien; Rebecca Strzelec, (2013) "Multi-Field Responsive Origami Structures: Preliminary Modeling and Experiments", *Proceedings of the ASME. 55942; Volume 6B: 37th Mechanisms and Robotics Conference*, Portland, Oregon, DETC2013-12405.

TC9. von Lockette, P. (2012) Actuation Behavior in Patterned Magnetorheological Elastomers: Simulation, Experiment, and Modeling, *Proceedings of the 2012 Smart Materials, Adaptive Structures, and Intelligent Systems Conference*, Stone Mountain, GA, SMASIS2012- 8143.

TC8. von Lockette, P., Lofland, S. (2011) "Role of magnetization anisotropy in the active behavior of magnetorheological elastomers", *Proceedings of the 2011 Smart Materials, Adaptive Structures, and Intelligent Systems Conference*, Scottsdale, AZ, SMASIS2011-5115.

TC7. von Lockette, P., Lofland, S., Biggs, J. (2009) "Investigating New Symmetry Classes for the Next Generation of Magneto Rheological Elastomers", *Proceedings of the 2009 Smart Materials, Adaptive Structures, and Intelligent Systems Conference*, Oxnard, CA, SMASIS2009-1310.

TC6. von Lockette, P., Koo, J-H., Kadlowec, J. (2006) "Particle Mixtures in Magnetrheological Elastomers", Proceedings Volume 6170, Smart Structures and Materials 2006: Active Materials: Behavior and Mechanics, SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring, San Diego, CA, 61700T.

TC5. P. von Lockette , J-H Koo, J. Kadlowec, (2005) "Development of Tunable Vibration Absorbers Using Magnetrheological Elastomers", *Proceeding of the 2005 ACS Rubber Division Technical Meeting*, Pittsburg, PA, Paper# 86.

TC4. von Lockette, P., (2002) "Incorporating Network Morphology into a Network Constitutive Model", Society of Engineering Science Conference, Pennsylvania State University, PA.

TC3. von Lockette, P. and Arruda, E.M. "Statistical and Computational Modeling of Bimodal Elastomer Networks", Society of Engineering Science Conference, University of South Carolina, SC.

TC2. von Lockette, P. and Arruda, E.M. (1998) "Computer Simulations of Bimodal Networks", Society of Engineering Science Conference, University of Washington.

TC1. von Lockette, P. and Arruda, E.M. (1997) "Stress-Optical Behavior of Inhomogeneously Deformed Bimodal Elastomer Materials", The Institute of Materials: Deformation Fracture and Yield Conference, Cambridge, England.

EDUCATIONAL CONFERENCE PROCEEDINGS

EC21. Riddell, W., Paris R. von Lockette, "Freshman Engineering Projects Related to Home Energy Use", 2013 ASEE Northeast Section Conference, Norwich University, March 14-16, 2013.

EC20. von Lockette, P., E. Constans, J. Courtney, K. Dahm, R. Harvey, W. Riddell, "Converging-Diverging Design Strategies in a Sophomore Level Design Sequence: Review of an Electromechanical Project" (2007) *Proceedings of the American Society of Engineering Education (ASEE) National Conference*, AC 2007-2024.

EC19. Kadlowec, J., Bhatia, K., Chandrupatla, T., Chen, J., Constans, E., Marchese, A., von Lockette, P., Zhang, H. (2006) "Integrating Design Throughout the Mechanical Engineering Curriculum: the Engineering Clinics", *Proceedings of the American Society of Mechanical Engineering (ASME) International Design Engineering Technical Conference*, Philadelphia, PA, Sept. 10-13

EC18. von Lockette, P., E. Constans, J. Courtney, K. Dahm. W. Riddell, J. Harvey (2006) "Bottle rockets and parametric design in a converging diverging design strategy", *Proceedings of the American Society for Engineering Education (ASEE) Annual Conference*, Chicago, Illinois.

EC17. von Lockette P. (2006) "Algorithmic Thinking and MATLAB", *Proceedings of the American Society for Engineering Education (ASEE) Annual Conference*, Chicago, Illinois.

EC16. Jahan, K., Chen, J., Mandayam, S., Krchnavek, R., Sukumaran, S., Mehta, Y., Kadlowec, J., von Lockette, P., Orlins, J. and Polikar, R. (2006) "Digital Imaging Experiences for Engineering Students", *Proceedings of the American Society for Engineering Education Conference*, Chicago, IL

EC15. Jahan, K., John Chen, Shreekanth Mandayam, Robert Krchnavek, Beena Sukumaran, Yusuf Mehta, Jennifer Kadlowec, Paris von Lockette, Robi Polikar (2005) "A Picture is Worth a Thousand Words", *Proceedings of the Mid-Atlantic ASEE Spring Conference*, Teaneck, New Jersey.

EC14. Jahan, K., Savelski, M., Orlins, J., Mehta, Y., Riddell, W., Farrell, S., Tang, G., Marchese, A., von Lockette, P., Richmond, C., Yang, C., Sukumaran, B., Mosto P., and Miller, D. (2005) "Undergraduate Research Experiences in Pollution Prevention and Sustainability", *Proceedings of the ASEE Annual Conference*, Portland, OR.

EC13. Jahan, K., Savelski, M., Orlins, J., Mehta, Y., Riddell, W., Farrell, S., Tang, G., Marchese, A., von Lockette, P., Richmond, C., Yang, C., Sukumaran, B., Mosto P., and Miller, D. (2004) "Research

Experiences in Pollution Prevention and Sustainability", *Proceedings of the 3rd ASEE International Colloquium on Engineering Education*, Beijing, China.

EC12. Jahan, K., Savelski, M., Orlins, J., Mehta, Y., Riddell, W., Farrell, S., Tang, G., Marchese, A., von Lockette, P., Richmond, C., Yang, C., Sukumaran, B., Mosto P., and Miller, D. (2004) "Research Experiences in Pollution Prevention and Sustainability for Undergraduates", *Proceedings of the Mid-Atlantic ASEE Fall Conference*, Washington D.C.

EC11. Jahan, K., Chen, J., Mandayam, S., Krchnavek, R., Sukumaran, B., Mehta, Y., Kadlowec, J., von Lockette, P., Polikar R., (2004) "Digital Imaging for Undergraduates", *Proceedings of the Mid-Atlantic ASEE Fall Conference*, Washington D.C.

EC10. Jahan, K., Chen, J., Mandayam, S., Krchnavek, R., Sukumaran, B., Mehta, Y., Kadlowec, J., von Lockette, P., Polikar R., (2004) "Digital Imaging for Engineering Students", *Proceedings of the ASEE Annual Conference*, Salt Lake City, UT.

EC9. Jahan, K., Chen, J., Mandayam, S., Krchnavek, R., Sukumaran, B., Mehta, Y., Kadlowec, J., von Lockette, P., Polikar R., (2003) "Digital Imaging Across the Curriculum", *Proceedings of the Mid-Atlantic ASEE Fall Conference*, Baltimore, MD.

EC8. Kadlowec, J., von Lockette, P., Constans, E., Sukumaran, B. and Cleary, D. (2003) "Combining Laboratory Innovation and Design into Tools for Mechanics." *Proceedings of the American Society for Engineering Education Conference,* Nashville, TN

EC7. Cleary, D., Kadlowec, J., Newell, J. and von Lockette, P. (2003) "Incorporation of Hands-on Learning into the Materials Science Curriculum." *Proceedings of the American Society for Engineering Education Conference,* Nashville, TN

EC6. Kadlowec, J., von Lockette, P.,R. Constans, E., Sukumaran, B. and Cleary, D. (2002) "Visual Beams: Tools for Statics and Solid Mechanics." Proceedings *of the Frontiers in Education Conference*.

EC5. Kadlowec, J., von Lockette, P., Constans, E., Sukumaran, B. and Cleary, D. (2002) "Hand-on Learning Tools for Engineering Mechanics." *Proceedings of the American Society for Engineering Education Conference,* Montreal, Canada.

EC4. . K. Jahan, Hollar, K., Head, L. Constans, E., and von Lockette, P. (2002) "Getting Students to Think About Alternate Energy Sources", *Proceedings of the Annual ASEE Conference*, Montreal, QC.

EC3 . Pearle, K., Cleary, D., Constans, E., Dainton, G., Farrell, S., Harvey, R., Head, L, Hollar, K, Hutto, D, Jahan, K., Johnson, C, Kadlowec, J., Orlins, J., Pietrucha, B. and von Lockette, P. (2002) "Using Your Brain to Build Teams that Work: A Study of the Freshman and Sophomore Engineering Clinics at Rowan University." *Proceedings of the American Society for Engineering Education Conference*, Education Research and Methods Division, Montreal, QC.

EC2. Marchese, A., Constans, E., Dahm, K. , Hollar, K., Hutto, D., Johnson, F., Sun C., and von Lockette, P., Kadlowec, J., Cleary D., and Sukumaran, B. "The Sophomore Engineering Clinic I: Integrating Statics, Solid Mechanics and Product Development in a Sophomore Level Design Course (2001)", *Proceedings of the Annual ASEE Conference*, June 2001, Albuquerque, New Mexico.

EC1. Chandrupatla, T.R, Chen, J.C., Constans, E., Gabler, H.C., Kadlowec, J., Marchese, A., von Lockette, P., and Zhang, H. (2001) "Engineering Clinics: Integrating Design throughout the ME Curriculum", *Proceedings of the International Mechanical Engineering Conference and Exposition*, New York, NY. Honorable Mention for Curriculum Innovation Award

INVITED TECHNICAL PRESENTATIONS

IS8. Invited Talk: P. Von Lockette, "Multifield Processing of Multifield Composites", 2018 Materials Research Society (MRS) Fall Meeting, Boston, MA, November 2018.

IS7. Invited Talk: P. Von Lockette, "Multifield Processing of Multifield Composites", 71st International Center for Acoustics and Transducers (ICAT) Symposium, State College, PA, October 2018.

IS6. Invited Talk: P. Von Lockette, "Magneto-Active Composites and Structures", 70th International Center for Acoustics and Transducers (ICAT) Symposium, State College, PA, October 2017.

IS5. Invited Talk: P. von Lockette, “Magneto-active elastomer materials, composites, and structures”, Materials Science and Engineering Departmental Seminar Series, Rutgers University, March 2013.

IS4. Invited Talk: P. von Lockette, ”Dynamic Response and Actuation in Magnetorheological Elastomers”, Penn State University, Center for Acoustics and Vibration Seminar Series, April 2012.

IS3. Invited Talk: P. von Lockette, “Investigating symmetry classes in magneto-rheological elastomers (MREs)”, University of Pennsylvania, Mechanical Engineering Departmental Seminar Series, October 2011.

IS2. Invited Talk: P. von Lockette, “Investigating new symmetry classes in magneto-rheological elastomers”, Rutgers University Mechanical and Aerospace Engineering Department, Departmental Seminar Series, February 2011.

IS1. Invited Talk: P. von Lockette , “Magnetorheological Elastomers: Particle Distributions and Tunable Vibration Absorbers”, Drexel Seminar on Materials Research, April 2008.

STUDENT RESEARCH AND MENTORING

DOCTORAL AND MASTER’S THESES ADVISED

T12. Anil Erol (expected 2019) “Modeling and Simulation of Dipole-Driven Smart Polymers”, Doctoral Thesis, Penn State University, Mechanical Engineering.

T11. Corey Breznak (expected 2020) “Multiscale Origins of Magnetic Signatures in Electromagnetically Responsive MEAM Parts”, Doctoral Thesis, Penn State University, Mechanical Engineering.

T10. Mathew Sinnott (expected 2019) “Bistable Micro-architectures in Magneto-Active Polymer Composites”, *Master’s Thesis, Penn State University Mechanical Engineering*.

T9. Tyler Haussener (2016) “ Determining the Effect of Increased Volume Fraction of Barium Ferrite in Magneto-Active Elastomers”, *Master’s Thesis, Penn State University Mechanical Engineering*.

T8. Brett Cowan (2015) “Trade Space Exploration of a Magnetically Actuated Miura-Ori Structure”, *Master’s Thesis, Penn State University Mechanical Engineering*.

T7. Katherine Leshkow (2015) “Designing and Fabricating a Magneto-Active Structure Capable of Forward Movement”, *Master’s Thesis, Penn State University Mechanical Engineering*.

T6. Robert Sheridan (2014) “Numerical Simulation and Experimental Validation of the Large Deformation Bending and Folding Behavior of Magneto-Active Elastomer Composites”, *Master’s Thesis, Penn State University Mechanical Engineering*.

T5. Juan Roche (2012) “Elasto-Magnetic Behavior in Hard- and Soft-MREs Including Demagnetizing Effects”, *Master’s Thesis, Rowan University Mechanical Engineering.*

T4. Joseph Biggs (2010) “Investigating New Symmetry Classes for the Next Generation of Magnetorheological Elastomers”, *Masters Thesis, Rowan University Mechanical Engineering.*

T3. Larry Pologruto (2006) “MRE’s in Tunable Vibration Absorbers”, *Master’s Thesis, Rowan University Mechanical Engineering*.

T2. Steven Miller, (2004) "Design of Tunable Vibration Absorbers Using Pieozoceramic-Rubber Composites", *Master’s Thesis, Rowan University Mechanical Engineering*.

T1. Sarah Hart (2004) “Piezoelectric rubber composites for use in laser data transmission”, *Master’s Thesis, Rowan University Mechanical Engineering*.

UNDERGRADUATE RESEARCH ADVISED

UG22. Althoff, L. (2018)"Design and Fabrication of Magnetically Actuated Origami Structures." Mechanical and Nuclear Engineering Schuman Scholar.

UG22. Watson, N. (2018) "Additive Manufacturing of Magnetic Materials." Sponsored Research.

UG24. Murt, D. (2017) "Altering Buckling Loads in Magnetically Sensitive Columns." Schreyer Honors Thesis.

UG23. Li, K. (2017) "Simulation and Fabrication of Magnetic Elastomer Devices in Low Reynolds Fluid Flow." Schreyer Honors Thesis, Sponsored Research.

UG21. Haelsig, A. (2017) "Developing of a 4D Printing Process for Magnetically Active Elastomer." Sponsored Research.

UG20. Yost, L. (2016), Undergraduate, "Developing of a 4D Printing Process for Magnetically Active Elastomer." Sponsored Research.

UG19. Bilyk, M. (2014) "Development of a 3D Printing System for Poled Magneto-Active Elastomers." (2014). Sponsored Research.

UG18. Kassner, C., Riddell (Advisor).R. (Co-Advisor) (2013) "Systematic Investigation of Magnetostriction in Composite Magnetorheological Elastomers: the Effect of Particle Shape, Alignment, and Volume Fraction", Rowan STEM Conference.

UG17. Gedrimas, N., Holsman, N., Larson, B-A, von Lockette, P. R.(co-Advisor), Riddell, W. (Advisor) (2013) "The Mechanics of Single-Fiber Pull-Out", Rowan STEM Conference.

UG16. Thompson, E., Rycek, J., Mcclemore, C., von Lockette, P., (2013) "Dielectric Elastomer Actuation Optimization at Rowan University", Rowan STEM Conference.

UG15. Cosgrove, J., Jacobs, B., Sennstrom, I. , Wasserman, J. von Lockette, P. (2011) "MRE Applications", Rowan STEM Conference.

UG14. Clohessy, A., Carderelli, A., Silbernagel, M., Riddell, W. (co-advisor), von Lockette, P. (advisor) (2011) "Fiber Mechanics Study", Rowan STEM Conference.

UG13. Roche, J , Lofland, S. (co-advisor), von Lockette, P. (2011) "Study of Hard-and Soft-Magnetorheological Elastomers (MRE's) Actuation Capabilities", Comsol Users Conference, 2011, Boston, MA.

UG12. Rosenthal, A., Tigue, J., Zee, J., von Lockette, P. (2010) Fiber Mechanics Study", Rowan STEM Conference.

UG11. Babock, M, Mineroff, J, Lofland, S. (co-advisor), von Lockette, P. (advisor) (2010) "Magnetorheological Elastomers in Damped Free Vibration Testing", Rowan STEM Conference.

UG10 Forosisky, E., Marino, D., Riddel, W (co-advisor), von Lockette (advisor) (2009) "Fiber-Matrix Interface Analysis", Rowan STEM Conference.

UG9. Biggs, Joseph, Lofland, S. (co-advisor), von Lockette, P.(advisor) (2009) "Investigation of Magnetorheological Elastomers Made from Hard vs. Soft Magnetic Particles", Comsol Users Conference, Boston, MA.

UG8. Anderson, K., Bravoco, Rocco, Hargrave, W., Lofland (co-advisor), S., von Lockette, P. (advisor) (2009) "Dynamic Shear of Magnetorheological Elastomers", Rowan STEM Conference.

UG7. Ndonga, G., Naik, D., and von Lockette, P. (2008) "Comparison of Quasti-Static Compression and Shear Response of Magnetorheological Elastomers", Rowan STEM Conference.

UG6. Ndonga, G.,. Naik, F., and von Lockette, P.(2008) "Comparison of Quasti-Static Compression and Shear Response of Magnetorheological Elastomers", ASME Regional Student Conference, 2008.

UG5. Dermond, M., Hart, D., von Lockette, P. (2007) "Comparison of Bimodal and unimodal particle distributions for use in Magnetorheological Elastomers", *Proceedings of the National Conference on Undergraduate Research*.

UG4. Kuzan, D., Warner, J. and von Lockette, P. (2005) "Design of tunable vibration absorbers using magnetorheological elastomers", ACS Rubber Division Student Conference, Pittsburgh, PA.

UG3. Greg Misiak and von Lockette, P. (2005)"Development of a Fog Chamber for Laser Attenuation Experiments", ASME Regional Student Conference.

UG2. Michael Duffy and von Lockette, P.R (2002) "Laser Audio: Piezoelectric-Rubber Composites for use in laser data transmission", ASME Regional Student Conference.

UG1. Hart, S., von Lockette, P. (2001) "Piezoelectric rubber composites for use in laser data transmission", ASME Regional Student Conference.

HONORS AND AWARDS

- Trailblazer Award, Rowan University Harley Flack Mentoring Program (2008)
- National Science Foundation Minority Graduate Research Fellowship (1993)

SERVICE ACTIVITIES

SERVICE TO THE DEPARTMENT – PENN STATE UNIVERSITY

- Promotion and Tenure Committee, Member,(September 2015 - Present)
- Search Committee
  - Robotics, Chair (2018 – present)
  - Emerging Topics / Solid Mechanics, Member (2015 – 2018)
- Written English Competency Exam Committee, Member (2015 – 2018)
- Solid Mechanics Candidacy Exam Committee
  - Written Examiner (2013 – 2016, 2018)
  - Oral Examiner (2014)
- Graduate Recruitment Committee, Member (2015 - 2018)

SERVICE TO THE DEPARTMENT – ROWAN UNIVERSITY

- Admissions/Transfers Committee (2004 – 2011, 2012)
- Mechanical Engineering Faculty Search Committees (2002, 2005, 2007)
- Jr/Sr Clinic Discipline Manager (2004 – 2010)
- Sophomore Clinic Discipline Manager (2003 – 2004, 2012 – 2013)

SERVICE TO THE COLLEGE – PENN STATE UNIVERSITY

- Graduate Council, elected (2015 - 2017)

SERVICE TO THE COLLEGE – ROWAN UNIVERSITY

- College Computer Working Group (2007 – 2011, 2012 – 2013)
- College Promotion Committee (2008 – 2010)
- Electrical and Computer Engineering Faculty Search Committee (2004)
- Sophomore Clinic Discipline Manager (2001, 2013)

SERVICE TO THE UNIVERSITY – PENN STATE UNIVERSITY

- Graduate Council – Subcommittee on Academic Standards, Member. (2015 - 2017).

SERVICE TO THE UNIVERSITY –ROWAN UNIVERSITY

- STEM Academy at Rowan (STAR), Program Creator (2009), Coordinator (2009 – 2012), Activity Leader (2013)
- Provost's Advisory Committee (2012 – 2013)
- Information Technology Search Committee (2010)
- University Scholarship Committee (2009 – 2010)
- University Professional Development Committee (2006 – 2007)
- University Retention and Recruitment Committee (2004 – 2006)

- Rowan University Senate (2002 – 2004)
- University Curriculum Committee (2002 – 2004)

SERVICE TO THE PROFESSION

- Society of Photographic Instrumentation Engineers (SPIE) Conference
  - Session Chair (2018)
- ASME Smart Materials, Adaptive Structures, and Intelligent Systems (SMASIS) Conference
  - Mechanics of Materials Symposium Track Co-Chair (2017 – present)
  - Technical Committee Member, Elected (2018 – present)
  - Special Session Co-organizer, "Active Materials and Structures for Origami Engineering" (2013)
  - Session Chair (2012, 2015 – 2018)

- Reviewer: ASME SMASIS Conference, Journal of Mechanisms and Robotics, Journal of Intelligent Material Systems and Structure, Smart Materials and Structures, ASME-IDETC Conference , IEEE Transactions on Magnetics, NSF MRI Panelist, Georgian National Science Foundation Panelist, Polymer, Rubber Chemistry and Technology, Journal of Polymer Science Part B: Polymer Physics, ASEE Annual Conference on Engineering Education.

PROFESSIONAL MEMBERSHIPS

- ASME (2002 – present, discontinuous but totaling 10 years)
- SPIE (2005 – present, discontinuous but totaling 5 years)
- National Society of Black Engineers (NSBE) (1999 – 2005)

SERVICE TO SOCIETY

- Invited Talk: "From Big Macs to Little MACS: The Magneto-Active Composites and Structures (MACS) Laboratory at Penn State", Penn State Black History Month PSU Scholars Program, State College, PA, 2017.
- Invited Talk: "Winning at the Game, Surviving and Thriving in STEM Majors: How and Why", National Conference on Higher Education, Philadelphia, PA, 2011.
- Saturday Academy: Creating Higher Aspirations and Minority Participation (C.H.A.M.P.) & Rowan University Mechanical Engineering (R.U.M.E), Program Creator (2005), Coordinator (2005 – 2010)
- Invited Talk: "How to Get an A: Raising Your Game", Pathways to Success Conference, Enon Tabernacle Baptist Church, Philadelphia, PA, 2008.
- Invited Talk: "How and Why to Survive in College", PIMS Conference, Stockton College, 2008.
- Invited Talk: "Winning at the Game: How and Why to Survive and Thrive in Engineering and the Sciences", National Black Student Leadership Development Conference, Washington, D.C., 2007.
- Invited Talk: "If You Wage War, Seek Guidance: Surviving and Thriving in College", Pathways to Success Conference, Enon Tabernacle Baptist Church, 2007.

PROFESSIONAL DEVELOPMENT UNDERTAKEN

- "Advanced COMSOL Training Workshop", COMSOL workshop, New York, NY 2008.
- "Introduction to COMSOL, " COMSOL workshop, New York, NY 2008.
- "SPIE Short Course in Biomimetics", SPIE Conference, San Diego CA, 2005
- "ASME Nanotechonology Bootcamp", Northwestern University, 2002.
- "Active Learning in the Classroom", Richard Felder workshop series, Rowan University, 2001.
- "NSF Workshop for New Faculty", NSF, Virginia, 2000.