CONSTANTIN CIOCANEL

Department of Mechanical Engineering
College of Engineering, Informatics and Applied Sciences
Northern Arizona University
Flagstaff, Arizona, 86011
(928) 523-2439
Constantin.Ciocanel@nau.edu

Education

The University of Toledo, Ohio: Ph.D., Mechanical Engineering, 2006

"Gh. Asachi" Technical University of Iasi, Romania: D.Sc., Mechanical Engineering, 1999

"Gh. Asachi" Technical University of Iasi, Romania: B.Sc., Mechanical Engineering, 1989

Appointments

Northern Arizona University: Professor and Chair, Mechanical Engineering Department, *8/20/2019 – present*

Northern Arizona University: Associate Chair of Graduate Studies, Mechanical Engineering Department, *5/15/2017 – 7/8/2018*

Northern Arizona University: Engineering Graduate Coordinator, College of Engineering, Forestry, and Natural Sciences, *8/20/2014 – 5/15/2017*

Northern Arizona University: Associate Professor, Mechanical Engineering Department, *8/20/2013 – 2019*

Northern Arizona University: Assistant Professor, Mechanical Engineering Department, *8/20/2007 – 2013*

The University of Toledo, Ohio: Visiting Assistant Professor, Department of Mechanical, Industrial, and Manufacturing Engineering, *2006 – 2007*

The University of Toledo, Ohio: Instructor (part-time), Department of Mechanical, Industrial, and Manufacturing Engineering, *2003 – 2006*

"Gh. Asachi" Technical University of Iasi, Romania: Lecturer* in Strength of Materials, *1999 – 2003*

"Gh. Asachi" Technical University of Iasi, Romania: Assistant in Strength of Materials, *1993 – 1999*

"Gh. Asachi" Technical University of Iasi, Romania: Tutor in Strength of Materials, 1991 – 1993

* The Academic Ranks in Romanian Universities (full-time positions) – Tutor, Assistant, Lecturer, Associate Professor, Professor

Journal Publications

1. Maria Bolar, William T. Andrews, Zachariah Bess, Laura Bonsmann, Constantin Ciocanel, Cindy C. Browder, Cost-effective low-toxicity hydrogel quasi-solid polymer electrolyte (QSPE) with a PEO-based hyperbranched polymer host, Solid State Ionics, Volume 435, 2026, 117105, ISSN 0167-2738, https://doi.org/10.1016/j.ssi.2025.117105.
2. D'Silva, G.J., **Ciocanel, C**. A semi-empirical model for fracture energy evaluation of a Ni_2MnGa magnetic shape memory alloy. *Int J Fract* **249**, 54 (2025). https://doi.org/10.1007/s10704-025-00875-x
3. Glen D'Silva, Heidi Feigenbaum, and **Constantin Ciocanel**, "Strain Fields in Ni_2MnGa Magnetic Shape Memory Alloys with Different Twin Densities under Combined Tensile and Magnetic Loading", *Smart Mater. Struct.,* **32** (2023) 115013.
4. Glen J D'Silva, Heidi P Feigenbaum and **Constantin Ciocanel** – "On the power and efficiency of Ni_2MnGa magnetic shape memory alloy power harvesters", Smart Materials and Structures, 31(7), 2022, https://iopscience.iop.org/article/10.1088/1361-665X/ac72da
5. D'Silva, G. J., Goanta, V., & **Ciocanel, C**. – "Fracture toughness evaluation of Ni2MnGa magnetic shape memory alloys by Vickers micro indentation". *Engineering Fracture Mechanics*, *247*, 107655, 2021, https://doi.org/10.1016/j.engfracmech.2021.107655
6. Jan Štefan, Slavomír Parma, René Marek, Jiri Plešek, **Constantin Ciocanel** and Heidi Feigenbaum "Overview of an Experimental Program for Development of Yield Surfaces Tracing Method" *Applied Sciences*, 11, 7606, 2021, https://doi.org/10.3390/app11167606
7. G. D'Silva, H. Feigenbaum and **C. Ciocanel** – "Visualization of Magnetic Domains and Magnetization Vectors in Magnetic Shape Memory Alloys under Magneto-Mechanical Loading", *Shape Memory and Superelasticity*, vol. 6, pp. 67–88, 2020.
8. Eberle J. L., Feigenbaum, H. P., **Ciocanel, C.** - Demagnetizing Field in Single Crystal Magnetic Shape Memory Alloys, *Smart Materials and Structures*, 28(2), 025022, 2019, https://doi.org/10.1088/1361-665x/aaf20e.
9. W. Andrews[1], A. Leibig[1], P. Marsh[2], J. Cook[2], **C. Ciocanel**, G. Lindberg[6] and C. Browder[6] - Development of a PEO-based lithium ion conductive epoxy resin polymer electrolyte. *Solid State Ionics,* 326, 15 November 2018, pp. 150-158, IF[7] 2.354.
10. R. Guiel[2], H.P. Feigenbaum[6] and **C. Ciocanel** – The effect of magnetic field orientation on the open-circuit voltage of Ni-Mn-Ga based power harvesters, *Smart Materials and Structures*, http://iopscience.iop.org/article/10.1088/1361-665X/aacfd6, June 2018, IF 2.963.
11. H. P. Feigenbaum[6], **C. Ciocanel**, J.L. Eberle[2] and J.L. Dikes[2] - Experimental characterization and modeling of a three-variant magnetic shape memory alloy, *Smart Materials and Structures*, 25(10), 104004 (16pp), 2016, IF 2.963, http://iopscience.iop.org/article/10.1088/0964-1726/25/10/104004.
12. D.H. LaMaster[2], H.P. Feigenbaum[6], **C. Ciocanel** and I.D. Nelson[2] - A 3D Thermodynamic-Based Model for Magnetic Shape Memory Alloys, *Journal of Intelligent Material Systems*

[1] Undergraduate student, [2] MS student, [3] PhD Student, [4] PostDoc, [5] Staff, [6] Faculty, [7] IF = 2017 Impact Fact

and Structures, 26(6), 663-679, April 2015, IF 2.211, http://journals.sagepub.com/doi/abs/10.1177/1045389X14546655.

13. D.H. LaMaster[2], H.P. Feigenbaum[6], I.D. Nelson[2] and **C. Ciocanel** - A Full Two-Dimensional Thermodynamic-Based Model for Magnetic Shape Memory Alloys, *ASME Journal of Applied Mechanics*, 81(6): 061003, 2014, IF 2.133, http://appliedmechanics.asmedigitalcollection.asme.org/article.aspx?articleid=1868745.
14. M. Elahinia[6], **C. Ciocanel**, T.M. Nguyen[6] and S. Wang[4] – MR- and ER-based semiactive engine mounts: A review, *Smart Materials Research*, vol. 2013, Article ID 831017, 21 pages, doi:10.1155/2013/831017, 2013.
15. N.M. Bruno[2], **C. Ciocanel**, H.P. Feigenbaum[6], A. Waldauer[2] - A theoretical and experimental investigation of power harvesting using the NiMnGa martensite reorientation mechanism, *IOP Smart Materials and Structures Journal*, http://iopscience.iop.org/0964-1726/21/9/094018/pdf/0964-1726_21_9_094018.pdf, 2012, IF 2.963.
16. A.B. Waldauer[2], H.P. Feigenbaum[6], **C. Ciocanel**, N.M. Bruno[2] - Improved thermodynamic model for magnetic shape memory alloys, *IOP Smart Materials and Structures Journal*, http://iopscience.iop.org/0964-1726/21/9/094015/pdf/0964-1726_21_9_094015.pdf, 2012, IF 2.963.
17. I. Nelson[1], **C. Ciocanel** and H. Feigenbaum[6] – Reorientation curves for a $Ni_{50}Mn_{28.5}Ga_{21.5}$ alloy, *Bulletin of the Polytechnic Institute of Iasi*, Editor "Gh. Asachi" Technical University of Iasi, Tome LVII (LXI), Fasc. 1, Machine Design Section, 2012.
18. T.M. Nguyen[3], **C. Ciocanel**, and M.H. Elahinia[6] - A squeeze-flow mode magnetorheological mount: design, modeling, and experimental evaluation, *Transactions of the ASME-L - Journal of Vibration and Acoustics*, 134 (2), 21013, 2012.
19. N.M. Bruno[2], **C. Ciocanel** and H.P. Feigenbaum[6] - Numerical Predictions and Experimental Validation of the Voltage Output Induced in a Coil by Dynamically Loaded NiMnGa Specimens, *Bulletin of the Polytechnic Institute of Iasi*, Editor "Gh. Asachi" Technical University of Iasi, Tome LVII (LXI), Fasc. 4, Material Science and Engineering Section, pp. 9 – 19, 2011.
20. A.B. Waldauer[2], H.P. Feigenbaum[6] and **C. Ciocanel** - Magnetic shape memory alloys under complex load paths, *Bulletin of the Polytechnic Institute of Jassy, published by The Technical University "Gh. Asachi" of Jassy*, *Romania*, Tome LVI (LX), Fasc. 4A, pp. 559-566, 2010.
21. S. Cioc[6], **C. Ciocanel**, K. Masiulaniec[6] and D. Oliver[6] - A project to develop initiative and innovation through laboratory improvement, *International Journal of Mechanical Engineering Education*, 37(4), pp. 318-325, 2009.
22. **C. Ciocanel** and H.P. Feigenbaum[6] - Analysis of geometry effects on the magneto-mechanical behavior of magnetic shape memory alloys, *Bulletin of the Polytechnic Institute of Jassy*, Materials Science and Engineering Section, published by The Technical University "Gh. Asachi" of Jassy, Tome LV (LIX), Fasc. 3, pp. 149-156, 2009.
23. **C. Ciocanel**, T. Nguyen[3] and M. H. Elahinia[6] – An adaptive magneto-hydraulic vibration isolator, *Bulletin of the Polytechnic Institute of Jassy*, published by The Technical University "Gh. Asachi" of Jassy, Tome LIV (LVI), Fasc. 1, pp. 17-22, 2008.

24. **C. Ciocanel**, M.H. Elahinia[6], K.E. Molyet[3] and N.G. Naganathan[6] – Design analysis and control of a magnetorheological fluid based torque transfer device, *International Journal of Fluid Power*, 9 (3), pp. 19-24, 2008.
25. **C. Ciocanel**, G. Lipscomb[6] and N.G. Naganathan[6] – A Constitutive Equation for Magnetorheological Fluid Characterization, *Journal of Phase Equilibria and Diffusion,* 29 (4), pp. 305-311, 2008.
26. M. Elahinia[6] and **C. Ciocanel** - A Problem Solving Approach for Teaching Engineering Laboratories, *Journal of Mechanical Engineering Education*, 36 (2), pp. 140-159, 2008.
27. K. Molyet[3], **C. Ciocanel**, H. Yamamoto[4] and N.G. Naganathan[6] - Design and Performance of a MR Torque Transfer Device, *International Journal of Fluid Power*, Vol. 7, No. 3, 2006, pp.21-28.
28. **C. Ciocanel**, K. Molyet[3], H. Yamamoto[4], S.L. Vieira[4] and N.G. Naganathan[6] - MR Fluid Behavior under Constant Shear Rates and High Magnetic Fields over Long Time Periods, *ASME Journal of Engineering Materials and Technology*, 128, pp. 163-168, 2006.
29. S.M. Peelamedu[3], **C. Ciocanel** and N. Naganathan[6] – Impact Detection for Smart Automotive Damage Mitigation Systems, *Smart Materials and Structures*, 13, pp. 990-997, 2004.
30. S.L. Vieira[4], **C. Ciocanel**, P. Kulkarni[2], A. Agrawal[2] and N.G. Naganathan[6] - Behavior of MR Fluids in Squeeze Mode, *International J. of Vehicle Design*, Vol. 33, Nos. 1-3, pp. 36-49, 2003.
31. P. Kulkarni[2], **C. Ciocanel**, S.L. Vieira[4] and N.G. Naganathan[6] - Study of the Behavior of MR Fluids in Squeeze, Torsional and Valve Modes, *Journal of Intelligent Material Systems and Structures,* Vol. 14, Issue 02, pp. 99-104, 2003.
32. Agrawal[2], **C. Ciocanel**, T. Martinez[1], S.L. Vieira[4], N.G. Naganathan[6], S. Robb and J. Duggan - A Bearing Application Using Magnetorheological Fluids, *Journal of Intelligent Material Systems and Structures*, Vol. 13, Issue 10, pp, 667- 673, 2002.
33. **C. Ciocanel** - Numerical Study of the Stress Concentrations from Cylindrical Vessels with Nozzles, *Rev. Ctia. Mas.* (Journal of Romanian Academy), (51) Nos. 1-2, Bucharest, România, pp. 92-95, 1999 (in Romanian).
34. V. Goanta[6] and **C Ciocanel** - Determination of the Stresses from the Metallic Casting Shells, *Rev. Ctia. Mas.* (Journal of Romanian Academy), (51) Nos. 1-2, Bucharest, România, pp. 75-79, 1999 (in Romanian).
35. S.C. Popa[6], P.D. Bârsanescu[6], **C. Ciocanel** - Considerations Concerning the Behavior of the PA6 Polyamide at a Compose State of Stresses of Shear and Tensile, *Rev. Ctia. Mas.* (Journal of Romanian Academy), (51) Nos. 1-2, Bucharest, România, pp. 54-57, 1999 (in Romanian).
36. M. Dumitru[6], **C. Ciocanel** - Studies Concerning the Behavior of the Steels Used in the Plants from Thermocentrals - Steel 12H1MF, *Rev. Ctia. Mas.* (Journal of Romanian Academy), Nos. 1-2, Bucharest, România, pp. 88-91, 1999 (in Romanian).

37. V. Palihovici[6], M. Dumitru[6], **C. Ciocanel** - Studies Concerning the Behavior of the Steels Used in the Plants from Thermocentrals - Steel 15123, *Rev. Ctia. Mas.* (Journal of Romanian Academy), Nos. 1-2, Bucharest, România, pp. 28-31, 1999 (in Romanian).
38. O. Calancia[6], R. Danila[6],.D. Leon[6], **C. Ciocanel**, V. Goanta[6] - Considerations Concerning the Use of Finite Element Calculus Program LUSAS at the Study of Heat Transfer in Solidification and Cooling Processes of Castings Poured in Metallic Shells. Some Numerical Results*, Iasi Polytechnic Institute Bulletin* (Journal of Romanian Academy), Tome XLII(XLVI), section IX, pp. 201-206, 1996 (in English).
39. R. Danila[6], Ov. Calancia[6], **C. Ciocanel**, V. Goanta[6] - Considerations Concerning the Use of Calculus Programs with Finite Elements LUSAS at the Study of Heat Transfer in Solidification and Cooling Processes of Castings Poured in Metallic Shells. Description of the Chosen Model*, Iasi Polytechnic Institute Bulletin* (Journal of Romanian Academy), Tome XLII(XLVI), section IX, pp. 195-200, 1996 (in English).
40. Ov. Calancia[6], R. Danila[6], **C. Ciocanel** - Effects of Quenching and Tempering Heat Treatment on Some Romanian Steels for Metallic Casting Shells, *Iasi Polytechnic Institute Bulletin* (Journal of Romanian Academy), Tome XLIV(XLVIII), section IX, pp. 109-114, 1998 (in English).
41. R. Danila[6], Ov. Calancia[6], **C. Ciocanel** - Calculus Method of Stresses That Occur at Repeated Castings in Metallic Shells of Thick Wall Tube Type, *Iasi Polytechnic Institute Bulletin* (Journal of Romanian Academy), Tome XLIV(XLVIII), section IX, pp. 115-118, 1998 (in English).
42. R. Danila[6], V. Goanta[6], **C. Ciocanel** - The Analysis of the State of Stresses That Appear in the Pieces Cast in Metallic Molding Forms, *Rev. Metalurg*. (Journal of Romanian Academy), No. 11, Bucharest, Romania, pp. 77-81, 1996 (in Romanian).
43. R. Danila[6], V. Goanta[6], **C. Ciocanel** - The Determination of the Unitary Stresses from the Tubes at an Axial-symmetrically Distribution of Temperature, *Rev. Metalurg*. (Journal of Romanian Academy), No. 12, Bucharest, Romania, pp. 20-24, 1996 (in Romanian).
44. D. Leon[6], **C. Ciocanel** - A Circular Closed Bar, with Variable Section, Used Like an Elastic Element of a Dynamometer, *Rev. Ctia. Mas.* (Journal of Romanian Academy), No. 10, Bucharest, Romania, pp.19-22, 1994 (in Romanian).

Conferences Proceedings - Peer Reviewed

1. Svárovský J., Parma S., Stefan J., **Ciocanel C.**, Feigenbaum H. P., Klepač V., Marek R., ˇ Plešek J.: "Development of autonomous experimental setup to investigate directional distortional hardening under biaxial loading" *PROCEEDINGS OF COMPUTATIONAL MECHANICS 2021*, November 8 - 10, 2021, CZECH REPUBLIC
2. S. Parma, **C. Ciocanel**, J. Štefan, H. Feigenbaum, R. Marek, R. Halama, J. Plešek, "Experimental Investigation of Yield Surface Evolution and Strain Hardening of Boiler Steel under Biaxial Loading" *XVI International Conference on Computational Plasticity. Fundamentals and Applications*, Barcelona, Spain, September 7-9, 2021.

3. Štefan J.**,** Parma S.**,** Marek R., Plešek J., Feigenbaum H. and **Ciocanel C.** - "An Experimental Investigation of Yield Surfaces Anisotropies", presented at the *58th Conference on Eperimental Stress Analysis*, 2020.
4. V. Goanta[6] and **C. Ciocanel** - Fracture Toughness Evaluation for Ni_2MnGa Alloy through Micro Indentation under Magneto-Mechanical Loading, *Al XXIII Simpozion National de Mecanica Ruperii (Proceedings of the XXIII National Symposium on Fracture Mechanics)*, Sibiu, Romania, 19 - 21 Octombrie 2017.
5. J.L. Eberle[2], H.P. Feigenbaum[6] and **C. Ciocanel -** Magnetic Field within a Magnetic Shape Memory Alloy and an Equivalent Uniform Applied Magnetic Field for Model Input, SMASIS2017-3909, *Proceedings of the ASME 2017 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, UT, USA, September 2017.
6. **C. Ciocanel**, R. Guiel[3], E. Smaglik[6] and C. Sobie[2] - Design and Construction of a Prototypical Power Harvesting Vehicle Counting Device, *2nd Annual Symposium on Engineering and Applied Sciences*. Honolulu, HI. August 11th, 2016.
7. J.L. Dikes[2], H.P. Feigenbaum[6], **C. Ciocanel** and R. Guiel[2] – Experimental investigation and model predictions of a NiMnGa alloy's response to three dimensional magneto-mechanical loading, *Proceedings of the ASME 2015 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Colorado Springs, CO, USA, September 2015.
8. R. Guiel[2], J.L Dikes[2], **C. Ciocanel** and H.P. Feigenbaum[2] – Further insight on the power harvesting capabilities of magnetic shape memory alloys, *Proceedings of the ASME 2015 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Colorado Springs, CO, USA, September 2015.
9. J.L. Dikes[2], H.P. Feigenbaum[6], **C. Ciocanel** and I.D. Nelson[2] - A constitutive model for magnetic shape memory alloys that includes a tilted magnetic easy axis, *Proceedings of the ASME 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Newport, Rhode Island, USA, September 2014.a.
10. J.L. Dikes[2], H.P. Feigenbaum[6] and **C. Ciocanel** - Predictions of MSMA response under bi-axial mechanical loading, *Proceedings of the ASME 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Newport, Rhode Island, USA, September 2014.b.
11. D. LaMaster[2], H.P. Feigenbaum[6], I. Nelson[2], and **C. Ciocanel** - A Memory Variable Approach to Modeling the Magneto-Mechanical Behavior of Magnetic Shape Memory Alloys, *Proceedings of the ASME 2013 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, Utah, USA, September 2013.
12. I. Nelson[2], **C. Ciocanel**, D. LaMaster[2], and H.P. Feigenbaum[6] - The impact of Boundary conditions on the Response of NiMnGa samples in actuation and power harvesting applications, *Proceedings of the ASME 2013 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, Utah, USA, September 2013
13. H.P. Feigenbaum[6], **C. Ciocanel**, and A.B. Waldauer[2] – Predicting the Magneto-mechanical Behavior of MSMAs Subject to Complex Load Paths, *ASME 2012 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2012)*, September 19 - 21, Stone Mountain, GA, Paper no. SMASIS2012-8164, pp. 1-10, 2012.

14. B. Nelson[6] and **C. Ciocanel** - A Follow Up Study on Building Connections Between Experiment, Theory, and Physical Intuition in Thermal Systems, *Proceedings of the 2011 ASEE Annual Conference and Exposition*, Vancouver, BC, Canada, Paper # AC 2011-1128, pp.1-22, 2011.
15. A.B. Waldauer[2], H.P. Feigenbaum[6] and **C. Ciocanel** - Improvements to the Kiefer and Lagoudas Model for Prediction of the Magneto-Mechanical Behavior of Magnetic Shape Memory Alloys, *ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2011)*, Scottsdale, AZ, September 18-21, 2011.
16. N.M. Bruno[2], **C. Ciocanel**, H.P. Feigenbaum[6] and Alex Waldauer[2] - A Theoretical and Experimental Study on the Dynamic Response of Ni-Mn-Ga Specimens for Energy Harvesting, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5108, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
17. T.M. Gallagher[2], **C. Ciocanel** and C. Browder[6] - Structural Load Bearing Supercapacitors Using a PEGDGE Based Solid Polymer Electrolyte Matrix, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5113, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
18. A.B. Waldauer[2], H.P. Feigenbaum[6] and **C. Ciocanel** - The Challenges of Modeling Magnetic Shape Memory Alloys Under Complex Load Paths, *ASME 2010 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS2010)*, September 28–October 1, Philadelphia, PA, USA, Paper no. SMASIS2010-3654 pp. 49-55, 2010.
19. T. Gallagher[2] and **C. Ciocanel** - State of the Art in Power Storage Composites, *Proceedings of the 2010 IMECE – International Mechanical Engineering Congress and Exhibition, November 12-18,* Vancouver, British Columbia, Canada, Paper # 38774, pp.1-7, 2010.
20. B. Nelson[6] and **C. Ciocanel** - Connecting Experiment, Theory, and Physical Intuition in Heat Transfer with a Low-Cost Solar Water Heater Design Project, *Proceedings of the 2010 ASEE Annual Conference and Exposition*, Louisville, Kentucky, Paper # AC 2010-1852, pp.1-16, 2010.
21. W. Anderson[2], **C. Ciocanel** and M. Elahinia[6] - A Geometric Parametric Analysis of a Magnetorheological Engine Mount, Proceedings of the ASME 2010 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Montreal, Quebec, Canada, IDETC/CIE 2010, Paper # DETC2010-28941, pp. 1-8, 2010.
22. W. Anderson[2], S. Wang[2], T. Nguyen[6] and **C. Ciocanel** - Comparison of a hydraulic engine mount to a magnetorheological engine mount, *SAE 2010 Commercial Vehicle Engineering Congress*, October 5-6, 2010, Rosemont, Illinois, Paper# 10CV-0180, pp. 1-12, 2010.
23. A.B. Waldauer[2], H.P. Feigenbaum[6] and **C. Ciocanel** - The Challenges of Modeling Magnetic Shape Memory Alloys Under Complex Load Paths, *Proceedings of The Smart Materials, Adaptive Structures and Intelligent Systems Conference*, Philadelphia, PA, September 28-October 1, 2010.

24. **C. Ciocanel** and S. Pieper[5] - A Three-Way Approach to Investigating Student Learning Styles in an Engineering Laboratory, *Proceedings of the 2009 ASEE Annual Conference and Exposition*, Austin, Texas, Paper #AC 2009-2081, pp.1-10, 2009.
25. **C. Ciocanel** and H.P. Feigenbaum[6] - Analysis of geometry effects on the magneto-mechanical behavior of magnetic shape memory alloys, *The Seventh International Congress in Materials Science and Engineering*, *SIM 2009*, 28–31 May 2009 Iaşi, Romania**,** pp. 1-7, 2009.
26. **C. Ciocanel**, T. Nguyen[2] and M. H. Elahinia[6] – An adaptive magneto-hydraulic vibration isolator, *3rd International Conference Advanced Concepts in Mechanical Engineering ACME 2008*, 5-6 June 2008, Iasi, Romania.
27. **C. Ciocanel** and M. Elahinia[6] - Teaching Engineering Laboratories Based on a Problem Solving Approach, *Proceedings of the 2008 American Society for Engineering Education Pacific Southwest Annual Conference*, American Society for Engineering Education, pp. 1-12, 2008, Flagstaff, Arizona.
28. T. Nguyen[2], **C. Ciocanel**, and M.H. Elahinia[6] - Parameter optimization in designing an MR mount, *15th International Congress on Sound and Vibration*, 6-10 July, Daejeon, Korea, 2008.
29. **C. Ciocanel**, M.H. Elahinia[6], K. Molyet[3], and N. Naganathan[6] - Torque control for A MR clutch, *15th International Congress on Sound and Vibration*, 6-10 July, Daejeon, Korea, 2008.
30. T. Nguyen[2], **C. Ciocanel**, and M. Elahinia[6] - Modeling and Simulation of a Magnetorheological Mount, *Proceedings of ASME-IDETC08*, August 3-6, New York City, New York, 2008.
31. **C. Ciocanel**, T. Nguyen[2] and M. Elahinia[6] - Performance Evaluation of a Semi-active Magnetorheological Fluid Mount, *Proceedings of the SAE World Congress & Exhibition*, Paper # 2008-01-0429, pp. 1-6, April 2008, Detroit, MI, USA.
32. **C. Ciocanel** and M. Elahinia[6] - Teaching Engineering Laboratories Based on a Problem Solving Approach, Proceedings of the 2008 American Society for Engineering Education Pacific Southwest Annual Conference, American Society for Engineering Education, pp. 1-12, 2008, Flagstaff, Arizona.
33. **C. Ciocanel**, T. Nguyen[2], C. Schroeder[1] and M. Elahinia[6] - Performance of an Adaptive Magnetorheological Fluid Mount, *Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition IMECE2007*, November 11-15, 2007 Seattle, Washington.
34. **C. Ciocanel**, T. Nguyen[2], C. Schroeder[1] and M. Elahinia[6] - On the Design and Control of a Squeeze-Flow Mode Magnetorheological Fluid Mount, *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, Paper DETC2007/VIB-35684, September 4-7, Las Vegas, Nevada.
35. S. Cioc[6], **C. Ciocanel**, K.C. Masiulaniec[6], and D. Oliver[6] - Laboratory Improvement: A Student Project to Develop Initiative and Innovation as a Permanent State of Mind, AC 2007-2198, *to be presented at the ASEE 2007 Annual Conference*, June 24-27, Honolulu, Hawaii.
36. **C. Ciocanel** and M. Elahinia[6] - A Problem Solving Approach for Teaching Engineering Laboratories, *Proceedings of IMECE2006*, Paper #13777, pp. 1-9, 2006.

37. M. Elahinia[6] and **C. Ciocanel** - Redeveloping the Mechanics and Vibration Laboratory: A Problem Solving Approach, *Proceedings of the 2006 ASEE Annual Conference, June 18-21*.
38. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - Evaluation of a Constitutive Equation for Magnetorheological Fluids in Shear and Elongational Flows, *Proceedings of IMECE2005*, Paper #79974, pp. 1-9, 2005.
39. K. Molyet[3], **C. Ciocanel**, H. Yamamoto[4], N. Naganathan[6] - Design and Performance of a MR Torque Transfer Device, *Proceedings of IMECE2005*, Paper #81428, pp. 1-7, 2005.
40. **C. Ciocanel**, K. Molyet[3], H. Yamamoto[4], S. Vieira[4] and N. Naganathan[6] - MR Fluid Behavior under Constant Shear Rates and High Magnetic Fields over Long Time Periods, *Proceedings of IMECE2004*, Paper #61726, pp. 1-6, 2004.
41. A. Agrawal[2], **C. Ciocanel**, T. Martinez[1], S.L. Vieira[4], N.N. Naganathan[6], S. Robb, J. Duggan - A Bearing Application Using Magnetorheological Fluids, *8th International Conference on Electrorheological Fluids and Magnetorheological Suspensions*, July 9-13, Nice, France, 2001.
42. P. Kulkarni[2], S.L. Vieira[4], **C. Ciocanel**, N.N. Naganathan[6] – Study of the Behavior of MR Fluids in Squeeze, Torsional and Valve Modes, *8th International Conference on Electrorheological Fluids and Magnetorheological Suspensions*, July 9-13, Nice, France, 2001.

Conferences Proceedings – Editorially Reviewed

1. Glen J. D'Silva, Heidi P. Feigenbaum, and **Constantin Ciocanel**, "Strain field evaluation in Ni2MnGa magnetic shape memory alloys under combined tensile and magnetic loading using digital image correlation", *Proceedings of SPIE, Behavior and Mechanics of Multifunctional Materials XVI*, March 2022
2. Glen J. D'Silva, Heidi P. Feigenbaum, and **Constantin Ciocanel**, "On the Power and Efficiency of Ni2MnGa Magnetic Shape Memory Alloy Energy Harvesters", *Proceedings of SPIE, Behavior and Mechanics of Multifunctional Materials XVI*, March 2022.
3. J. Dikes[2], H.P. Feigenbaum[6] and **C. Ciocanel** - An investigation of the material and model parameters for a constitutive model for MSMAs, *Proc. SPIE 9435, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems 2015*, 943539 (3 April 2015) doi: 10.1117/12.2084359, 2015.
4. I. Nelson[2], J. Dikes[2], H.P. Feigenbaum[6] and **C. Ciocanel** - Numerical Predictions versus Experimental Findings on the Power Harvesting Output of a NiMnGa Alloy, *Proc. SPIE 9058, Behavior and Mechanics of Multifunctional Materials and Composites*, 905815 (26 March 2014) doi:10.1117/12.2046337, 2014.
5. S. Doyle-Lawrence[1], K. Carroll[2], R. Guiel[2], C. Browder[6] and **C. Ciocanel** - Design of a multifunctional composite material with enhanced structural and power storage capability, *Proc. SPIE 9058, Behavior and Mechanics of Multifunctional Materials and Composites*, 905809 (26 March 2014); doi: 10.1117/12.2046281, 2014.
6. **C. Ciocanel**, C. Browder[6], C. Simpson[1], R. Colburn[1] - The challenges of achieving good electrical and mechanical properties when making structural supercapacitors, *Proceedings of SPIE 8689 - Smart Structures and Materials & Nondestructive Evaluation and Health*

Monitoring 19th Annual International Symposium, Behavior and Mechanics of Multifunctional Materials and Composites, 868917 (April 3, 2013); doi:10.1117/12.2009738.

7. D. LaMaster[2], H.P. Feigenbaum[6], I. Nelson[2] and **C. Ciocanel** - Magnetization in MSMA : 2D modeling and experimental characterization, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring International Symposium*, 8689, 1-11, 2013.
8. I. Nelson[2], **C. Ciocanel**, D. LaMaster[2], and H.P. Feigenbaum[6] - Three Dimensional Experimental Characterization of a NiMnGa Alloy, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring International Symposium,* 8689, 1-8, 2013 (doi:10.1117/12.2024874).
9. **C. Ciocanel** and H.P. Feigenbaum[6] - Experimental results for the behavior of MSMAs subjected to loads seen in power harvesting applications and complex loads, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 19th Annual International Symposium,* 8342-46, pp. 1-8, 2012.
10. T. Gallagher[2], D. LaMaster[1], **C. Ciocanel**, C. Browder[6] - Electro-mechanical characterization of structural supercapacitors, Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 19th Annual International Symposium, 8342-83, pp. 1-8, 2012.
11. N.M. Bruno[2] and **C. Ciocanel** - Energy harvesting using the martensitic reorientation process in NiMnGa at high frequencies of excitation, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 18th Annual International Symposium,* 7978, 797816, 2011.
12. A.B. Waldauer[2], H.P. Feigenbaum[6], and **C. Ciocanel** - A Refined Model for the Magneto-Mechanical Behavior of Magnetic Shape Memory Alloys, *2011 ECTC Proceedings ASME Early Career Technical Conference*, Fayetteville, AR, March 31-April 02, 2011.
13. A.B. Waldauer[2], H. P. Feigenbaum[6] and **C. Ciocanel** - Simulation of Magnetic Shape Memory Alloy Behavior under Complex Load Paths, *16th US National Congress of Theoretical Applied Mechanics*, State College, PA, July 2010.
14. T. Nguyen[3], **C. Ciocanel** and M. H. Elahinia[6] - Structural considerations in designing magnetorheological fluid mounts, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7643-14, pp. 1-6, San Diego, California, 2010.
15. N.M. Bruno[2] and **C. Ciocanel** - Magnetic Fluid Driven Flow in a Capillary Channel, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7643-15, pp. 1-9, San Diego, California, 2010.
16. **C. Ciocanel** and H.P. Feigenbaum[6] – A preliminary look at how geometry influences the magneto-mechanical behavior of magnetic shape memory alloys, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7289-57, pp. 1-9, San Diego, California, 2009.
17. T. Nguyen[3], **C. Ciocanel** and M. H. Elahinia[6] - Analytical modeling and experimental validation of a magnetorheological mount, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7288-48, pp. 1-7, San Diego, California, 2008.

18. H.P. Feigenbaum[6] and **C. Ciocanel** – Experiments and modeling of magnetic shape memory alloys, *Proceedings of Cansmart 2008, International Workshop on Smart Materials and Structures*, October 23-24, Montreal, Quebec, Canada, 2008.
19. T. Nguyen[3], **C. Ciocanel** and M. H. Elahinia[6] - Analytical modeling and experimental validation of a magnetorheological mount, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7288-48, pp. 1-7, San Diego, California, 2008.
20. **C. Ciocanel**, T. Nguyen[3] and M. Elahinia[6] - Design and modeling of a mixed mode magnetorheological (MR) fluid mount, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #6928-51, pp. 1-10, 2008, San Diego, California.
21. T. Nguyen[2], **C. Ciocanel**, C. Schroeder[1] and M. Elahinia[6] - Performance of a Mixed Mode MR Mount, *Proceedings of Cansmart 2007, International Workshop on Smart Materials And Structures*, October 10-11, Montreal, Quebec, Canada, 2007.
22. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - Yield Stress Predictions for Magnetorheological Fluids from a Kinetic Theory Based Particle Pair Model, *presented at the 2006 ERMR Conference, June 18-22*.
23. **C. Ciocanel**, T. Nguyen[2], M. Elahinia[6] and N.G. Naganathan[6] – Squeeze-Flow Mode Magnetorheological Fluid Mount, *presented at the 2006 ERMR Conference, June 18-22*.
24. K.E. Molyet[3], **C. Ciocanel**, M.H. Elahinia[6], and N.G. Naganathan[6] - Comparison of Control Methods for a MR Torque Transfer Device, *presented at the 2006 ERMR Conference, June 18-22*.
25. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - A Particle Pair Model for Magnetorheological Fluids, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #6170-29, pp. 1-9, 2006.
26. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - A Constitutive Equation for Magnetorheological Fluid Characterization, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #5761-83, pp. 1-9, 2005.
27. **C. Ciocanel** – Experimental and Numerical Results Concerning the Stresses from the Vicinity of a Junction Between Two Cylindrical Vessels Subjected to Internal Pressure, *Proceedings of the International Conference of the "Angel Kanchev" University of Rousse*, Rousse, Bulgaria, 1999.
28. **C. Ciocanel**, V. Palihovici[6] - Analysis of the Stress Concentration Factors in a Cylindrical Vessel with Nozzles, *Proceedings of the 11-th International Conference on Experimental Mechanics*, Oxford, UK, vol. 1, pp. 95-101, 1998.
29. D. Leon[6], **C. Ciocanel** - Cylindrical Vessels with Nozzles - Analysis of the Stress Concentration Factors, *Proceedings of the 15-th Symposium "Danubia Adria*", Bertinoro, Italy, pp. 55-60, 1998 (in English).
30. D. Leon[6], **C. Ciocanel** - The Stress and Strain Analysis for a Cylindrical Horizontal Shell and Establishment of the Position for Supports, *Proceedings of the 35-th International Conference on Experimental Stress Analysis*, Olomouc, Czech Republic, June 4-6, pp. 263-267, 1997 (in English).
31. **C. Ciocanel**, D. Leon[6] - A Numerical Analysis of the State of Stresses in a Cylindrical Vessel with Nozzles, *Proceedings of the International Conference on Experimental Model*

Research and Testing of Thin-Walled Structures, Prague, Czech Republic, September 22-24, pp. 363-367, 1997 (in English).

32. P. Bârsanescu[6], N. Amariei[6], B. Leitoiu[6], Al. Izbasescu[5], **C. Ciocanel** - Determination of the Residual Stresses from a Turbo-rotor, *Proceedings of the International Symposium "70 Years from the Inauguration of The Strength of Materials Laboratory*", Timisoara, pp.21-23, 1993 (in Romanian).

Presentations at National and International Professional Meetings

1. Feigenbaum, H. P., Eberle, J. L., **Ciocanel, C.**, and D'Silva, G. J. - The Effect of Various Model Features on Predicting the Macro-Scale Magneto-Mechanical Behavior of Magnetic Shape Memory Alloys, *International Conference on Ferromagnetic Shape Memory Alloys*, Prague, Czech Republic, June 2-7, 2019.
2. Feigenbaum, H. P., D'Silva, G. J., and **Ciocanel, C.** - Evolution of Magnetic Domains during Magneto-Mechanical Loading of Ni-Mn-Ga, *International Conference on Ferromagnetic Shape Memory Alloys*, Prague, Czech Republic, June 2-7, 2019.
3. *Symposium on Phase transformation in shape memory materials (SMAs): modeling and applications*, Austin, TX, USA, April 28- May 2, 2019.
4. **C. Ciocanel** and V. Goanta - Fracture Toughness Evaluation for Ni_2MnGa Alloy through Micro Indentation under Magneto-Mechanical Loading, *2019 SPIE NDE Conference*, Denver, CO, March 2019.
5. Eberle, J. L., Feigenbaum, H. P., **Ciocanel, C.**, and D'Silva, G. J. - Ni-Mn-Ga Constitutive Models – on the Effect of Thermodynamic Assumptions on Model Predictions, *ASME's Smart Materials, Adaptive Structures and Intelligent Systems Conference*, SMASIS2018-8109, San Antonio, TX, September 10-12, 2018.
6. D'Silva, G. J., **Ciocanel, C.**, and Feigenbaum, H. P. - On the effect of mechanical loading on the evolution of magnetic domains in Ni_2MnGa, *ASME's Smart Materials, Adaptive Structures and Intelligent Systems Conference*, SMASIS2018-8100, San Antonio, TX, September 10-12, 2018.
7. Feigenbaum, H. P., Eberle, J. L., **Ciocanel, C.**, and D'Silva, G. J. - The Effect of Various Model features on Predicting the Macro-Scale Magneto-Mechanical Behavior of Magnetic Shape Memory Alloys, *International Union of Theoretical and Applied Mechanics (IUTAM)*
8. G. D'Silva, **C. Ciocanel** and H.P. Feigenbaum - The Effect of Magneto-Mechanical Loading on the Evolution of Magnetic Domains in a Ni_2MnGa Magnetic Shape Memory Alloy, *2018 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems Conference*, San Antonio, TX, September 2018.
9. J.L. Eberle, H.P. Feigenbaum, **C. Ciocanel** and G. D'Silva – Ni-Mn-Ga Constitutive Models – On the Effect of Thermodynamic Assumptions on Model Predictions, *2018 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems Conference*, San Antonio, TX, September 2018.
10. J. Cook, S. Biswas, **C. Ciocanel** and C. Browder –Electrochemical and Mechanical Characterization of Power Storage Composite Layups, *2018 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems Conference*, San Antonio, TX, September 2018.

11. H.P. Feigenbaum, J.L. Eberle, **Ciocanel, C.** and G. Dsilva - Insights on Constitutive Modeling of Magnetic Shape Memory Alloys, *13th World Congress in Computational Mechanics*, New York, NY, USA, July 2018.
12. C.C. Browder, **C. Ciocanel** and G.E. Lindberg – Structural supercapacitors using PEG-based epoxy resins as polymer electrolytes, *TechConnect World Innovation Conference*, Anaheim, CA, May 2018.
13. G. D'Silva, **C. Ciocanel**, H.P. Feigenbaum - Real-time Mapping of the Effect of Mechanical Stress on Magnetic Domains Evolution in Ni_2MnGa, *2018 Smart Structures and Nondestructive Evaluation Conference*, Denver, CO, 4-9 March, 2018.
14. J. Cook, **C. Ciocanel** and C.C. Browder – In-situ Electro-Mechanical Behavior of a Carbon Fiber Based Power Storage Composite, *2018 Smart Structures and Nondestructive Evaluation Conference*, Denver, CO, 4-9 March, 2018.
15. Z. Zhu, **C. Ciocanel** and C.C. Browder - Power Storage Composite (PSC): A Comprehensive Electro-Mechanical Characterization, *2017 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, UT, USA, September 2017.
16. R. Guiel, **C. Ciocanel** and H.P. Feigenbaum - An Overview of Power Harvesting with Ni_2MnGa Magnetic Shape Memory Alloys, *2017 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Snowbird, UT, USA, September 2017.
17. J. Cook, **C. Ciocanel**, C. Browder, and G. Lindberg - Electrochemical and mechanical properties of a PEG based solid polymer electrolyte for power storage composites, *2017 SPIE Smart Structures/NDE Conference,* SPIE 10165-24, Mar 27, 2017, Portland, OR.
18. **C. Ciocanel**, H. Feigenbaum - On the Orientation of the Magnetic Field for Maximization of the Voltage Output with Magnetic Shape Memory Alloys, ICOMAT 2017, July 13, 2017, Chicago, IL.
19. L. Bonsmann, **C. Ciocanel** - Multifunctional Carbon-Based Supercapacitors, Emerging Technologies Unleashed, 10-11 May 2017, Berlin, Germany.
20. **C. Ciocanel** and C. Browder – Improving leakage resistance of flexible and structural multifunctional carbon-based supercapacitor materials, *2016 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems,* SMASIS2016-9219, Sept 30, 2016, Stowe, VT.
21. H. Feigenbaum, **C. Ciocanel**, J.L. Eberle and J. Dikes - Experimental Characterization and Modeling of a Three-Variant Magnetic Shape Memory Alloy, *2016 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems,* SMASIS2016-9127, Sep 29, 2016, Stowe, VT.
22. R. Guiel, **C. Ciocanel**, and H. Feigenbaum - Optimal orientation of the magnetic field for maximum power harvesting output from a magnetic shape memory alloy, SMASIS2016-9257, Sept 30, 2016, Stowe, VT.
23. C.E. Sobie, **C. Ciocanel**, R. Guiel and E.J. Smaglik – Design and construction of a prototypical power harvesting vehicle counting device, *2nd Annual Symposium on Engineering and Applied Sciences*, Honolulu, HI, August 2016.

24. H.P. Feigenbaum, **C. Ciocanel** and J. Dikes – The three-dimensional response of magnetic shape memory alloys, Engineering Mechanics Institute Conference (EMI 2016) and Probabilistic Mechanics & Reliability Conference, Nashville, TN, May 2016.
25. W. Andrews, **C. Ciocanel** and C.C. Browder – A solid polymer electrolyte for multifunctional material development, *NASA Space Grant Symposium Conference*, Tucson AZ, April 2016.
26. A. Liebig, W. Andrews, **C. Ciocanel,** and C.C. Browder - Multifunctional lightweight composite with updated morphology for increased power storage capability, *2016 SPIE Smart Structures/NDE Conference*, Las Vegas, NV, March 2016.
27. R. Guiel, **C. Ciocanel** and H.P. Feigenbaum - Investigation on the effect of bi-axial bias magnetic field on the voltage output of a MSMA based power harvester, *2016 SPIE Smart Structures/NDE Conference,* Las Vegas, NV, March 2016.
28. B.F. Cambou, P.G. Flikkema and **C. Ciocanel** – Integrated technology and policy enabling large scale deployment of UAVs, IEEE/NSF workshop on Trusted Internet of Things (IoT), Washington DC, February 2016.
29. R. Guiel, J. Dikes, **C. Ciocanel** and H.P. Feigenbaum – Further insight on the power harvesting capabilities of magnetic shape memory alloys, *2015 ASME Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Colorado Springs, CO, USA, September 2015.
30. H.P. Feigenbaum, D. LaMaster and **C. Ciocanel** – A thermodynamics-based 3D model for the magneto-mechanical behavior of magnetic shape memory alloys, *4th International Conference on Material Modeling*, Berkeley, CA, May 2015.
31. S. Doyle-Lawrence, K. Carroll, C.C. Browder and **C. Ciocanel** - Power storage composite material with solid polymer electrolyte matrix, *2015 SPIE Smart structures/NDE Conference*, March 2015, San Diego, CA, 2015.
32. J. Dikes, R. Guiel, **C. Ciocanel** and E. Smaglik - Experimental Feasibility Analysis of Self-Powered Magnetic Shape Memory Alloy Devices, *2015 SPIE Smart structures/NDE Conference*, March 2015, San Diego, CA, 2015.
33. J. Dikes, H.P. Feigenbaum and **C. Ciocanel** - Predictions of MSMA response under bi-axial mechanical loading, *Proceedings of the ASME 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Newport, Rhode Island, USA, September 2014.
34. J. Dikes, H.P. Feigenbaum, I. Nelson and **C. Ciocanel** – A Constitutive Model for Magnetic Shape Memory Alloys that Includes a Tilted Magnetic Easy Axis, *Proceedings of the ASME 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, Newport, Rhode Island, USA, September 2014.
35. I. Nelson, J. Dikes, H.P. Feigenbaum and **C. Ciocanel** - Numerical Predictions versus Experimental Findings on the Power Harvesting Output of a NiMnGa Alloy, *2014 SPIE Smart structures/NDE Conference, Behavior and Mechanics of Multifunctional Materials and Composites*, 26 March 2014, San Diego, CA.
36. S. Doyle-Lawrence, K. Carroll, R. Guiel, C.C. Browder and **C. Ciocanel** - Design of a multifunctional composite material with enhanced structural and power storage capability,

2014 SPIE Smart structures/NDE Conference, Behavior and Mechanics of Multifunctional Materials and Composites, 26 March 2014, San Diego, CA.

37. **C. Ciocanel** and C.C. Browder – Structural Supercapacitor Demonstration, *WBT Innovation Marketplace*, San Diego, CA, October 2013.
38. C.C. Browder and **C. Ciocanel** - Structural Supercapacitor Demonstration, *Defense Energy Summit*, Austin, TX, November 2013.
39. **C. Ciocanel**, C.C. Browder, C. Simpson and R. Colburn - The challenges of achieving good electrical and mechanical properties when making structural supercapacitors, *2013 Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring, 19th Annual International Symposium, Behavior and Mechanics of Multifunctional Materials and Composites*, San Diego, CA, April 3, 2013.
40. D. LaMaster, H.P. Feigenbaum, I. Nelson, and **C. Ciocanel** - Magnetization in MSMA : 2D modeling and experimental characterization, *2013 Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring, 19th Annual International Symposium, Behavior and Mechanics of Multifunctional Materials and Composites*, San Diego, CA, April 3, 2013.
41. I. Nelson, **C. Ciocanel**, D. LaMaster, and H.P. Feigenbaum - Three Dimensional Experimental Characterization of a NiMnGa Alloy, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring International Symposium,* 8689, 1-8, 2013 (doi:10.1117/12.2024874).
42. Nelson[2], **C. Ciocanel** and H.P. Feigenbaum[6] - Reorientation Curves for a $Ni_{50}Mn_{28.5}Ga_{21.5}$ Alloy, *5th International Conference Advanced Concepts in Mechanical Engineering ACME 2012*, 14-15 June 2012, Iasi, Romania.
43. **C. Ciocanel** and H.P. Feigenbaum[6] - Experimental results for the behavior of MSMAs subjected to loads seen in power harvesting applications and complex loads, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 19th Annual International Symposium,* 8342-46, 11-15 March 2012, pp. 1-8, 2012.
44. T. Gallagher[2], D. LaMaster[1], **C. Ciocanel**, C. Browder[6] - Electro-mechanical characterization of structural supercapacitors, Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 19th Annual International Symposium, 8342-83, 11-15 March 2012, pp. 1-8, 2012.
45. N.M. Bruno[2], **C. Ciocanel**, H.P. Feigenbaum[6] and Alex Waldauer[2] - A Theoretical and Experimental Study on the Dynamic Response of Ni-Mn-Ga Specimens for Energy Harvesting, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5108, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
46. T.M. Gallagher[2], **C. Ciocanel** and C. Browder[6] - Structural Load Bearing Supercapacitors Using *a* PEGDGE Based Solid Polymer Electrolyte Matrix, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5113, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
47. **C. Ciocanel** and H.P. Feigenbaum[6] - Experimental results for the behavior of MSMAs subjected to loads seen in power harvesting applications and complex loads, *Proceedings of*

SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 19th Annual International Symposium, 8342-46, pp. 1-8, 2012.

48. N.M. Bruno[2], **C. Ciocanel** and H.P. Feigenbaum[6] - Numerical Predictions and Experimental Validation of the Voltage Output Induced in a Coil by Dynamically Loaded NiMnGa Specimens, *The Eighth International Congress in Materials Science and Engineering*, *ISSIM 2011*, 26–29 May 2011 Iaşi, Romania.
49. N.M. Bruno[2] and **C. Ciocanel** - Energy harvesting using the martensitic reorientation process in NiMnGa at high frequencies of excitation, *Proceedings of SPIE - Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring 18th Annual International Symposium,* 7978, 797816, 2011.
50. N.M. Bruno[2], **C. Ciocanel**, H.P. Feigenbaum[6] and Alex Waldauer[2] - A Theoretical and Experimental Study on the Dynamic Response of Ni-Mn-Ga Specimens for Energy Harvesting, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5108, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
51. T.M. Gallagher[2], **C. Ciocanel** and C. Browder[6] - Structural Load Bearing Supercapacitors Using a PEGDGE Based Solid Polymer Electrolyte Matrix, *Proceedings of the ASME 2011 Conference on Smart Materials, Adaptive Structures and Intelligent Systems*, SMASIS2011-5113, September 18-21, 2011, Phoenix, Arizona, USA, pp. 1-8.
52. T. Nguyen[3], **C. Ciocanel** and M. H. Elahinia[6] - Structural considerations in designing magnetorheological fluid mounts, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7643-14, pp. 1-6, San Diego, California, 2010.
53. A.B. Waldauer[2], H.P. Feigenbaum[6] and **C. Ciocanel** - Magnetic shape memory alloys under complex load paths, *4th International Conference Advanced Concepts in Mechanical Engineering ACME 2010*, 17-18 June 2010, Iasi, Romania.
54. **C. Ciocanel** and H.P. Feigenbaum[6] - Analysis of geometry effects on the magneto-mechanical behavior of magnetic shape memory alloys, *The Seventh International Congress in Materials Science and Engineering*, *SIM 2009*, 28–31 May 2009 Iaşi, Romania**,** pp. 1-7, 2009.
55. **C. Ciocanel**, T. Nguyen[2] and M. H. Elahinia[6] – An adaptive magneto-hydraulic vibration isolator, *3rd International Conference Advanced Concepts in Mechanical Engineering ACME 2008*, 5-6 June 2008, Iasi, Romania.
56. **C. Ciocanel** and M. Elahinia[6] - Teaching Engineering Laboratories Based on a Problem Solving Approach, Proceedings of the 2008 American Society for Engineering Education Pacific Southwest Annual Conference, American Society for Engineering Education, pp. 1-12, 2008, Flagstaff, Arizona.
57. **C. Ciocanel** and H.P. Feigenbaum[6] – A preliminary look at how geometry influences the magneto-mechanical behavior of magnetic shape memory alloys, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #7289-57, pp. 1-9, San Diego, California, 2008.

58. **C. Ciocanel**, T. Nguyen[2] and M. Elahinia[6] - Design and modeling of a mixed mode magnetorheological (MR) fluid mount, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #6928-51, pp. 1-10, 2008, San Diego, California.
59. **C. Ciocanel**, T. Nguyen[2], C. Schroeder[1] and M. Elahinia[6] - Performance of an Adaptive Magnetorheological Fluid Mount, *Proceedings of the 2007 ASME International Mechanical Engineering Congress and Exposition IMECE2007*, November 11-15, 2007 Seattle, Washington.
60. **C. Ciocanel**, T. Nguyen[2], C. Schroeder[1] and M. Elahinia[6] - On the Design and Control of a Squeeze-Flow Mode Magnetorheological Fluid Mount, *Proceedings of the ASME 2007 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, Paper DETC2007/VIB-35684, September 4-7, Las Vegas, Nevada.
61. **C. Ciocanel** and M. Elahinia[6] - A Problem Solving Approach for Teaching Engineering Laboratories, *Proceedings of IMECE2006*, Paper #13777, pp. 1-9, 2006.
62. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - Yield Stress Predictions for Magnetorheological Fluids from a Kinetic Theory Based Particle Pair Model, *presented at the 2006 ERMR Conference, June 18-22*.
63. **C. Ciocanel**, T. Nguyen[2], M. Elahinia[6] and N.G. Naganathan[6] – Squeeze-Flow Mode Magnetorheological Fluid Mount, *presented at the 2006 ERMR Conference, June 18-22*.
64. K.E. Molyet[3], **C. Ciocanel**, M.H. Elahinia[6], and N.G. Naganathan[6] - Comparison of Control Methods for a MR Torque Transfer Device, *presented at the 2006 ERMR Conference, June 18-22*.
65. M. Elahinia[6] and **C. Ciocanel** - Redeveloping the Mechanics and Vibration Laboratory: A Problem Solving Approach, *Proceedings of the 2006 ASEE Annual Conference, June 18-21*.
66. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - A Particle Pair Model for Magnetorheological Fluids, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #6170-29, pp. 1-9, 2006.
67. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - Evaluation of a Constitutive Equation for Magnetorheological Fluids in Shear and Elongational Flows, *Proceedings of IMECE2005*, Paper #79974, pp. 1-9, 2005.
68. K. Molyet[3], **C. Ciocanel**, H. Yamamoto[4], N. Naganathan[6] - Design and Performance of a MR Torque Transfer Device, *Proceedings of IMECE2005*, Paper #81428, pp. 1-7, 2005.
69. **C. Ciocanel**, G. Lipscomb[6], N. Naganathan[6] - A Constitutive Equation for Magnetorheological Fluid Characterization, *Proceedings of SPIE International Symposia, Smart Structures & Materials/NDE*, Paper #5761-83, pp. 1-9, 2005.
70. **C. Ciocanel**, K. Molyet[6], H. Yamamoto[4], S. Vieira[4] and N. Naganathan[6] - MR Fluid Behavior under Constant Shear Rates and High Magnetic Fields over Long Time Periods, *Proceedings of IMECE2004*, Paper #61726, pp. 1-6, 2004.
71. **C. Ciocanel**, V. Palihovici[6] - Analysis of the Stress Concentration Factors in a Cylindrical Vessel with Nozzles, *Proceedings of the 11-th International Conference on Experimental Mechanics*, Oxford, UK, vol. 1, pp. 95-101, 1998.

72. D. Leon[6], **C. Ciocanel** - The Stress and Strain Analysis for a Cylindrical Horizontal Shell and Establishment of the Position for Supports, *Proceedings of the 35-th International Conference on Experimental Stress Analysis*, Olomouc, Czech Republic, June 4-6, pp. 263-267, 1997 (in English).

Abstracts

1. Eberle, J. L., Feigenbaum, H. P. and **C. Ciocanel** - Insights on Constitutive Modeling of Magnetic Shape Memory Alloys, *13th World Congress in Computational Mechanics*, New York, NY, USA, July 2018.
2. **Ciocanel, C**. and Feigenbaum, H. P. - On the Orientation of the Magnetic Field for Maximization of the Voltage Output with Magnetic Shape Memory Alloys, invited talk at the *International Conference on Martensitic Transformations*, Chicago, IL, USA, July 2017.

Posters

1. Bolar, M., Massimi, S., Garden, K., **Ciocanel, C.**, & Browder, C. C. (2019, March). *How molecular composition effects the physical properties of solid-state polymer electrolytes*. *Graduate Student Poster Symposium*. Northern Arizona University, Flagstaff, AZ.
2. G.E. Lindberg, **C. Ciocanel**, C. C. Browder - Solid-state polymer electrolytes with a poly(ethylene glycol) epoxy resin polymer host, *Advanced Automotive Battery Conference*, San Diego, June 4 -7, 2018.
3. G.E. Lindberg, C.C. Browder, **C. Ciocanel** - Structural Material with Intrinsic Power Storage Capability for Hybrid Electrochemical Systems*, Advanced Automotive Battery Conference*, San Diego, June 4 -7, 2018.
4. G.E. Lindberg, C.C. Browder, **C. Ciocanel** - Structural Material with Intrinsic Power Storage Capability*, TechConnect World Innovation Conference & Expo*, Anaheim, May 13-16, 2018.
5. D.J. Rowe, **C. Ciocanel**, C.C. Browder - A Conductive Thermosetting Polymer for Use in Energy Storage Systems, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2018. Poster 3C.
6. N. Cain and **C. Ciocanel** – Normal Stress in Magnetorheological (MR) Fluids, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2018.
7. W. Andrews, **C. Ciocanel**, C.C. Browder - Solid Polymer Electrolytes for Multifunctional Material Systems, *253rd National Meeting of the American Chemical Society*, San Francisco, CA, April 2017. ENFL 229.
8. W. Andrews, **C. Ciocanel**, C.C. Browder - Solid Polymer Electrolytes for Multifunctional Material Systems, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2017. Poster 30A
9. Eberle, J. L., Feigenbaum, H. P., and **Ciocanel, C**. - Three-Variant Magnetic Shape Memory Alloys, *Northern Arizona Planetary Science Alliance (NAPSA)*, Flagstaff, AZ, September 2017.

10. Feigenbaum, H. P., **Ciocanel, C**., Eberle, J. L. - Three-Variant Magnetic Shape Memory Alloys, *International Conference on Martensitic Transformations*, Chicago, IL, USA, July 2017.
11. P. Marsh, C. Browder, **C. Ciocanel** and G. Lindberg - The Effects of Lithium and Water Concentration on Lithium Structure and Diffusion through a Polyethylene Glycol Membrane, *NAPSA Science, Technology, Engineering, and Mathematics (STEM)*, Poster Session, Flagstaff, AZ, September 2016.
12. W. Andrews, **C. Ciocanel** and C. Browder - A solid polymer electrolyte for multifunctional material development, *NASA Space Grant Consortium Conference*, Tuscon, AZ. April 2016.
13. J. Dikes, **C. Ciocanel** and H.P. Feigenbaum – Sensitivity analysis of an MSMA constitutive model, *2015 SPIE Smart Structures and Nondestructive Evaluation Conference, Behavior and Mechanics of Multifunctional Materials and Composites Symposium,* April 3rd, San Diego, CA, 2015.
14. B. Cutler, B. Luginbuhl, **C. Ciocanel** and C. Browder - Investigation of Plant-Derived Carbon Aerogels for Use in Multifunctional EDLCs, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2015. Poster 27A.
15. B. Cutler, B. Luginbuhl, **C. Ciocanel** and C. Browder - Sustainable Carbon Aerogels as Surface Area Enhancements for Multifunctional Electric Double Layer Capacitors, *National Conference on Undergraduate Research, Eastern Washington University*, Cheney, WA, April 2015.
16. S. Doyle-Lawrence, R. Guiel, B. Cutler, C.C. Browder and **C. Ciocanel** - Multi-Functional Energy Storage Devices, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2014. Poster 1.
17. B. Luginbuhl, A. Jauregui, B. Cutler, C. Browder and **C. Ciocanel** - Synthesis of Plant-Derived Carbon Aerogels for Electrode Surface Area Enhancement in Electrochemical Double-layer Capacitors, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2014. Poster 31A.
18. S. Doyle, J. Simpson, A. Townsley, C. Browder and **C. Ciocanel** - Energy Storage Solutions, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2013. Poster 31C.
19. I. Nelson, **C. Ciocanel** and H.P. Feigenbaum – Variant Reorientation Curves for a Magnetic Shape Memory Alloy, *Northern Arizona University Undergraduate Research and Design Symposium*, Flagstaff, AZ, April 2012.

Extramural Grants

- National Science Foundation (NSF), S-STEM, *Strengthening Degree Attainment Pathways for Pre-engineering and Mechanical Engineering Majors in Rural Southwestern United States*, **NAU PI: Constantin Ciocanel,** June 2022 – May 2028, $999,825.
- National Science Foundation (NSF), S-STEM, *Scholarship Opportunities for Student Retention and Degree Attainment in Undergraduate Engineering and Computer Science Programs*, **NAU PI: Constantin Ciocanel,** June 2022 – May 2028, $1,493,224.

- *Exploratory research on power storage materials – Lincoln Laboratory (LL), Massachusetts Institute of Technology*, Phase II, **NAU PI: Constantin Ciocanel**, MIT Lincoln Laboratory PI: James Macomber, October 2019 – September 2020, $100,000.
- *Modelling the Mechanics of Multiaxial Ratcheting*, NAU PI: Heidi Feigenbaum, **collaborator: Constantin Ciocanel**, Army Research Office, $544,758, February 2019-January 2022.
- *Exploratory research on power storage materials – Lincoln Laboratory (LL), Massachusetts Institute of Technology*, Phase I, **NAU PI: Constantin Ciocanel**, MIT Lincoln Laboratory PI: James Macomber, 2018 – 2019, $38,000. This is a Lincoln Laboratory – University collaboration project that focuses on development of an energy storage material prototype for use in a broad range of applications being pursued within LL. This project was just approved on August 30th and the start date is October 1st, 2018. The funds are to be released to NAU on or immediately after the project start date.
- Center for Integrated Nanotechnologies (CINT) User Grant, *Imaging magnetic domain boundaries motion and magnetic domain evolution in NiMnGa under compressive loading and bias magnetic field using magnetic force microscopy* – NAU **PI: Constantin Ciocanel**, CINT PI: Gabe Montagno, 2017 – 2018. This project covers costs associated with using CINT facilities to carry out proposed research that is of common interest for both institutions. The project focuses on the use of magnetic force microscopy (MFM) to assess the effect of mechanical and magneto-mechanical loading on the bulk magnetization of a Ni_2MnGa magnetic shape memory alloy.
- National Science Foundation (NSF), Civil, Mechanical, and Manufacturing Innovation (CMMI) Division - *Power harvesting with magnetic shape memory alloys: Understanding the mechanisms and predicting voltage output*, NSF CMMI-1101108, PI: Heidi Feigenbaum, **Co-PI: Constantin Ciocanel**, 2016-2019, $400,037. This project focuses on understanding the underlying mechanisms occurring in magnetic shape memory alloys (MSMAs) during power harvesting and on the development of a constitutive model that accurately predicts change in magnetization, voltage output, and strain during any type of magneto-mechanical loading.
- ASU – ABOR - *At the Interface: Hybrid Materials Leading to New Energy Conversion And Energy Storage Platforms*, 2014-2016, **PI: Constantin Ciocanel**, Co-PI: Cindy Browder $140,000. The project focused on enhancing the energy storage capacity, and stability, of load carrying carbon-fiber-based composite material with supercapacitor like embedded functionality, through carbon fiber functionalization strategies aimed at enhancing the surface area of the fibers without altering their mechanical properties.
- National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems (CBET) Division - *MRI: Acquisition of Micro Particle Image Velocimetry (micro-PIV) System for Microfluidics and Biomedical Applications*, NSF CBET-1338008, 2013-2015, PI: Nazmul Islam, **Co-PIs: Constantin Ciocanel**, Davood Askari, Sanjay Kumar, Yingchen Yang, $173,274. The project requested the acquisition of a micro-PIV system that was used for various experimental programs, including mine that focused on tracking fluid flow induced in micro-channels by a biased alternating current electroosmosis driven micropump developed for water management in PEM Fuel Cells.

- National Science Foundation (CMMI Division) - *Three-Dimensional Modeling of Magnetic Shape Memory Alloys*, NSF CMMI-1101108, 2011-2014, **PI: Constantin Ciocanel**, Co-PI: Heidi Feigenbaum, $332,453.
- National Science Foundation, Civil, Mechanical, and Manufacturing Innovation (CMMI) Division - *MRI: Acquisition of a Multi-axial Dynamic Testing System for Characterization of Novel Materials and Systems*, NSF CMMI-0923517, 2009-2012, **PI: Constantin Ciocanel**, Co-PIs: Heidi Feigenbaum, Ernesto Penado, Brent Nelson and Robert Kellar, $270,208.

Intramural Research Grants

- New polymer electrolyte with enhance ionic conductivity, Northern Arizona University – TRIF, **PI: Constantin Ciocanel**, July 2025 – June 2026, $20,000. This project focuses on the development of a novel solid polymer electrolyte for energy storage and sensing applications.
- *Innovative multifunctional composite material morphology for increased power density and storage capacity,* Northern Arizona University – TRIF, **PI: Constantin Ciocanel**, October 2020 – July 2021, $5,000. This project focused on changing the layout of a multifunctional composite material to achieve higher energy and power density characteristics.
- *Development of a marketable prototype of a carbon fiber based structural supercapacitor* - Northern Arizona University – TRIF, **PI: Constantin Ciocanel**, Co-PI: Cindy Browder, 2015 - 2016, $99,981. This project focused on the development of a prototype multifunctional material with structural and power storage capability. The prototype was used to illustrate potential uses of the material in practical applications.
- *Rheometer accessories for polymer characterization, particulation studies, and smart materials assessment* – NAU RDG, PI: Timothy Becker, **Co-PIs**: Rob Kellar, Michael Shafer, **Constantin Ciocanel**, John Gibbs, John Tester, 2015 – 2016, $61,366. This was an instrument acquisition grant. Since the acquisition of the rheometer, I have been using it to carry out experiments that would facilitate the understanding of the mechanisms governing the normal stress difference developing in magnetorheological fluids exposed to magnetic field and oscillating compressive mechanical load.
- *Investigation and Prototype Development of a Self-powered Bridge Structural Health and/or Traffic Monitoring Sensor Using Magnetic Shape Memory Alloys* - NAU-PGP, PI: Ed Smaglik, **Co-PIs: Constantin Ciocanel**, Niranjan Venkatraman, 2014 - 2015, $70,420. This project focused on the development of a self-powered sensor based on the power harvesting and sensing principles specific to a Ni_2MnGa magnetic shape memory alloy. My role on this project was to coordinate the design and performance evaluation of the sensor, in situ and in laboratory.
- *Investigation of the effect of Ni nanostrands and conductive graphene dispersions coatings on the electro-mechanical properties of carbon fiber electrodes used in structural* - NAU-FGP, **PI: Constantin Ciocanel**, 2014 - 2015, $15,000. This project focused on enhancing the surface area and electrical conductivity of carbon fibers used as electrodes in the fabrication of a multifunctional composite material with power storage capability, without sacrificing the carbon fiber's mechanical properties.

- *Development of Prototype of Carbon Fiber Based Structural Supercapacitor* - Northern Arizona University – TRIF, **PI: Constantin Ciocanel**, Co-PI: Cindy Browder, 2014 - 2016, $71,986. This project supported the development of a prototype for a multifunctional composite material with structural and power storage capability. Material layup and constituents, fabrication parameters, and bulk material characteristics, were all investigated as part of this project.
- *Investigation of the fatigue behavior of a Ni_2MnGa magnetic shape memory alloy* - Northern Arizona University (NAU) - Faculty Grants Program (FGP), 2013 - 2014, **PI: Constantin Ciocanel**, $14,980. This project aimed to identify factors that affect the long-term behavior of a Ni_2MnGa alloy under magneto-mechanical loading.
- *Request for Purchase of a Digital Microscope for the Imaging and Histology Core Facility* - Northern Arizona University – Technology Research Initiative Fund (TRIF), Research Equipment Acquisition Program, PI: Diane Stearns, **Co-PIs: Constantin Ciocanel**, Cindy Browder, Randy T. Dillingham, Kiisa Nishikawa, Nancy Johnson, Francis Smiley, 2012, $99,185. This was an instrument grant. Since the acquisition of the microscope, I used it to assess carbon fiber-electrolyte interfacial bonding, to evaluate the surface configuration of multiple carbon fiber mats, and to investigate the evolution of martensitic variants in Ni_2MnGa, under magnetic and mechanical loading.
- *Structural Supercapacitors – Further Development and Characterization*, Northern Arizona University (NAU) - Faculty Grants Program (FGP), **PI: Constantin Ciocanel**, Co-PI: Cindy Browder, 2012, $22,523. The project focused on advancing the development of a multifunctional composite material with power storage and structural capabilities, particularly with a focus on improving the ionic conductivity of the electrolyte resin used in the material fabrication.
- *Development of Carbon Fiber Composite Materials with Power Storage and Structural Capabilities*, NAU-FGP, **PI: Constantin Ciocanel**, Co-PI: Cindy Browder, 2011, $11,285. The project focused on the development of a carbon fiber composite materials with power storage and structural capabilities. This material can be used for hybrid car panels or wind turbine blades, to store electricity in the structure and retrieve it as needed.
- *Structural Health Monitoring for Structures Made of Advanced Composite Materials*, NAU-FGP, **PI: Constantin Ciocanel**, 2010, $9,250. This proposal focused on the development of a mathematical model that would process signal inputs from an array of sensors embedded in a material in order to evaluate the structural health of the material.
- *Prototyping of an Integrated Electro-Magneto-Hydrodynamic Micropump for Water Management in Proton Exchange Membrane Fuel Cells*, NAU-Technology and Research Initiative Fund (TRIF), **PI: Constantin Ciocanel**, Co-PI: Nazmul Islam (former NAU faculty), 2008 - 2009, $79,675. The objective of this project was to create a prototype for an electro-magneto-hydrodynamic micropump concept that was developed in 2007. A provisional patent was filed for the micropump and the prototype would facilitate the issuing of the full patent and identification of buyers for the technology.
- *Integrated Electro-Magneto-Hydrodynamic Micropump for Water Management in Proton Exchange Membrane Fuel Cells*, NAU-TRIF, **PI: Constantin Ciocanel**, Co-PI: Nazmul

Islam, 2007, $24,962. The objective of this project was to investigate the feasibility of an electro-magneto-hydrodynamic micropump for water management in proton exchange membrane fuel cells. Such a pump would have a wide range of flowrates, would be powered with electricity generated by the fuel cell, and would increase the fuell cell's efficiency.

- *Magnetic Shape Memory Alloys Characterization and Modeling for Power Harvesting Applications*, NAU-Intramural Grants Program, **PI: Constantin Ciocanel**, Co-PI: Heidi Feigenbaum, 2007, $16,000. This project investigated the suitability of using magnetic shape memory alloys for power harvesting and sensing applications. Particularly, the project aimed at identifying material magneto-mechanical loading conditions that facilitate large enough power outputs to make the subsequent development of a Ni_2MnGa based power harvester feasible.
- *Redeveloping the Thermo Fluids Laboratory – A Problem Solving Approach Combined with Interactive Web-Based Learning*, NAU - E-Learning, **PI: Constantin Ciocanel**, 2007, $10,000. This project was focused on improving the content and delivery of the ME495

Invited Presentations

- Lecture Series (December 2025), "Gh. Asachi" Technical University of Iasi, Romania, "*Phase field modelling of fracture mechanics in magnetic shape memory alloys*".
- Lecture Series (December 2017), "Gh. Asachi" Technical University of Iasi, Romania, "*Modelling and applications of magnetic shape memory alloys and development and characterization of multifunctional composite materials*".
- Lecture Series (Spring 2016), Center for Bioengineering Innovation, Northern Arizona University, AZ, "*Multifunctional materials - promises and challenges*".
- "*Smart materials and their applications*" (Summer 2010) talk given at "The Teacher as Investigator" meeting organized by Northern Arizona University and Science Foundation Arizona.
- Research Seminar (Spring 2009), Mechanical, Industrial and Manufacturing Engineering Department, University of Toledo, OH, "*Magnetic Field Responsive Materials – Constitutive Models and Applications*".
- Research Seminar (Fall 2009), College of Engineering, Forestry and Natural Sciences, Northern Arizona University, "*Magnetorheological fluids - Constitutive Models and Applications*".

Professional Service

- Member of the ASME Aerospace Division Executive Committee (March 2018 – present)
- Chair of the ASME ASMS Executive Branch (Sept 2017 – Sept 2018)
- Co-chair of the ASME ASMS Executive Branch (Sept 2016 – Sept 2017)
- Treasurer of the ASME ASMS Executive Branch (Sept 2015 – Sept 2016).
- Secretary of the ASME ASMS Executive Branch (Sept 2014 – Sept 2015).

- Member of the Smart materials and Structures Technical Committee within the American Society of Mechanical Engineering (ASME) (2008 – present)
- Member of the Behavior and Mechanics of Multifunctional and Composite Materials Technical Committee within the Society of Photo-Optical Instrumentation Engineers (SPIE) (2008 – present)
- Member of the Vehicle Design Committee within the ASME - Design Engineering Division (2010 – 2016)
- Member of the Scientific Committee of the International Conference on Advanced Concepts in Mechanical Engineering (ACME), held bi-annually at "Gh. Asachi" Technical University of Iasi, Romania (2008 – present)
- Session co-chair for the Best Student Paper Competition held at SPIE Smart Materials and Adaptive Systems Conference (2010 - 2012) and session chair of the same (2013 – 2015).
- Chair of the ASMS Branch's Technical Committee on Active and Multifunctional Materials (March 2018- Sept 2020).
- Co-chair of the ASMS Branch's Technical Committee on Active and Multifunctional Materials (March 2016- March 2018).
- Co-chair of the Multifunctional Materials Symposium within the ASME SMASIS conference – 2016, 2018
- Chair of the Multifunctional Materials Symposium within the ASME SMASIS conference – 2019, 2020, 2021.
- Session co-chair for the Best Student Paper Competition held at ASME Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS) Conference (2010, 2011, 2012)
- Co-organizer of the Advances in Dynamics and Control of Vehicle Systems and Subsystems Symposium within the ASME International Design Engineering Technical Conference (IDETC) (2010, 2011, 2012)
- Reviewed scientific proposals for NSF, U.S. ARO, and for the Czech Academy of Sciences
- Reviewer for Journal of Mechanical Engineering Science - Proceedings of the Institution of Mechanical Engineers - Part C - Journal of Mechanical Engineering Science (4), Journal of Intelligent Material Systems and Structures (12), Journal of Shock and Vibration (5), Journal of Vibrations and Control (3), International Journal of Fluid Power (1), Vehicle System Dynamics (1), Sensors and Actuators (1), Journal of Composite Materials (1), Smart Materials and Structures (4), Noise Control Engineering Journal (1), Smart Science (1), Mathematical Problems in Engineering (1), Mechanics of Materials (1)
- Reviewed papers for the following conferences: SAE ComVec 2009, (1) ACME 2010 (4), IDETC 2010 (1), IDETC 2011 (4), IDETC 2013 (2)
- Reviewed papers for the following best student paper competitions: SPIE 2008(6), SMASIS 2009 (6), SPIE 2010 (6), SPIE 2011 (4), SMASIS 2013 (5)

Professional Development

- Spring 2023 – Association of College and University Educators (ACUE) Certification
- Fall 2017 – "*Applications of Uncertainty Analysis in Smart Materials and Adaptive Structures"* workshop offered at the 2017 ASME SMASIS Conference, Snowbird, UT
- Spring 2017 - "*Energy Harvesting and Self-power Monitoring System for the Next Generation Smart Roadways*" webinar offered by CESTiCC
- Summer 2016 - *Southwest Regional Energy Innovation Forum*, University of New Mexico, Albuquerque, New Mexico
- Fall 2014 - *ABET Fundamentals of Program Assessment Workshop*, San Diego, California
- Summer 2012 – *Innovation Bootcamp,* NAU

Intellectual property and Technology transfer

Patents and patent applications

- Patent application - Structural Supercapacitor – Continuation-in-part, Publication number: 20170200570, Filed: March 28, 2017, Publication date: July 13, 2017, Inventors: **Constantin Ciocanel**, Cindy Browder, Bertrand Francis Cambou.
- US Provisional Patent Application 62/357,280 **-** Multi layered honeycomb materials for structural supercapacitors, Inventors: **Constantin Ciocanel,** Cindy C. Browder, and Bertrand F. Cambou, 2016.
- PCT/US13/37217 - Structural Supercapacitors, Inventors: **Constantin Ciocanel**, Cindy Browder, 2015.
- Patent number 8480377 - Integrated Electro-Magnetohydrodynamic Micropumps and Methods for Pumping Fluids, Inventors: **Constantin Ciocanel**, Nazmul Islam, 2013.

Invention Disclosures

- **Ciocanel, C.** and Scherpereel, C.M. (2018) Self-Powered Sensor for Traffic Monitoring, NAU Case 2018-027.
- Browder, C. C., and **Ciocanel, C.** (2016). Metal adhesive. NAU Case 2016-040.
- Cambou, B. F., **Ciocanel, C.** and Browder, C. C. (2015). Hybrid battery systems with structural supercapacitors. NAU Case 2016-024.
- Browder, C. C. and **Ciocanel, C.** (2015). Protective coating for capacitors. NAU Case 2016-023.
- **Ciocanel, C.** (2015). Multifunctional material with structural and power storage capability. NAU Case 2016-022.
- **Ciocanel, C.**, Browder, C. C. and G. Brendan. (2014) Multilayer Supercapacitors. NAU Case 2014-018.
- **Ciocanel, C.** and Vadasz, P. (2013). Micro/minicooling system using a magnetic shape memory alloy piston-cylinder compressor. NAU CaseNo. 2013-009.

Honors and Awards

- Fellow of the American Society of Mechanical Engineering (ASME) since Fall 2021
- Research and Innovation Award - 2016, received from NAU's Office of Vice President for Research
- Early Career Innovator – 2012, received from NAU's Office of Vice President for Research
- Winner of the 24th Annual Sigma Xi Student Research Symposium, University of Toledo, 2003
- President of the Student Association, "Gh. Asachi" Technical University of Iasi, Romania, 1985-1989
- Class President, 1984-1989