

Form Name:	National Armaments Consortium (NAC) Executive Committee Member Application Form 2026
Submission Time:	June 22, 2026 10:03 am
Browser:	Chrome 149.0.0.0 / Windows
IP Address:	128.118.244.194
Unique ID:	1473133817
Location:	40.9009, -77.772

CANDIDATE INFORMATION

Name	Mala Sharma
Title	Associate Research Professor and Head of Advanced Manufacturing Process Development
Organization	Applied Research Laboratory- The Penn State University
Organization Type	Academic
Address	
Email	
Phone	

CANDIDATE STATEMENTS

Explain how your background, training, experience and/or personal qualities support your candidacy to assume a governance position on the Executive Committee. Provide resume as a separate attachment.

I am honored to submit my application for the National Armaments Consortium (NAC) Executive Committee as the academic representative. Throughout my career, I have worked at the intersection of academia, government, and industry, providing me with a unique perspective on how universities can effectively support the Department of Defense (DoD) mission while strengthening collaboration across the defense innovation ecosystem.

I currently serve as an Associate Research Professor and Head of the Advanced Manufacturing Processes Development Department within the Material Science Division at The Pennsylvania State University's Applied Research Laboratory. In this role, I lead multidisciplinary research programs focused on advanced manufacturing, materials engineering, corrosion technologies, and technology transition. I am responsible for developing strategic research initiatives, managing diverse technical teams, fostering partnerships with government sponsors and industry, and ensuring successful execution of complex research and development programs. I also have appointments in the Engineering Science and Mechanics (ESM) Department in the College of Engineering and the Intercollege Graduate Degree Program at PSU.

Prior to joining PSU ARL, I served for eighteen years as a faculty member in Mechanical Engineering at Bucknell University. During that time, I developed extensive collaborations with government laboratories, universities, and industrial partners supporting Army and Department of Defense priorities. I mentored and trained numerous undergraduate and graduate students who have gone on to careers within the Department of Defense, government laboratories, and defense-related industries. These experiences have given me a deep appreciation for the critical role academia plays in developing the future workforce and advancing technologies that support national security.

My involvement with the Defense Ordnance Technology Consortium (DOTC) began in 2010, providing me with more than fifteen years of experience working within the consortium model. During that time, I have participated as both a principal investigator and subcontractor on multiple consortium-based efforts. This experience has allowed me to gain a thorough understanding of the opportunities and challenges associated with engaging academic institutions in consortium activities. I have worked closely with industry partners, government stakeholders, and university researchers, giving me insight into how NAC can continue to strengthen participation from the academic community while maintaining strong partnerships across all membership sectors.

In addition to my technical qualifications, I bring leadership, collaboration, and strategic planning experience that aligns with the responsibilities of Executive Committee service. Throughout my career, I have successfully built and led multidisciplinary teams, developed partnerships among organizations with differing objectives, and helped align research investments with long-term mission needs. I value transparency, accountability, and consensus-building, and I believe effective governance requires balancing the interests of diverse stakeholders while maintaining focus on the consortium's mission and objectives.

If selected, I would work to strengthen communication between NAC and the academic community, expand awareness of consortium opportunities among universities, encourage greater academic participation in technology development and workforce initiatives, and help identify mechanisms that accelerate collaboration among government, industry, and academia. I believe my combination of leadership experience, technical expertise, long-standing consortium involvement, and commitment to collaborative engagement would allow me to make a meaningful contribution to the NAC Executive Committee.

Supporting Attachment(s)

What do you see as the most significant challenge(s) facing the business type you will represent and how would you propose to address those challenges if elected?

The most significant challenge facing the academic community within NAC and DOTC is not a lack of technical capability, but rather the effective integration of academic research, workforce development, and innovation into the defense technology ecosystem. Universities possess world-class expertise, specialized facilities, and a pipeline of talented students who can contribute to the development of future defense technologies. However, many academic institutions face challenges in understanding consortium processes, identifying opportunities aligned with their capabilities, navigating contractual requirements, and transitioning research outcomes into technologies that can be adopted by industry and the Department of Defense.

As the academic representative on the NAC Executive Committee, I would work to strengthen the connection between academia, industry, and government to ensure that the unique capabilities of universities are fully leveraged in support of NAC and DOTC missions. My experience as both a university faculty member and a research leader at the Applied Research Laboratory of Penn State has provided me with firsthand knowledge of the opportunities and barriers that academic institutions encounter when engaging with defense-focused consortia.

If elected, I would focus on the following priorities:

- Reduce barriers to academic participation. Work with NAC leadership, consortium members, and academic institutions to identify and address administrative, contractual, and policy challenges that may discourage university participation. I would use my experience working with consortium agreements, government contracts, and university research administration to help facilitate greater engagement.
- Improve communication and awareness of consortium opportunities. Many researchers at member institutions remain unaware of NAC membership benefits and DOTC opportunities. I would advocate for improved outreach and information sharing to ensure that faculty and research centers can effectively align their capabilities with consortium needs.
- Strengthen academia-industry partnerships. Successful technology transition requires strong collaboration between universities and industry partners. I would continue promoting opportunities for networking, technical exchanges, invited presentations, and collaborative research discussions that help connect academic innovations with industrial capabilities and defense requirements.
- Accelerate technology transition. Academic institutions are often the source of innovative concepts and emerging technologies. I would encourage mechanisms that facilitate earlier engagement between researchers, industry, and government stakeholders so that promising technologies can more effectively transition from the laboratory to operational use.
- Develop the future defense workforce. Universities play a

critical role in educating the next generation of scientists and engineers. I would advocate for increased student engagement through internships, research experiences, technical presentations, and consortium activities that expose students to defense challenges and career opportunities within the defense industrial base.

I believe that stronger engagement between academia, industry, and government will expand the technology base available to NAC and DOTC members, accelerate innovation, and help deliver solutions that support the needs of the Department of Defense and the Warfighter. My goal as an Executive Committee member would be to ensure that academic institutions are effective and engaged partners in achieving those objectives.

Please describe the importance of the NAC to your organization and provide a synopsis of the participation in NAC/DOTC since becoming a member (e.g., number of proposal submissions, awards, industry days and membership meeting attended).

The Pennsylvania State University was an original academic member of the Warheads and Energetics Technology Center (WETC) organization that eventually became today's NAC, and has had a member on the Executive Committee representing academia continuously throughout the life of the consortium. The NAC organization and activities provide both direct and indirect value to the University; directly in the form of funding opportunities through the DOTC ROTI process, and indirectly through the opportunities to meet and interact with Government and industry colleagues at various NAC-sponsored forums. Penn State has been active in the NAC organization, attending every General Membership meeting, and many technical subcommittee meetings (when offered) and industry days. DOTC awards to Penn State as a prime contractor or subcontractor have spanned nearly 15 years up to the present, and multiple University researchers and departments have participated in proposals as Principal Investigators or as team members with industrial partners. The Applied Research Laboratory has been performing work for the DoD for more than 75 years and has a several examples of developing and transitioning technology to the DoD and to companies that support the DoD.

WILLINGNESS TO SERVE CERTIFICATION

Signature



Date

06/22/2026

MALA M. SHARMA

Associate Research Professor
Applied Research Laboratory, The Pennsylvania State University

EXECUTIVE SUMMARY

Research and technology executive with more than 25 years of experience leading advanced manufacturing, materials engineering, corrosion, coatings, cold spray, additive manufacturing, and technology transition programs for defense, aerospace, and industrial applications. Recognized for building multidisciplinary research teams, developing strategic research portfolios, mentoring principal investigators, and establishing partnerships among government sponsors, industry, and academia. Extensive experience supporting Department of Defense customers, SBIR/STTR initiatives, and Defense-Oriented Technology Center (DOTC) activities.

EDUCATION

The Pennsylvania State University – College of Engineering and The Applied Research Laboratory

PhD, Engineering Science and Mechanics

The Pennsylvania State University – College of Engineering and The Applied Research Laboratory

MS, Engineering Mechanics

The Pennsylvania State University-College of Earth and Mineral Sciences

BS, Materials Science and Engineering

AREAS OF SPECIALIZATION/CONCENTRATION

Process/Structure/Property Relationship of Materials, Corrosion, Cold Spray and Additive Manufactured Materials, Corrosion Resistant Coatings, Feedstock Powder Development, Composites.

ACADEMIC POSITIONS HELD

July 2023-Present

Head – Advanced Manufacturing Processes Development, Material Science and Applications Division ARL

Additive Manufacturing and Design (AMD) Graduate Faculty (Sp24)

Intercollege Graduate Degree Program (IGDP) Graduate Faculty (Sp24)

Engineering Science and Mechanics Graduate Faculty (Fa23)

Oct 2022- Present

Associate Research Professor, Materials Science Division, Penn State Applied Research Laboratory

2017- 2022 (August)

Professor – Mechanical Engineering Department, Bucknell University *Associate Chair (7/2018 – 7/2020)*

2010-2017

Associate Professor - Mechanical Engineering Department, Bucknell University

2004-2009

Assistant Professor - Mechanical Engineering Department, Bucknell University

PREVIOUS RESEARCH and FACULTY/STUDENT POSITIONS

VISITING FACULTY RESEARCH SCHOLAR, Materials Processing Division ARL-PSU (2017-2018)

FACULTY RESEARCH ASSOCIATE, NACE Post-Doctoral Fellow, Engineering Science & Mechanics Department, Corrosion Laboratory, The Pennsylvania State University (2001-2004)

FACULTY RESEARCH ASSOCIATE, Metal and Ceramic Processing Division, ARL-PSU (2000-2001)

RESEARCH ASSISTANT, Materials Processing Division, ARL-PSU (1993-2000)

UNDERGRADUATE RESEARCH ASSISTANT –College of Earth and Mineral Sciences
Materials Science and Engineering Department–The Pennsylvania State University (1990-1992)

COURSES TAUGHT AT BUCKNELL and *PENN STATE UNIVERSITY

- Engineering Composite Materials - MECH 470/670 UG/G (Fall 2006, 2015 Spring 2008,2009, 2010, 2012)
- Engineering Mechanics I (Statics) - ENGR 220 (Spring 2005, 2006)
- Mechanics – MECH 220 (Spring 2017)
- Dynamics - MECH 252 (Spring 2008, 2009, 2010, 2012, Fall 2015, 2019)
- Fracture Mechanics - MECH 466/666 UG/G (Spring 2006, Fall 2008)
- Materials Engineering (*Civil/Environmental Engineers*) – ENGR 242 (Spring 2013, 2014, 2015, 2016,2017)
- Materials Engineering – ENGR 242L (Spring 2013, 2014, 2015)
- Materials Science (*Mechanical Engineers*) – ENGR 240 (Fall 2009)
- Materials Science Laboratory -ENGR 240L (Fall 2009)
- Manufacturing Processes- MECH 355 (Fall 2004, 2005, 2007,2008, 2009, 2011-2016, 2018, 2020-2022)
- Manufacturing Processes Laboratory- MECH 355L (Fall 2008, 2012, 2014,2018,2020)
- Mechanical Design-MECH 392 (Spring 2019, 2022)
- Mechanical Design Laboratory – MECH 392L (Spring 2019, 2020,2022)
- Mechanics- ENGR 221 (Spring 2016)
- Solid Mechanics – MECH 353 (Fall 2011, Spring 2021)
- Solid Mechanics Laboratory - MECH 353L (Fall 2006, 2007, 2011, Spring 2020, 2021)
- *PSU from 1995-2003 (EMCH 211,212,213,315)
- *Statics- EMCH 211 (Spring 2024, 2026)

PEER REVIEWED JOURNAL/BOOK PUBLICATIONS (* Indicates Bucknell Student ** PSU student)

Naccarelli, A., Auman, W., Reiss, J., Schreiber, J., **Sharma, M.**, & Eden, T. (2026). Diverging section nozzle clogging in cold spray of aluminum 6061 through 304 stainless steel split nozzles: Mechanisms, observations, and implications. *Materialia*, 2026, 13, 102668 . <https://doi.org/10.1016/j.mtla.2026.102668>

M.M. Sharma, **A.M. Stutzman, J.M. Schreiber, D.E. Wolfe, T.J. Eden, "Nickel Coatings on Ceramic Materials Using Different Diffusion Techniques" *Coatings* 2023, 13, 2072.

Bioceramic composite coatings deposited by the cold spray process. **Sharma, Mala M.**; Judd, Kiran G.; Eden, Timothy J. *Advanced Ceramic Coatings for Biomedical Applications*. Elsevier, 2023. p. 137-163. <https://doi.org/10.1016/B978-0-323-99626-6.00014-7>.

M.M. Sharma., F.L.Wolff, , T.J. Eden, V.K. Champagne, "Prediction of the Flattening Ratio and Hardness of Cold Sprayed Deposits". *Solid State Phenomena* Vol. 338, pp. 3–15 *Trans Tech Publications*, 2022 <https://doi.org/10.4028/p-3f4541>

M.M. Sharma, **K.G. Judd, J. M. Schreiber, T. J. Eden, Deformation Behavior of Single Particle Cold Spray Ti-6Al-4V Splats, *Materials Science Forum*, Vol. 1016, pp 1325-1330, 2020 <https://doi.org/10.4028/www.scientific.net/MSF.1016.1325>

K.G. Judd, **M.M. Sharma, T.J. Eden, "Multifunctional Bioceramic Composite Coatings Deposited by Cold Spray", *Key Engineering Materials*, Vol. 813, pp. 228-233, 2019.

M.M. Sharma, J.M. Schreiber, T.J. Eden, V.K. Champagne, "Stress Corrosion Cracking Resistance of Cold-Sprayed Al 6061 Deposits Using a Newly Developed Test Fixture" *Coatings* 9 (7), 445, 2019

J Henao and **M.M. Sharma**. "Characterization, Deposition Mechanisms and Modeling of Metallic Glass Powders for Cold Spray." *Cold-Spray Coatings: Recent Trends and Future Perspectives*. Ed. Pasquale Cavaliere. Berlin: Springer, 2017. pp. 251-272. https://link.springer.com/chapter/10.1007/978-3-319-67183-3_8

M.M Sharma, *J.D. Tomedi and *J.M. Parks, A Microscopic Study on the Corrosion Fatigue of Ultra-Fine Grained and Conventional Al-Mg alloy" *Corrosion Science* 93 (2015) pp.180–190 <http://dx.doi.org/10.1016/j.corsci.2015.01.020>

M.M.Sharma, T.J. Eden, B. Golesich, "Effect of Surface Preparation on the Microstructure, Adhesion and Tensile Properties of Cold Sprayed Aluminum Coatings on AA2024 Substrates," *J Therm Spray Tech* Febr 2015, Volume 24, *Issue 3*, pp 410-422. <http://dx.doi.org/10.1007/s11666-014-0175-1>

M.M Sharma, *J.D. Tomedi and *T.J.Weigley, "Slow Strain Rate Testing and Stress Corrosion Cracking of Ultra-Fine Grained and Conventional Al-Mg alloy" *Mat.Sci Eng. A*, Volume 619, 1 December 2014, pp. 35–46 <http://dx.doi.org/10.1016/j.msea.2014.09.062>

J.M. Schreiber, Z.R. Omcikus, T.J. Eden, **M.M. Sharma**, V. Champagne, S.N. Patankar," Combined effect of hot extrusion and heat treatment on the mechanical behavior of 7055 AA processed via spray metal forming" *Journal of Alloys and Compounds* Volume 617, 25 December 2014, pp. 135–139 <http://dx.doi.org/10.1016/j.jallcom.2014.07.184>

C.W. Ziemian, **M.M. Sharma**, *B.D. Bouffard, *T. Nissley, T.J. Eden,"Effect of Substrate Surface Roughening and Cold Spray Coating on the Fatigue Life of AA2024 Specimens", *J of Mater and Design* 54 (2014), pp. 212-221 <http://dx.doi.org/10.1016/j.matdes.2013.08.061>

Constance Ziemian, **Mala Sharma** and Sophia Ziemian (2012). Anisotropic Mechanical Properties of ABS Parts Fabricated by Fused Deposition Modelling, Mechanical Engineering, Dr. Murat Gokcek (Ed.), ISBN: 978-953-51-0505-3, InTech, DOI: 10.5772/34233. Available from: <http://www.intechopen.com/books/mechanical-engineering/anisotropic-mechanical-properties-of-abs-parts-fabricated-by-fused-deposition-modeling->

C.W.Ziemian, **M.M.Sharma**,* D.E.Whaley,, “Effects of flashing and upset sequences on microstructure, hardness, and tensile properties of welded structural steel joints”, *J of Mater and Design*, 33 (2012) pp. 175-184
<http://dx.doi.org/10.1016/j.matdes.2011.07.026>

M.M Sharma., C.W. Ziemian, and T.J.Eden, “Fatigue behavior of SiC particulate reinforced spray-formed 7XXX series Al-alloys”, *J of Mater and Design*, 32 (2011) pp. 4304-4309 <http://dx.doi.org/10.1016/j.matdes.2011.04.009>

M.M Sharma., C.W. Ziemian, and T.J.Eden.,” Processing and Composition Effects on the Fracture Behavior of Spray-Formed 7XXX Series Al Alloys”, *J of Materials Engineering and Performance*,19, Issue 9 (2010), pp 1344-1351. DOI 10.1007/s11665-010-9624-2

M.M. Sharma and C.W. Ziemian , “Pitting and Stress Corrosion Cracking Susceptibility of Nanostructured Al-Mg Alloys in Natural and Artificial Environments”. *Journal of Materials Engineering and Performance*” 17 (2008), pp. 870-878.

C.W. Ziemian, C. W. and **M.M. Sharma**, “Adapting Learning Factory Concepts Towards Integrated Manufacturing Education,” *International Journal of Engineering Education*, 24 (2007), pp. 119-210.

M.M. Sharma., Microstructural and Mechanical Characterization of Various Modified 7xxx Series Spray Formed Alloys" *Journal of Materials Characterization*, 59 (2007), pp.91-99.

M.M. Sharma, M.F. Amateau , T.J. Eden, “Aging Response of Al-Zn-Mg-Cu Spray Formed Alloys and Their Metal Matrix Composites”, *Material Science and Engineering A.*, 424 (2006) pp.87-96.

M.M. Sharma, M.F. Amateau , T.J. Eden, “Hardening Mechanisms of Spray Formed Al-Zn-Mg-Cu Alloys with Scandium and other Elemental Additions”, *Journal of Alloy and Compounds*. 416 (2005) pp.135-142.

M.M. Sharma, M.F. Amateau , T.J. Eden, “Mesoscopic Structure Control of Spray Formed High Strength Al- Zn-Mg-Cu Alloys”. *Acta Materialia* 53 (2005) pp. 2919-2924.

M.M. Sharma, M.F. Amateau , T.J. Eden, “Properties of Spray Formed High Strength Heat-Treatable AlZnCuMgZr Alloys”, *Advanced Particulate Materials and Processes*, 1997,pp. 371-378.

M.M. Sharma and M.F. Amateau, “Processing of Laminated Hybrid Ceramic Composites”, *Composites Part B* 6, 1997, pp. 203-210.

CONFERENCE PROCEEDINGS AND POSTER PRESENTATIONS

M.M. Sharma, **K.G. Judd, J. M. Schreiber, T. J. Eden, Deformation Behavior of Single Particle Cold Spray Ti-6Al-4V Splats, THERMEC’2021 – International Conference on Processing & Manufacturing of advanced Materials (Virtual Conference) VIENNA, AUSTRIA (June 01 – 05, 2021)

K.G. Judd, **M.M.Sharma, T.J. Eden,” Multifunctional Bioceramic Composite Coatings Deposited by Cold Spray”. Conference Poster: 33rd Inter.Conference Surface Modifications Technologies, Naples, (June 26/28, 2019)

T.J. Eden, J.M. Schreiber and **M.M. Sharma**, “Cold Spray Development at the Applied Research Laboratory” CSAT 2017 in Boston, Massachusetts, (June 14-15, 2017)

J.M. Schreiber, T.J. Eden, I. Smid, **M.M. Sharma**, D.L. Cote, “Finite Element Analysis of the Cold Spray Process using the Preston-Tonks-Wallace Plasticity Model” Poster Presentation at CSAT 2017, Boston, Massachusetts, (June 14-15, 2017)

M. M. Sharma and *Josh Tomedi “Corrosion of Commercially Pure Aluminum Cold Sprayed Coatings in a Wide Variety of Environmental Conditions”, Poster Presentation at VII Aluminium Surface Science & Technology (ASST 2015) Symposium, May17-21, 2015 in Madeira Island, Portugal

M.M. Sharma, *A. Agarwal and *J.D. Tomedi, "Evaluation of commercially pure aluminum cold sprayed coatings in a wide variety of environmental conditions", Presented at ASM International's 26th Advanced Aerospace Materials and Processes (AeroMat) Conference and Exposition (May 11–14, 2015)

J.M. Schreiber, T.J. Eden, I. Smid, **M.M. Sharma**, “Finite Element Modeling of Hard Particle Impact During Cold Spray Deposition”, Presented at North American Cold Spray Conference And Exposition, Sep 16-17 2014 in Québec City, Canada

M.M. Sharma, C.W. Ziemian and *B.D. Bouffard, “Effect of Surface Preparation on Corrosion Performance of Cold Sprayed Coatings Applied to AA2024-T351 Substrates” Proceedings of VI Aluminium Surface Science & Technology Symposium May 27th - 31st (2012) in Sorrento, Italy

C.W. Ziemian, **M.M. Sharma**, *B.D. Bouffard, “Effect of Surface Preparation and Cold Spray Coating on the Fatigue Performance of AA2024 Substrates” Proceedings of VI Aluminium Surface Science & Technology Symposium May 27th - 31st (2012) in Sorrento, Italy

M.M. Sharma, C.W. Ziemian and *B.D. Bouffard, “Effect of Surface Preparation on Corrosion Performance of Cold Sprayed Coatings Applied to AA2024-T351 Substrates” Poster presentation at VI Aluminium Surface Science & Technology Symposium May 27th - 31st (2012) in Sorrento, Italy

C.W. Ziemian, **M.M. Sharma**, B.D. Bouffard, “Effect of Surface Preparation and Cold Spray Coating on the Fatigue Performance of AA2024 Substrates” Poster presentation at VI Aluminium Surface Science & Technology Symposium May 27th - 31st (2012) in Sorrento, Italy

M.M. Sharma, “Grain Size Effects on the Corrosion Fatigue and Slow Strain Rate Testing of Nanocrystalline and Conventional Al-Mg Alloy” poster presentation at 2nd NanoToday Elsevier Conference, December 11-15th (2011) Marriott Resort Waikoloa, Hawaii (Presenter: Mala M. Sharma)

M.M. Sharma and B. D. Bouffard, “Investigation of Corrosion Resistant Coatings Applied by Cold Spray for use in Aerospace Applications” Presented at ASM International's AeroMat 2010 Conference and Expo, June 21-24 (2010) Meydenbauer Center, Bellevue Washington.

M.M. Sharma and B. D. Bouffard, “Assessment of the Long Term Corrosion Protection of Aluminum Coatings on Aerospace Alloys Applied by the Cold Spray Process” Presented at ASM International's AeroMat 2010 Conference and Expo, June 21-24 (2010) Meydenbauer Center, Bellevue Washington.

AFRL/MLLMP – Small Business Innovation Research Phase II Final Report; “Innovative Corrosion Protection via Cold Spray Kinetic Metallization”, Brock Golesich, Timothy Eden, John Potter, Douglas Wolfe, Ashley Norris, **Mala Sharma** (April 2010). Air Force Research Laboratory, Materials and Manufacturing, Wright-Patterson Air Force Base.

Ziemian, C.W., **Sharma, M.M** and *Powanda, J.T., “Study of the Flash Butt Welding of High Strength Carbon-Manganese Steel” in proceedings of 2009 NSF CMMI Engineering Research and Innovation Conference, Honolulu, Hawaii (June 2009).

Sharma, M.M., Ziemian, C.W., *Bouffard, B.D, *Powanda, J.T. and *Riglin, J.D. “Acquisition of Instrumentation for Materials Characterization and Nondestructive Evaluation” Poster Presentation at the 2009 NSF CMMI Engineering Research and Innovation Conference, Honolulu, Hawaii (June 2009).

Sharma M.M “Innovative Corrosion Protection Via Cold Spray Kinetic Metallization ” SBIR Phase 2: Year 2 Summary Report (May 2009).

Sharma M.M. and Ziemian C.W.,” Acquisition of Instrumentation for Materials Characterization and Nondestructive Evaluation”, Final Report for award 0619232, Submitted to NSF (1/12/09).

Sharma M.M., "Effects of Surface Preparation on the Performance of Cold Spray Coatings" presented at Aerospace Materials Conference (AeroMat '08)&Exposition 2008, Austin, Texas (June 2008)

Golesich B, **Sharma M.**, Eden T., "Structure/Property Effects of the Surface Preparation on the Performance of Cold Spray Coatings" in proceedings of Aerospace Materials Conference (AeroMat '08) and Exposition 2008, Austin, Texas (June 2008)

Ziemian, C.W., **Sharma, M.M.**, and *Whaley, D.D., “Flash Butt-Welding Process Optimization Through the Design of Experiments,” Proceedings of 2008 NSF Engineering Research and Innovation Conference, Knoxville, Tennessee (Jan 2008)

Sharma M.M. and Ziemian C.W.,” Acquisition of Instrumentation for Materials Characterization and Nondestructive Evaluation”, Annual Report for award 0619232, Submitted to NSF (12/31/07).

Sharma M., Golesich B, Eden T., "Innovative Corrosion Protection Via Cold Spray Kinetic Metallization" presented (by Brock Golesich) at Materials Science & Technology Conference and Exhibit (MS&T '07), Detroit, Michigan. (Sept 2007).

Sharma M., Golesich B, Eden T., "Innovative Corrosion Protection Via Cold Spray Kinetic Metallization" in proceedings of Materials Science & Technology Conference and Exhibit (MS&T '07), Detroit, Michigan. (Sept 2007).

Sharma M.M., "Corrosion Resistant Aluminum Coatings on Aluminum Substrates" presented at Aerospace Materials Conference (AeroMat '07)&Exposition, Baltimore, Maryland (June 2007)

Golesich B, **Sharma M.**, Eden T., "Corrosion Resistant Aluminum Coatings on Aluminum Substrates" in proceedings of Aerospace Materials Conference (AeroMat'07) and Exposition, Baltimore, Maryland (June 2007).

Sharma M. “Innovative Corrosion Protection Via Cold Spray Kinetic Metalization ” SBIR Phase 1: Program Progress/Final Report (May 2007).

Sharma M. Presented a paper titled, “Investigation of the Stress Corrosion Cracking Resistance of Nanostructured and Conventional Al-Mg Alloys in Artificial Seawater”, at the NACE 58th Annual Conference and Exposition, in San Diego, CA. March-2003

Sikora, E., Shaw, B.A. and **Sharma M.** "Assessment of corrosion behavior and stress corrosion cracking susceptibility of nanocrystalline bulk Al-Mg based alloys in chloride containing solutions." Corrosion and Corrosion Control in Saltwater Environments II-Proceedings of the International Symposium. 2005.

Sikora, E., Shaw, B.A. and **Sharma M.** “Cracking susceptibility of nanocrystalline bulk Al-Mg alloys in chloride containing solutions” Corrosion in Marine and Saltwater Environments II: Proceedings of the International Symposium, The Electrochemical Society. Volume 2004-14. (2005).

Sikora E., **Sharma M.**, Hobbs C., Shaw B., “An Investigation of the Corrosion Resistance of Nanostructured Al-Mg and Ni-based Alloys” Year end report-ONR (2003).

Hobbs C., **Sharma M.**, Wei X., Sikora E., and Shaw B., “An Investigation of the Corrosion Resistance of Nanostructured Al-Mg and Ni-based Alloys “ Interim report-ONR (July 2003).

Sharma M Presented a paper titled,” Corrosion Behavior of Nanostructured Al-Mg Alloys and their Conventional Counterpart”, at the Electrochemical Society 202nd Meeting (ECS) in Salt Lake City, Utah. Oct-2002

Sharma M Invited poster presenter, “Investigation of the Stress Corrosion Cracking and Corrosion Fatigue Resistance of Nanostructured Al-Mg Alloys”, at the Gordon Conference in New London, New Hampshire. July-2002

Sikora E., **Sharma M.**, Hobbs C., Shaw B., “An Investigation of the Corrosion Resistance of Nanostructured Al-Mg and Ni-based Alloys “ Year-end report-ONR (2002).

Sikora E., Wei X., **Sharma M.**, Berti S., Shaw B., ”An Investigation of the Corrosion Resistance of Nanostructured Al-Mg and Ni-based Alloys” Year-end report-ONR (2001).

GRANTS AND FELLOWSHIPS RECIEVED

U.S. Army CCDC Army Research Laboratory – Subcontractor collaborative cold spray effort (\$40,000) (2018)

Full year: Sabbatical Leave- Bucknell University (Aug 2017-August 2018)

Dean’s Fellowship Grant- Bucknell University (Sept 2014)- “Al 6061 coatings and Al 6061 bulk materials with improved corrosion and fatigue resistance for drill string application”

Scholarly Development Grant, Bucknell University (May 2014)

National Science Foundation Grant, Material Research Instrumentation Program (NSF-MRI): “Acquisition of a Nanoindenter for Characterization of Biological and Advanced Engineering Materials”, Co-PI, (with D.Ebenstein PI and C. Stayton & K. Wakabayashi Co-PI’s). \$262,852 (2010) Funded on 09/18/10 with an effective date of 10/01/10-10/1/12

Curricular Development Grant, Bucknell University (2008)

National Science Foundation Grant -AFRL/MLLMP – Small Business Innovation Research (SBIR-Phase2)- AF06-089 “Innovative Corrosion Protection via Cold Spray Kinetic Metallization” -Collaborative proposal with Kuchera Defense Systems (Windber, PA) and The Pennsylvania State University Applied Research Laboratory, Co-PI, **\$750,000** (01 June 2007 – 31 December 2009)

National Science Foundation Grant - Nanotechnology Undergraduate Education (NUE) in Engineering (NSF-NUE) NUE proposal in collaboration with other Bucknell Faculty to set up a Nanofabrication Facility. The objective of the project is to enhance undergraduate education in the area of nanomaterials (with Jablonski,Ebenstien,) Senior Personnel, **\$199,685** (2007)

National Science Foundation Grant -AFRL/MLLMP – Small Business Innovation Research (SBIR-Phase1)- AF06-089, “Innovative Corrosion Protection via Cold Spray Kinetic Metallization” -Collaborative proposal with Kuchera Defense Systems(Windber, PA) and The Pennsylvania State University Applied Research Laboratory, sub-contractor/consultant, **\$100,000** Funded (01 Sept 2006-31 May 2007)

National Science Foundation Grant- Major Research Instrumentation Program (NSF-MRI) "Acquisition of Instrumentation for Materials Characterization and Nondestructive Evaluation", NSF-CMMI Division, PI (with C.W. Ziemian Co-PI) **\$63,000** (2006) Funded 08/01/06 with an effective date of 01/01/07-01/01/08

Scholarly Development Grant, Bucknell University (2006)

Christian R. and Mary F. Lindback Foundation Minority Junior Faculty Grant, Bucknell University, "Evaluation of the Failure Mechanisms During Stress Corrosion Cracking of Al-Mg Nanocrystalline Alloys for use in Naval Applications", PI, **\$14,830** (2005)

NACE International Seed Grant from Federal Office of Naval Research, "Investigation of the Stress Corrosion Cracking Resistance of Al-Mg Alloys", PI **\$20,000** (2003-2004)

NACE International Seed Grant from Federal Office of Naval Research, "Investigation of the Stress Corrosion Cracking Resistance of Al-Mg Alloys", PI **\$20,000** (2002-2003)

LIST OF THESES-Supervised

Samantha D. Berti- MS in Engineering Science and Mechanics at Penn State University (2002)
Courtney A. Hobbs – MS in Engineering Science and Mechanics at Penn State University (2004)
Donald D. Whaley- MS in Mechanical Engineering at Bucknell University (2006)
Ben D. Bouffard-MS in Mechanical Engineering at Bucknell University (2010)
Jeff Parks- MS in Mechanical Engineering at Bucknell University (2011)
Stasia Schlatter –MS in Mechanical Engineering at Bucknell University (2016)
Andrew Amin – MS in Engineering Science and Mechanics (2024-2026)
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PROFESSIONAL SOCIETY MEMBERSHIP

- | | |
|---|----------------|
| • Society of Women Engineers (SWE) | 1995 - Present |
| • American Society of Materials (ASM) | 1995 - Present |
| • Association for Materials Protection and Performance (AMPP) | 2001 - Present |