

Jason N. Armstrong, Ph.D.

220 Bell Hall, Department of Mechanical & Aerospace Engineering, University at Buffalo, Buffalo, NY 14260

Education

University at Buffalo, State University of New York, Buffalo, NY

- *B.S. Mechanical Engineering* 2004
- *B.S. Aerospace Engineering* 2004
- *Ph.D. Mechanical Engineering* 2010
- *Postdoctoral Associate* 2010-2012

Professional Appointments

University at Buffalo, State University of New York, Buffalo, NY

Department of Mechanical & Aerospace Engineering

- *Teaching Associate Professor* 2018-present
- *Director, MAE Materials Teaching Lab* 2016-present
- *Research Assistant Professor (volunteer)* 2014-present
- *Teaching Assistant Professor* 2012-2017
- *Postdoctoral Associate* 2010- 2012 (full-time)
- *Lecturer* 2010- 2012 (part-time)

Awards & Honors

- *2019 UB Teaching Innovation Award*
 - For new teaching methods and approaches to enhance student learning outcomes.
- *2018 Best Teaching Faculty of the Year Award*
 - For outstanding educational contributions to the School of Engineering and Applied Sciences.
- *2018 Vanderhoef Award*
 - For taking the extra effort to coach, mentor, and provide support for students in Mechanical and Aerospace Engineering.
- *2014-2015 Milton Plesur Teaching Award*
 - For excellence in teaching; awarded by the Student Association at the University at Buffalo.

Teaching Experience

- MAE177 Introduction to CAD
- MAE204 Thermodynamics
- MAE334 Engineering Lab I
- MAE377 Product Design in a CAE Environment
- MAE381 Engineering Materials
- MAE385 Engineering Materials Laboratory
- MAE484/585 Mechanical Behavior or Materials

Service

- MAE Undergraduate Studies Committee
- MAE Student Excellence and Diversity Committee
- SAE (UB Motorsports) Faculty Advisor
- EAS202 Faculty Mentor

Grants & Funding

1. "SPIR: Metallurgy for the Non-Metallurgist Training" 12/17/18-03/29/19
Niagara Specialty Metals Akron, NY
Total Project Cost: \$10,895
2. "Advanced Manufacturing Quality Specialist Certificate Program" 05/18/15-06/30/15
New York State Department of Labor
Total Direct Costs: \$50,000
3. "Commercialization of an ultra-stable pico-resolution metrology system" 10/01/14-08/30/15
SUNY Research Foundation Technology Accelerator Fund (TAF), Fall 2014 Award
Total Direct Costs: \$50,000
4. "Measurement & manipulation of cells & biomolecules using US-patented pico-resolution metrology R&D equipment" 07/01/14-06/30/15
UB Center for Advanced Biomedical and Bioengineering Technology (UB CAT) Award
Total Direct Costs: \$25,000
5. "Ultra-stable pico-resolution metrology system for devices beyond Moore's law" 06/04/13-03/04/14
SUNY Research Foundation Technology Accelerator Fund (TAF), Spring 2013 Award
Total Direct Costs: \$50,000

Peer Reviewed Publications

[Google Scholar Profile](#) (Citations: 251, h-index: 8)

1. Feng Hu, Lu An, Aditya Chivate, Zipeng Guo, Saurabh Khuje, Yulong Huang, Yong Hu, Jason Armstrong, Chi Zhou and Shenqiang Ren, Flexible and printable dielectric polymer composite with tunable permittivity and thermal stability, *Chemical Communications*, Advance Article (2020). <https://doi.org/10.1039/C9CC08648J>
2. Ruizhe Yang, Feng Hu, Lu An, Jason Armstrong, Yong Hu, Changning Li, Yulong Huang, and Shenqiang Ren, A Hierarchical Mesoporous Insulation Ceramic, *Nano Letters*, Article ASAP (2019). <https://doi.org/10.1021/acs.nanolett.9b04411>
3. Jun Wang, Rahul Rai, and Jason Armstrong, Investigation of compressive deformation behaviors of cubic periodic cellular structural cubes through 3D printed parts and FE simulations, *Rapid Prototyping Journal*, Vol. ahead-of-print No. ahead-of-print. (2019). <https://doi.org/10.1108/RPJ-03-2019-0069>
4. Yulong Huang, Yong Hu, Feng Hu, Ruizhe Yang, Changning Li, Jason N. Armstrong and Shenqiang Ren, Correlation at Two-Dimensional Charge-Transfer FeSe Interface, *Chemical Communications*, **55**, 12643-12646 (2019). <https://doi.org/10.1039/C9CC06163K>
5. Yong Hu, Guohua Zhong, Ying-Shi Guan, Jason N. Armstrong, Changning Li, Changjiang Liu, Alpha N'Diaye, Anand Bhattacharya, and Shenqiang Ren, Strongly Correlated Aromatic Molecular Conductor, *Small*, 1900299 (2019). <https://doi.org/10.1002/sml.201900299>
6. Yong Hu, Guohua Zhong, Ying-Shi Guan, Nam Hoon Lee, Yuan Zhang, Yang Li, Travis Mitchell, Jason N. Armstrong, Jason Benedict, Saw-Wai Hla, and Shenqiang Ren, Alkali-Metal-Intercalated

- Percolation Network Regulates Self-Assembled Electronic Aromatic Molecules, *Advanced Materials*, 1807178 (2019). <https://doi.org/10.1002/adma.201807178>
7. Jingming Zhang, Changning Li, Jason Armstrong, and Shenqiang Ren, Eutectic Melt Crystallization of L10- FePt, *Chemical Communications*, **55**, 656 (2019).
<https://doi.org/10.1039/C8CC08199A>
 8. Jason N. Armstrong, Susan Z. Hua, and Harsh Deep Chopra, Anisotropic Curie temperature materials, *Physica Status Solidi B*, **250**, 387 (2013). <https://doi.org/10.1002/pssb.201248186>
 9. Jason N. Armstrong, Eric M. Gande, John W. Vinti, Susan Z. Hua, Harsh Deep Chopra, Physical properties of a two-component system at the Fermi and Sharvin length scales, *Journal of Applied Physics*. **112**, 104320 (2012). <https://doi.org/10.1063/1.4766454>
 10. Jason N. Armstrong, Susan Z. Hua, Harsh Deep Chopra, Strength of metals at the Fermi length scale, *Physica Status Solidi (RRL) Rapid Research Letters*. **6**, 99 (2012).
<https://doi.org/10.1002/pssr.201105541>
 11. Jason N. Armstrong, Susan Z. Hua, and Harsh Deep Chopra, Mechanics of quantum and Sharvin conductors, *Physical Review B* **83**, 235422 (2011). <https://doi.org/10.1103/PhysRevB.83.235422>
 12. Jason N. Armstrong, Susan Z. Hua, and Harsh Deep Chopra, Cooperative motion of domain walls in magnetic multilayers, *Physical Review B* **83**, 054426 (2011).
<https://doi.org/10.1103/PhysRevB.83.054426>
 13. Jason N. Armstrong, R. M. Schaub, Susan Z. Hua, and Harsh Deep Chopra, Channel saturation and conductance quantization in single-atom gold constrictions, *Physical Review B* **82**, 195416 (2010). <https://doi.org/10.1103/PhysRevB.82.195416>
 14. Jason N. Armstrong, James D. Felske, and Harsh Deep Chopra, Multiple phase transitions found in a magnetic Heusler alloy and thermodynamics of their magnetic internal energy, *Physical Review B* **81**, 174405 (2010). <https://doi.org/10.1103/PhysRevB.81.174405>
 15. Cédric Bathany, Maëlane Le Romancer, Jason N. Armstrong, and Harsh Deep Chopra, Morphogenesis of maze-like magnetic domains, *Physical Review B* **82**, 184411 (2010).
<https://doi.org/10.1103/PhysRevB.82.184411>
 16. Jason N. Armstrong, Matthew R. Sullivan, and Harsh Deep Chopra, Antiferromagnetic spin and twin domain walls govern hysteretic expressions of exchange anisotropy, *Physical Review B* **80**, 104429 (2009). <https://doi.org/10.1103/PhysRevB.80.104429>
 17. Mark D. Huntington, Jason N. Armstrong, Matthew R. Sullivan, Susan Z. Hua, and Harsh Deep Chopra, Mechanistic understanding of transition between quantized conductance plateaus under strain perturbation, *Physical Review B* **78**, 035442 (2008).
<https://doi.org/10.1103/PhysRevB.78.035442>
 18. Jason N. Armstrong, Matthew R. Sullivan, Maëlane Le Romancer, Volodymyr A. Chernenko, and Harsh Deep Chopra, Role of magnetostatic interactions in micromagnetic structure of multiferroics, *Journal of Applied Physics* **103**, 023905 (2008).
<https://doi.org/10.1063/1.2817640>

19. Harsh Deep Chopra, Matthew R. Sullivan, Jason N. Armstrong, and Susan Z. Hua, The quantum spin-valve in cobalt atomic point contacts, *Nature Materials* **4**, 832-837 (2005).
<https://doi.org/10.1038/nmat1510>

Conference Papers

1. Kaiyue Deng, Hamid Khakpour Nejadkhaki, Felipe M. Pasquali, Anosh P. Amaria, Jason N. Armstrong, and John F. Hall, "Rule of Mixtures Model to Determine Elastic Modulus and Tensile Strength of 3D Printed Carbon Fiber Reinforced Nylon", *Proceedings of the ASME 2019 International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*. Volume 2A: 45th Design Automation Conference. Anaheim, California, USA. August 18–21, 2019. V02AT03A039. ASME. <https://doi.org/10.1115/DETC2019-98024>

Patents

1. "Metrology Probe and Method of Configuring a Metrology Probe" Harsh Deep Chopra, Jason N. Armstrong, and Zonglu Hua. US Patent number 8,397,311, 03-12-2013.
2. "Selectively conductive structure wherein a magnetic conductor is sized to have a cross-section diameter similar to a Fermi wavelength of electrons" Harsh Deep Chopra, Zonglu Hua, Matthew R. Sullivan, and Jason N. Armstrong. US Patent # 7,425,826 B2, 9-16-2008.

Professional Affiliations

- American Society for Engineering Education (ASEE)
- Materials Research Society (MRS)
- American Society of Mechanical Engineers (ASME)
- SAE International (previously Society of Automotive Engineers)