



# Azadeh Sheidaei

Assistant Professor

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## Education

- Ph.D. Mechanical Engineering, Michigan State University, 2015
- M.S. Mechanical Engineering, Michigan State University, 2009
- B. S. Aerospace Engineering, Sharif University of Technology (Tehran, Iran), 2003

## Academic Appointments

- Iowa State University (2018-present)**  
Department of Aerospace Engineering
  - Assistant Professor, January 2018 - present
- Kettering University (2015-2017)**  
Department of Mechanical Engineering
  - Assistant Professor, September 2015-September 2017

## Awards and Honors

- NSF Travel Award, Academic Leadership for Women in Engineering (ALWE17), 2017.
- Dissertation competition fellowship, Graduate school, Michigan State University, 2015.
- Outstanding graduate student, Michigan State University – ME Department, 2014.
- Selected to receive GE Technology Innovation Days Fellowship, 2011.
- Zonta International Foundation, Amelia Earhart Fellowship, 2010-2011.

## Teaching

- UNDERGRAD:** AerE 421 Advanced Flight Structures;
- GRADUATE:** EM 510 Continuum Mechanics.

## Research

### Interest Areas:

- Design and characterization of advanced material systems: composites; fuel cells; battery; geological materials;
- Modeling and analysis of biological systems: bone diseases; minimally invasive surgery (MIS) of soft-tissue.

## Selected Publications

(34 publications, including 14 journals, 20 Conf. Proceeding, Google Scholar metrics (Sep 2019): 396 citations, h-index=8, i10-index=7)

1. Hajighasemi, M., Baniassadi, M., **Sheidaei, A.** (2019). "Design and additive manufacturing of a smart structure with tunable effective stiffness," *International Journal of Applied Mechanics*.
2. **Sheidaei, A.**, Kazempour, M., Rémond, Y., George, D. (2019). "Influence of bone microstructure distribution on developed mechanical energy for bone remodeling using a statistical reconstruction method," *Mathematics and Mechanics of Solids*.
3. Kazempour, M., **Sheidaei, A.**, Baniassadi, M., Rémond, Y., George, D. (2019). "Numerical simulation of osteoporosis degradation at local scale: a preliminary study on the kinematic loss of mechanical bone stiffness," *Bio-Medical Materials and Engineering*.
4. Bharadwaj, K., **Sheidaei, A.**, Afshar, A., Baqersad, J. (2019). "Full-field strain prediction using mode shapes measured with Digital Image Correlation."
5. Ghanati, P., Adibnazari, S., Alrefai, M., **Sheidaei, A.** (2018). "A new approach for closed-form analytical solution of two-dimensional symmetric double contacts and the comparison with finite element method," *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*.
6. Yousefi, E., **Sheidaei, A.**, Mahdavi, M., Baniassadi, M., Baghani, M., Faraji, G. (2017). "Effect of nanofiller geometry on the energy absorption capability of coiled carbon nanotube composite material," *Composites Science and Technology*, 153, pp. 222-231.
7. Safaei, M., **Sheidaei, A.**, Baniassadi, M., Ahzi, S., Pourboghraat, F. (2015). "An interfacial debonding-induced damage model for graphite nanoplatelet polymer composites," *Computational Materials Science*, 96, pp. 191-199.
8. Hamedani, H.A., Baniassadi, M., **Sheidaei, A.**, Pourboghraat, F., Rémond, Y., Garmestani, H. (2014). "Three-dimensional reconstruction and microstructure modelling of porosity graded cathode using focused ion beam and homogenization techniques," *Fuel Cells*, 14 No. 1, pp. 91-95.
9. Tabei, S.A., **Sheidaei, A.**, Baniassadi, M., Pourboghraat, F., Garmestani, H. (2013). "Microstructure reconstruction and homogenization of porous Ni-YSZ composites for temperature dependent properties," *Journal of Power Sources*, 235, pp. 74-80.
10. **Sheidaei, A.**, Baniassadi, M., Banu, M., Askeland, P., Pahlavanpour, M., Kuuttila, N., Pourboghraat, F., Drzal, L.T., Garmestani, H. (2013). "3-D microstructure reconstruction of polymer nano-composite using FIB=SEM and statistical correlation function," *Composites Science and Technology*, 80, pp. 47-54.
11. **Sheidaei, A.**, Xiao, X. (2011). "Mechanical behaviour of a battery separator in electrolyte solutions," *Journal of Power Sources*, 196 No. 20, pp. 8728-8734.
12. Zeinali-Davarani, S., **Sheidaei, A.**, Baek, S. "A finite element model of stress-mediated vascular adaptation: application to abdominal aortic aneurysms." *Computer Methods in Biomechanics and Biomedical Engineering* 14, no. 9 (2011): 803-817
13. **Sheidaei, A.**, Hunley, S.C., Zeinali-Davarani, S., Raguin, L.G., Baek, S. (2011). "Simulation of abdominal aortic aneurysm growth with updating hemodynamic loads using a realistic geometry," *Medical Engineering and Physics*, 33 No. 1, pp. 80-88.
14. **Sheidaei, A.**, Xiao, X.S., Huang, X., Wang, J. (2011). "Mechanical characterization of a lithium ion battery separator using a dynamic mechanical analyzer," *SAE Technical Paper* 2011-01-0669.

## Thesis Advisor/Co-advisor and Postgraduate-Scholar Sponsor

**Doctoral (1):** F. Pourboghraat (2015).

**Masters (1):** S. Baek (2009).

## Professional and Outreach Activities

- Members of International Association for Computational Mechanics (IACM), American Society for Composites (ASC), American Society for Engineering Education (ASEE), Society of Women Engineers (SWE), American Society of Mechanical Engineers (ASME);
- Organized and Chaired/Co-chaired: mini-symposia (3D-Reconstruction and Homogenization of Composites) for ASC2017, 32nd American Society for Composites Technical Conference, Purdue University, West Lafayette, Indiana, October 23-25, 2017;
- Organized workshop: ME department at Kettering university for GEAR UP (Gaining Early Awareness and Readiness for Undergraduate Programs), April 2017;
- Reviewer: Science and Engineering of Composite Materials, International Journal of Energy Research, Foundations in Engineering Mechanics, Materials Science and Engineering B, SAE (Society of Automotive Engineers), Food Engineering, Fuel cell, Computational material science, Int. J. of Vehicle Design (IJVD), Composite Structures, International Journal of Mechanics and Materials in Design, Mechanical Systems and Signal Processing, International Journal of Applied Mechanics, Journal of Engineering in Medicine;
- Mentoring/Diversity Officer at IACM (International Association for Computational Mechanics) FEMALE RESEARCHERS CHAPTER;
- Role model FabFems Directory, which is a national database of women in STEM professions who are inspiring role models for young women.