

NSF BIOGRAPHICAL SKETCH

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IDENTIFYING INFORMATION:

NAME: Shim, Jongmin

NSF ID: 000647910@nsf.gov

ORCID: 0000-0001-5485-160X

POSITION TITLE: Associate Professor

ORGANIZATION AND LOCATION: University at Buffalo, Buffalo, NY, USA**Professional Preparation:**

ORGANIZATION AND LOCATION	DEGREE (if applicable)	DATE RECEIVED	FIELD OF STUDY
Harvard University, Cambridge, MA, USA	Postdoctoral Fellow	2010 - 2012	
Massachusetts Institute of Technology, Cambridge, MA, USA	PHD	02/2010	Engineering Mechanics
Massachusetts Institute of Technology, Cambridge, MA, USA	MS	01/2005	Civil and Environmental Engineering
Korea Advanced Institute of Science and Technology, Daejeon, South Korea	MS	02/2001	Civil Engineering
Korea Advanced Institute of Science and Technology, Daejeon, South Korea	BS	02/1998	Civil Engineering

Appointments and Positions

2019 - present Associate Professor, University at Buffalo, Buffalo, NY, USA

2013 - 2019 Assistant Professor, University at Buffalo, Buffalo, NY, USA

Products**Products Most Closely Related to the Proposed Project**

- Jain N, Shim J. Numerical study on the phononic band-structure of soft granular crystals. International Journal of Solids and Structures. 2020 May; 191-192:173-186. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0020768319304913> DOI: 10.1016/j.ijsolstr.2019.12.007
- Haque A, Ghachi R, Alnahhal W, Aref A, Shim J. Hybrid Split Hopkinson Pressure Bar to Identify Impulse-dependent Wave Characteristics of Viscoelastic Phononic Crystals. Experimental Mechanics. 2018 November 1; 59(1):95-109. Available from: <http://link.springer.com/10.1007/s11340-018-00441-8> DOI: 10.1007/s11340-018-00441-8
- Tahidul Haque A, Ghachi R, Alnahhal W, Aref A, Shim J. Sagittal Plane Waves in Infinitely

Periodic Multilayered Composites Composed of Alternating Viscoelastic and Elastic Solids. *Journal of Applied Mechanics*. 2018 April 01; 85(4):- . Available from: <https://asmedigitalcollection.asme.org/appliedmechanics/article/doi/10.1115/1.4039039/384655/Plane-Waves-in-Infinitely-Periodic> DOI: 10.1115/1.4039039

4. Tahidul Haque A, Ghachi R, Alnahhal W, Aref A, Shim J. Generalized Spatial Aliasing Solution for the Dispersion Analysis of Infinitely Periodic Multilayered Composites Using the Finite Element Method. *Journal of Vibration and Acoustics*. 2017 October 01; 139(5):- . Available from: <https://asmedigitalcollection.asme.org/vibrationacoustics/article/doi/10.1115/1.4036469/473475/Spatial-Aliasing-Solution-for-the> DOI: 10.1115/1.4036469
5. Shim J, Wang P, Bertoldi K. Harnessing instability-induced pattern transformation to design tunable phononic crystals. *International Journal of Solids and Structures*. 2015 April; 58:52-61. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0020768314004880> DOI: 10.1016/j.ijsolstr.2014.12.018

Other Significant Products, Whether or Not Related to the Proposed Project

1. Jiang Y, Rudra B, Shim J, Li Y. Limiting strain for auxeticity under large compressive Deformation: Chiral vs. re-entrant cellular solids. *International Journal of Solids and Structures*. 2019 May; 162:87-95. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S002076831830489X> DOI: 10.1016/j.ijsolstr.2018.11.035
2. Rudra B, Jiang Y, Li Y, Shim J. A class of diatomic 2-D soft granular crystals undergoing pattern transformations. *Soft Matter*. 2017; 13(35):5824-5831. Available from: <http://xlink.rsc.org/?DOI=C7SM01430A> DOI: 10.1039/C7SM01430A
3. Haque A, Shim J. On spatial aliasing in the phononic band-structure of layered composites. *International Journal of Solids and Structures*. 2016 October; 96:380-392. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0020768316300920> DOI: 10.1016/j.ijsolstr.2016.05.014
4. Shim J, Shan S, Košmrlj A, Kang S, Chen E, Weaver J, Bertoldi K. Harnessing instabilities for design of soft reconfigurable auxetic/chiral materials. *Soft Matter*. 2013; 9(34):8198-. Available from: <http://xlink.rsc.org/?DOI=c3sm51148k> DOI: 10.1039/c3sm51148k
5. Shim J, Mohr D. Using split Hopkinson pressure bars to perform large strain compression tests on polyurea at low, intermediate and high strain rates. *International Journal of Impact Engineering*. 2009; 36(9):1116-1127. Available from: <https://linkinghub.elsevier.com/retrieve/pii/S0734743X0800328X> DOI: 10.1016/j.ijimpeng.2008.12.010

Synergistic Activities

1. I have been co-organizing a mini-symposium on Mechanical Metamaterials and Cellular Structures in ASME International Mechanical Engineering Congress & Exposition (IMECE) with other faculty members in the field since 2016. The duties are to advertise the technical symposia for talks and to review submitted abstracts/papers. In addition, I have served as a session chair for multiple technical sessions (e.g., Mechanics of Cellular Materials, Mechanical Metamaterials) in mini-symposia.

2. In my home department, there were several courses that had been discontinued for many years. I have revived some of them with completely new content to meet the needs of the department. CIE513 Stability is a revived graduate course dealing with the fundamental concept of structural stability and this course offering is the outcome of the educational plan associated with my previous NSF grant (CMMI-1649111).
3. I have been serving as an academic mentor for high school students through Buffalo-area Engineering Awareness for Minorities, Inc. (BEAM) since 2015. In particular, I am working with local high school students, who are the participants of a 4-week Summer Research Honor Program in BEAM.

Certification:

When the individual signs the certification on behalf of themselves, they are certifying that the information is current, accurate, and complete. This includes, but is not limited to, information related to domestic and foreign appointments and positions. Misrepresentations and/or omissions may be subject to prosecution and liability pursuant to, but not limited to, 18 U.S.C. §§ 287, 1001, 1031 and 31 U.S.C. §§ 3729-3733 and 3802.

Certified by Shim, Jongmin in SciENcv on 2023-06-26 12:32:43