Wenting Cheng

Research Fellow · University of Michigan

500 S State St, Ann Arbor, MI 48109

+1 414-828-9461 | cwenting@umich.edu

Education

Ph.D. Materials Science and Engineering *Newark, NJ*

Department of Physics, New Jersey Institute of Technology *2022*

- PI: Dr. Camelia Prodan; Co-PI: Dr. Emil Prodan
- PhD Dissertation: Investigation of topological phonons in acoustic metamaterials

B.E. Materials Science and Engineering *Beijing, China*

North China Electric Power University *2017*

Work Experience

Postdoctoral Research Fellow *Ann Arbor, MI*

Department of Physics, University of Michigan *2022-Present*

- PI: Dr. Xiaoming Mao

Publications

⊛ *contributed equally.*

Published

S. Wu⊛, **W. Cheng**⊛, X. Liu, B. Wu, E. Prodan, C. Prodan, J. Jiang 2024. *Observation of D-class topology in an acoustic metamaterial*. **Science Bulletin**, 69(7), 893-900.

W. Cheng⊛, A. Cerjan⊛, S. Chen, E. Prodan, T.A. Loring, C. Prodan 2023. *Revealing topology in metals using experimental protocols inspired by K-theory*. **Nature Communications**, 14, 3071

W. Cheng, E. Prodan, C. Prodan 2021. *Revealing the Boundary Weyl Physics of the Four-Dimensional Hall Effect via Phason Engineering in Metamaterials*. **Physical Review Applied**, 16(4), 044032.

W. Cheng, E. Prodan, C. Prodan 2020. *Experimental demonstration of dynamic topological pumping across incommensurate bilayered acoustic metamaterials.* **Physical Review Letters**, 125(22), 224301

D.J. Apigo, **W. Cheng**, K.F. Dobiszewski, E. Prodan, C. Prodan 2019. *Observation of topological edge modes in a quasiperiodic acoustic waveguide*. **Physical Review Letters**, 122(9), 095501.

In Review

W. Cheng⊛, K. Qian⊛, N. Cheng⊛, N. Boechler, X. Mao, K. Sun. *Backscattering-free edge states below all bands in two-dimensional auxetic media*.

C. Broyles, X. Wan, **W. Cheng**, K. Qian⊛, D. Wu, H. Tan, Q. Xu, H. Siddiquee, W. Lin, Y. Wu, J. Liu, Y. L. Chen, B. Yan, K. Sun, S. Ran. *High temperature surface state in Kondo insulator U3Bi4Ni3*.

In Preparation

W. Cheng, K. Zhang, N. Cheng, X. Mao, E. Arruda. *Observation of Non-Hermitian skin effects in passive viscoelastic metamaterials*.

Conference Presentations *(* presenting author)*

W. Cheng*,K. Qian, N. Cheng, N. Boechler, X. Mao, K. Sun. 2023. One-way edge states in two-dimensional auxetic Maxwell lattices and continua. Oral presentation: Complex Mechanical Metamaterials Workshop, Ann Arbor, MI.

W. Cheng*, K. Sun, X. Mao. 2023. Robust one-way transport in Maxwell-lattice mechanical metamaterials. Oral presentation: APS March Meeting, Las Vegas, NV.

W. Cheng*, E. Prodan, and C. Prodan. 2022. Revealing the Boundary Weyl Physics of the Four-Dimensional Hall Effect via Phason Engineering in Metamaterials. Oral presentation: APS March Meeting, Chicago, IL.

W. Cheng*, E. Prodan, and C. Prodan. 2021. Experimental demonstration of dynamic topological pumping across incommensurate bilayered acoustic metamaterials. Oral presentation: Metamaterials (Virtual).

W. Cheng*, E. Prodan, and C. Prodan. 2021. Experimental demonstration of dynamic topological pumping across incommensurate bilayered acoustic metamaterials. Oral presentation: APS March Meeting (Virtual).

W. Cheng*, E. Prodan, and C. Prodan. 2020. Experimental demonstration of dynamic topological pumping across incommensurate bilayered acoustic metamaterials. Oral presentation: APS Mid-Atlantic Section Meeting (Virtual).

W. Cheng*, D.J. Apigo, K.F. Dobiszewski, E. Prodan, C. Prodan 2019. Observation of topological edge modes in a quasiperiodic acoustic waveguide. Oral presentation: APS March Meeting, Boston, MA.

Awards, Fellowships, & Grants

Spring 2023	**SLiM-Ex Scientist Exchange Award**, The Institute for Complex Adaptive Matter (ICAM)	*$ 3,000*

Teaching Experience

2018-2019 & Fall 2021	**Physics II Laboratory (Electricity and Magnetism)**, Instructor	*Newark, NJ*
Fall 2017	**Physics I Laboratory (Classical mechanics)**, Instructor	*Newark, NJ*

Press

It's time for some K-theory. Richard Brierley, **Nature Physics** volume 19, page 928 (13 July 2023) https://www.nature.com/articles/s41567-023-02147-8

Mathematics formula K-theory used to advance understanding of topological materials. Dani Rae Wascher, **PHYS.ORG** (11 August 2023) https://www.nature.com/articles/s41567-023-02147-8

Professional Development

Development

Jan 2025	**Topological Dynamics workshop at Princeton University**, Organizer, assisted in preparing and hosting the workshop on topological dynamics in quantum, soft matter, biophysics and metamaterials.	*Princeton, NJ*
April 2023	**University of California, San Diego**, Exchange Researcher, Mechanical Floquet Topological Insulators.	*La Jollas, CA*
Spring 2017	**University of Wisconsin - Milwaukee**, Exchange Undergraduate Student, Thermal Conductivity of Nanofluids, Biomaterials.	*Milwaukee, WI*

Peer Review

Nature communications; ACS nano; Extreme mechanics letters; Communications physics; Scientific Reports.

Professional Memberships

American Physical Society (2018-Present)