pwhum@umich.edu
GSRA Office: EECS 3216
1301 Beal Ave, Ann Arbor, MI, 48109

Wenhao Peng

ECE PhD Candidate
The University of Michigan
ME MSE dual degree

OBJECTIVE

Complete PhD studies with independent research capabilities and solid foundations in ECE and ME.

EDUCATION

The University of Michigan **Ann Arbor, MI**
Electrical and Computer Engineering PhD, 4.00/4.00 *Sept'18 - Apr'25*
Microwave Acoustics, Thin Film Ferroelectric Devices, Multiphysics Modeling. Aluminum Nitride, Scandium Aluminum Nitride, Barium Strontium Titanate, Bulk Acoustic Wave Resonators. Cleanroom device fabrication and mm-wave frequency network analyzer measurements. Theory and finite element simulations.

The University of Michigan **Ann Arbor, MI**
Mechanical Engineering MSE, 4.00/4.00 *Sept'19 - Jan'25*
Dynamics and Vibrations; dual degree with ECE PhD.

The University of Michigan **Ann Arbor, MI**
Master of Science in Electrical and Computer Engineering, 4.00/4.00 *Sept'18 - Dec'19*
Integrated Circuits and VLSI.

The University of Michigan **Ann Arbor, MI**
Bachelor of Science in Engineering in Electrical E, Summa Cum Laude, 4.00/4.00 *Sept'16 - Apr'18*

Shanghai Jiao Tong University **Shanghai, China**
Bachelor of Science in Electrical and Computer Engineering, 3.80/4.00 *Sept'14 - Aug'18*
UM-SJTU dual degree.

PUBLICATIONS

W. Peng, S. Nam, D. Wang, Z. Mi and A. Mortazawi, "A 56 GHz Trilayer AlN/ScAlN/AlN Periodically Poled FBAR", accepted for presentation at *2024 IEEE MTT-S International Microwave Symposium (IMS)*, June 2024.

D. Wang, P. Wang, S. Mondal, J. Liu, M. Hu, M. He, S. Nam, W. Peng, S. Yang, D. Wang, Y. Xiao, Y. Wu, A. Mortazawi, and Z. Mi, "Controlled ferroelectric switching in ultrawide bandgap AlN/ScAlN multilayers," *Applied Physics Letters*, vol. 123, no. 10, p. 103506, 09 2023. [Online].
Available: https://doi.org/10.1063/5.0160163

S. Nam, W. Peng, P. Wang, D. Wang, Z. Mi and A. Mortazawi, "A mm-Wave Trilayer AlN/ScAlN/AlN Higher Order Mode FBAR," in *IEEE Microwave and Wireless Technology Letters*, vol. 33, no. 6, pp. 803-806, June 2023,
doi: 10.1109/LMWT.2023.3271865.

W. Peng, M. Z. Koohi, S. Nam and A. Mortazawi, "Phenomenological Circuit Modeling of Ferroelectric-Driven Bulk Acoustic Wave Resonators," in *IEEE Transactions on Microwave Theory and Techniques*, vol. 70, no. 1, pp. 919-925, Jan. 2022,
doi: 10.1109/TMTT.2021.3130609.

W. Peng, M. Z. Koohi, S. Nam and A. Mortazawi, "Physics Based Modeling of Electrostriction Based BAW Resonators," *2021 IEEE MTT-S International Microwave Symposium (IMS)*, 2021, pp. 214-217,
doi: 10.1109/IMS19712.2021.9574949.

S. Nam, M. Z. Koohi, W. Peng and A. Mortazawi, "A Switchless Quad Band Filter Bank Based on Ferroelectric BST FBARs," in *IEEE Microwave and Wireless Components Letters*, vol. 31, no. 6, pp. 662-665, June 2021,
doi: 10.1109/LMWC.2021.3069880.

M. Z. Koohi, W. Peng and A. Mortazawi, "An Intrinsically Switchable Balanced Ferroelectric FBAR Filter at 2 GHz," *2020 IEEE/MTT-S International Microwave Symposium (IMS)*, 2020, pp. 131-134,
doi: 10.1109/IMS30576.2020.9223799.

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Y. Dai, W. Peng, Y. Wang, L.-X. Chuo, K. Suri, H. Zheng, D. Wentzloff, and H.-S. Kim, "Implementation and evaluation of bi-directional wifi back-channel communication," in *2018 IEEE 29th Annual International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, 2018, pp. 1–7, doi: 10.1109/PIMRC.2018.8580736.

SKILLS

COMSOL Multiphysics
Keysight ADS
Cadence Virtuoso and Innovus
Dassault Solidworks and Abaqus
ANSYS Mechanical APDL and Electronics Desktop
Synopsys Design Compiler

LaTeX	MATLAB	OriginLab	Adobe Creative Cloud
MS Office	Mathematica	Gnuplot	R

Contact lithography tools (aligner, spinner, mask maker)
PVD tools (sputter, evaporate)
RIE tools (ion beam, reactive plasma)
Wet benches (solvent, acid, base)
Metrology tools (SEM, stylus profiler, optical)
Microwave measurement tools (VNA, probe station)

COURSEWORK

MECHENG 645 Wave Propagation in Elastic Solids
MECHENG 641 Advanced Vibrations of Structures
MECHENG 541 Mechanical Vibrations
MECHENG 524 Advanced Engineering Acoustics
MECHENG 511 Theory of Solid Continua
MECHENG 501 Mathematical Methods in Mech. Engin.
MECHENG 424 Engineering Acoustics
ROB 501 Math for Robotics
EECS 627 VLSI Design II
EECS 530 Electromagnetic Theory I
EECS 525 Advanced Solid-State Microwave Circuits
EECS 522 Analog Integrated Circuits
EECS 427 VLSI Design I
EECS 414 Introduction to MEMS
EECS 413 Monolithic Amplifier Circuits
EECS 411 Microwave Circuits I
EECS 455 Digital Communication Signals
EECS 452 DSP Design Lab
EECS 470 Computer Architecture
Ve 475 Introduction to Cryptography
Ve 438 Advanded Lasers and Optics Laboratory
Ve 401 Probabilistic Methods in Engineering
EECS 311 Analog Circuits
EECS 312 Digital Integrated Circuits
EECS 320 Intro. to Semiconductor Devices
EECS 330 Intro. to Antennas and Wireless Systems
EECS 334 Principles of Optics
EECS 351 Intro. to Digital Signal Processing
EECS 370 Intro. to Computer Organization
Vp 390 Modern Physics
EECS 281 Data Structures and Algorithms
Ve 203 Discrete Mathematics
Ve 215 Intro. to Circuits
Ve 216 Intro. to Signals and Systems
Ve 230 Electromagnetics I
Ve 270 Intro. to Logic Design
Ve 280 Programming & Elem. Data Structures
Vv 286 Honors Mathematics IV
Vv 285 Honors Mathematics III
Vv 186 Honors Mathematics II
Vp 260 Honors Physics II
Vp 160 Honors Physics I
Vp 141 Physics Lab I
Vp 241 Physics Lab II
Vg 101 Intro. to Computers & Programming
Vc 211 Chemistry Lab
Vg 100 Intro. to Engineering
Vc 210 Chemistry

TEACHING ASSISTANCE

EECS 411 Microwave Circuits I FA19,FA20,FA21
EECS 312 Digital Integrated Circuits WN21,FA22,WN24
EECS 215 Intro to Elect Circ WN22,WN23,FA23,SP24
Vp 160 Honors Physics I SU16,SU18
Vc 211 Chemistry Lab SP16
Vc 210 Chemistry FA15