Will Michaels

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Research interests

Light-matter interaction, computational imaging, inverse design, nanofabrication, X-ray optics, scintillation

Education

Massachusetts Institute of Technology (MIT) — Sep 2024 - Present
PhD Electrical engineering and computer science (Expected 2029)
SM Electrical engineering and computer science (2026)
GPA: 5.0/5.0

Stanford University — Sep 2020 - Jun 2024
BS Physics and electrical engineering
GPA: 4.07/4.3

Awards

Stanford Phi Beta Kappa — Stanford University, Jun 2024
Awarded to top 10% of graduating class.

Alan L. McWhorter (1955) Fund Fellowship — MIT, May 2024
Fellowship awarded to incoming PhD students at MIT.

NSF Graduate Research Fellowship — National Science Foundation, Apr 2024
Awarded 3 year fellowship to pursue graduate studies in electrical engineering.

Stanford Small Grant — Stanford University, Mar 2024
Awarded $1500 by Stanford Undergraduate Research to continue work in perovskite LEDs.

Stanford Tau Beta Pi — Stanford University, Jan 2023
Awarded to top 1/8 of Stanford junior engineering students based on GPA.

Indiana Academic All-Star — Indiana Association of High School Principals, Apr 2020
Given to top 40 Indiana high school seniors based on academic achievement.

National Merit Scholar — National Merit Scholarship Corporation, Feb 2020
Given to students scoring in top 1% of nationwide PSAT scores.

Journal Publications (Google scholar)

[5] J. Chen, S. Vaidya, S. Pajovic, S. Choi, **W. Michaels**, L. Martin-Monier, J. Hu, C. Cogswell, C. Roques-Carmes, M. Soljačić "Wavefront Engineering for Scintillation-Based Imaging," *ACS Photonics*, 2026, 13, 7, 1757-1766

[4] S. Fernández, D. Mbachu, M. Hu, H. Cui, **W. Michaels**, P. Narayanan, T. Colenbrander, Q. Zhou, D. Lin, O. Segura Lecina, G. Hong, D. Congreve "Lead-Free Europium Halide Perovskite Nanoplatelets," *arXiv:2511.10873*

[3] P. Narayanan, M. Hu, L. Pucurimay, A. Gallegos, Q. Zhou, E. Belliveau, G. Ahmed, S. Fernández, **W. Michaels**, N. Murrietta, V. Mutatu, D. Feng, R. Hamid, K. Yap, T. Schloemer, T. Jaramillo, M. Kats, and D. Congreve, "Alleviating Parasitic Back Energy Transfer Enhances Thin Film Upconversion," *Adv. Optical Mater.*, 13, 2500252, 2025

[2] M. Hu, J. Lyu, N. Murrietta, S. Fernández, **W. Michaels**, Q. Zhou, P. Narayanan, D. Congreve, "2D mixed halide perovskites for ultraviolet light-emitting diodes," *Device*, 2, 100511, 2024

[1] S. Fernández, **W. Michaels**, M. Hu, P. Narayanan, N. Murrietta, A. Gallegos, G. Ahmed, J. Lyu, M. Gangishetty, D. Congreve, "The Trade-Off Between Efficiency and Electrical Stability in Green Mn^{2+} Doped Perovskite Light-Emitting Diodes," *Device*, 1, 100017, 2023

Conference Proceedings and Abstracts (Refereed)

[9] **W. Michaels**, A. Chan, S. Pajovic, S. Vaidya, J. Chen, C. Roques-Carmes, S. Kooi, M. Soljačić, "Enhancing Light Yield in Plastic Scintillators at Scale Using Surface Roughness," *CLEO 2026*, May 2026, Charlotte, NC (Oral presentation).

[8] **W. Michaels**, S. Pajovic, J. Chen, C. Roques-Carmes, M. Soljačić, "Optimized Diffractive Cascades for Polychromatic Hard X-ray Focusing," *CLEO 2026*, May 2026, Charlotte, NC (Oral presentation).

[7] J. Chen, S. Pajovic, S. Vaidya, **W. Michaels**, S. Choi, L. Martin-Monier, C. Spägele, C. Cogswell, C. Roques-Carmes, J. Hu, M. Soljačić, "Micron-Scale X-Ray Resolution in Metalens-Integrated Thick Scintillators," *CLEO 2026*, May 2026, Charlotte, NC (Oral presentation).

[6] D. Congreve, M. Hu, S. Fernández, N. Murrietta, J. Lyu, **W. Michaels**, Q. Zhou, P. Narayanan, "Driving UV emission from perovskite materials," *Organic and Hybrid Light Emitting Materials and Devices XXIX*, September 2025, San Diego, CA (Oral presentation).

[5] J. Chen, S. Pajovic, S. Vaidya, **W. Michaels**, S. Pontula, S. Choi, L. Martin-Monier, J. Hu, C. Cogswell, C.

Roques-Carmes, M. Soljačić, "Phase mask metasurfaces for high-resolution X-ray imaging," *CLEO: Applications and Technology*, May 2025, Long Beach, CA (Poster presentation).

[4] S. Fernández, **W. Michaels**, M. Hu, P. Narayanan, N. Murrietta, A. Gallegos, G. Ahmed, J. Lyu, M. Gangishetty, D. Congreve, "The trade-off between efficiency and stability in Mn^{2+} doped perovskite light-emitting diodes," *SPIE Optics + Photonics*, August 2023, San Diego, CA (Poster presentation).

[3] S. Fernández, **W. Michaels**, M. Hu, P. Narayanan, N. Murrietta, A. Gallegos, G. Ahmed, M. Gangishetty, D. Congreve, "The Trade-Off Between Efficiency and Electrical Stability in Green Mn^{2+} Doped Perovskite Light-Emitting Diodes," *MRS Spring Meeting*, April 2023, San Francisco, CA (Oral presentation).

[2] S. Fernández, **W. Michaels**, M. Hu, P. Narayanan, N. Murrietta, A. Gallegos, G. Ahmed, M. Gangishetty, D. Congreve, "The Trade-Off Between Efficiency and Electrical Stability in Green Mn^{2+} Doped Perovskite Light-Emitting Diodes," *Materials for Sustainable Development Conference (MATSUS23)* Spring Meeting, March 2023, València, Spain (Oral presentation).

[1] S. Cheong, J. Frisch, S. Gasiorowski, J. Hogan, M. Kagan, **W. Michaels**, M. Safdari, A. Schwartzman, M. Vandegar, "Novel Light Field Imaging Device with Enhanced Light Collection for Cold Atom Clouds," *53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics*, June 2022, Orlando, FL (Oral presentation)

Industry experience

MACOM, *Semiconductor device intern* — Jun 2022 - Sep 2022

Mezli, *Electrical engineering intern* — Jan 2022 - Apr 2022

Miscellaneous

Software tools:	**Python (PyTorch, NumPy)**, Verilog, LaTeX, Mathematica, ROS, C++
Experimental tools:	Spin coating, thermal evaporation, X-ray imaging, confocal microscopy, SEM, soldering, photoluminescence quantum yield, AFM
Selected graduate coursework:	Quantum mechanics, semiconductor device physics, materials for neurotechnology, computational imaging, symmetry in machine learning
Blog:	willmichaels.substack.com

Academic service and teaching

Quantum Control and Engineering, *Grader*, Stanford University	Spring 2024
Introduction to Photonics, *Grader*, Stanford University	Winter 2024
An Intro to Making: What is EE?, *Grader*, Stanford University	Fall 2023
Signals and Systems I, *Grader*, Stanford University	Winter 2023, Winter 2024
Probabilistic Systems Analysis, *Grader*, Stanford University	Fall 2022
Quantum Computing High School Course, *Instructor*, Stanford Quantum Computing Association	Winter 2022
Statistics, data science, programming, and physics tutor, freelance	2022-2024