Evan Leppink

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RESEARCH INTERESTS

Radio-frequency heating and current drive systems for fusion energy, klystron & gyrotron design, microwave plasma diagnostics, plasma wave physics, scientific machine learning, Bayesian data analysis

EDUCATION

Massachusetts Institute of Technology 2018-2025
Ph.D. Nuclear Science and Engineering, GPA: 5.0/5.0 Cambridge, MA
Thesis: Characterization of the DIII-D High-Field Side Scrape-Off Layer and Implications for High-Field Side Lower Hybrid Current Drive
Advisor: Stephen J. Wukitch

University of Michigan–Ann Arbor 2014-2018
B.S.E. Nuclear Engineering with a Minor in Physics, GPA: 3.964/4.0 Ann Arbor, MI
Graduated *summa cum laude*

RESEARCH EXPERIENCE

General Atomics DIII-D National Fusion Facility 2022-present
Visiting Graduate Student Researcher San Diego, CA

Lawrence Livermore National Laboratory Summer 2018
Weapons & Complex Integration, High Energy Density Physics Internship Livermore, CA

Princeton Plasma Physics Laboratory Summer 2017
Science Undergraduate Laboratory Internship Princeton, NJ

Los Alamos National Laboratory Laboratory Summer 2016
Los Alamos Neutron Science Center Los Alamos, NM

University of Michigan, Center for Ultrafast Optical Science 2017-2018
Undergraduate Research Ann Arbor, MI

University of Michigan, Detection for Nuclear Nonproliferation Group 2015-2017
Undergraduate Research Ann Arbor, MI

AWARDS AND HONORS

DOE Office of Science Graduate Student Research Fellowship (SCGSR) 2022
MIT Nuclear Engineering Department, Outstanding Teaching Assistant and Mentorship Award 2021
MIT United States Nuclear Regulatory Fellowship 2019-2020

University of Michigan College of Engineering Distinguished Achievement Undergraduate Award 2018
Presented to the outstanding undergraduate in each degree program.
Criteria include academic achievement, exemplary character, leadership in class and activities, and potential for success in future endeavors.

University of Michigan James B. Angell Scholar 2016-2018
University of Michigan Dean's List Awarded All Semesters
Undergraduate American Nuclear Society Scholarship 2016, 2017

Glenn F. Knoll Memorial Scholarship 2016, 2017

SELECT PUBLICATIONS

1. **E. Leppink**, C. Lau, Y. Lin, A. Seltzman, S.J. Wukitch, *Characterization of the High-Field Side Scrape-Off Layer Density Profile and Prediction of High-Field Side LHCD Coupling on DIII-D*, Plasma Physics and Controlled Fusion (2025), *Submitted*
2. **E. Leppink**, C. Lau, Y. Lin, A. Seltzman, S.J. Wukitch, *Automated design of an additive manufactured compact broadband antenna for plasma reflectometry*, Fusion Engineering and Design (2025), doi.org/10.1016/j.fusengdes.2025.114810.
3. **E. Leppink**, C. Lau, Y. Lin, S. J. Wukitch, *Evaluation of the Abel inversion integral in O-mode plasma reflectometry using Chebyshev–Gauss quadrature*, Rev. Sci. Instrum. (2023), doi.org/10.1063/5.0132246
4. **E. Leppink**, C. Lau, Y. Lin, S. J. Wukitch, *A high-field side scrape-off layer reflectometer on DIII-D for LHCD coupling studies*, AIP Conf. Proc. (2023), doi.org/10.1063/5.0162739
5. M.Y. Hua, B. Goddard, C. Lloyd, **E. Leppink**, et al., *Simulation of the Nondestructive Assay of 237Np Using Active Neutron Multiplicity Counting*, Nuclear Science and Engineering (2019), doi.org/10.1080/00295639.2019.1654329
6. M. E. Fenstermacher, et al., *DIII-D research advancing the physics basis for optimizing the tokamak approach to fusion energy*, Nuclear Fusion 62 042024 (2022), doi.org/10.1088/1741-4326/ac2ff2

SELECT PRESENTATIONS

1. **66th American Physical Society Division of Plasma Physics,** Atlanta, GA Nov. 2024
   Simulation-Based Inference of High Field Side Scrape-Off Layer Filament Characteristics using Profile Reflectometry
2. **65th American Physical Society Division of Plasma Physics,** Denver, CO Nov. 2023
   Machine Learning Prediction of the High-Field Side Scrape-Off Layer Density and Optimization of DIII-D HFS LHCD Antenna Loading
3. **49th European Conference on Plasma Physics,** Bordeaux, France July 2023
   High Field Side Scrape-Off Layer Density Profile Characterization and Implications for DIII-D High Field Side LHCD Experiment
4. **64th American Physical Society Division of Plasma Physics,** Spokane, WA Oct. 2022
   First Results from the High-Field Side Scrape-Off Layer Reflectometer on DIII-D
5. **24th Topical Conference on Radio-frequency Power in Plasmas** Annapolis, MD Sept. 2022
   A high-field side scrape-off layer reflectometer on DIII-D for LHCD coupling studies
6. **15th International Reflectometry Workshop** Cadarache, France June 2022
   Development of a High-Field-Side Scrape-Off Layer Reflectometer on DIII-D for LHCD Coupling Studies
7. **High-Temperature Plasma Diagnostics Conference,** Rochester, NY May 2022
   A High Field Side Scrape Off Layer Reflectometer on DIII-D for LHCD Coupling Studies
8. **63rd American Physical Society Division of Plasma Physics,** virtual Oct. 2021
   Design and Status of a High Field Side Reflectometer on DIII-D
9. **62nd American Physical Society Division of Plasma Physics,** virtual Oct. 2020
   Full-wave Simulation of High Field Side Scrape Off Layer Reflectometry and Lower Hybrid Coupling on DIII-D
10. **61st American Physical Society Division of Plasma Physics,** Fort Lauderdale, FL Oct. 2019
    Design of a Compact Antenna for High Field Side Reflectometry on DIII-D

TEACHING AND MENTORSHIP

Graduate Teaching Assistant, Massachusetts Institute of Technology — 2020
Introduction to Plasma Physics — Cambridge, MA

Course Grader, Massachusetts Institute of Technology — 2021
Principles of Plasma Diagnostics — Cambridge, MA

SERVICE AND OUTREACH

Tour Guide, MIT Plasma Science and Fusion Center — 2019-2020

President, American Nuclear Society UMichigan Student Chapter — 2017-2018

Secretary, American Nuclear Society UMichigan Student Chapter — 2016-2017

Publicity Chair, INMM UMichigan Student Chapter — 2016-2018

MEDIA

Yahoo Finance, Exclusive: Fusion reactor promises limitless energy — 2024

DOE Office of Science, SCGSR Fellowship Research Highlight — 2023

MIT News, Evan Leppink: Seeking a way to better stabilize the fusion environment — 2022