

Josh Ott

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EDUCATION

Massachusetts Institute of Technology Ph.D. in Physics	2025 –
North Carolina State University B.S. Physics, B.S. Mathematics <i>Summa cum laude</i>	2021 – 2025

RESEARCH EXPERIENCE

North Carolina State University , Undergraduate Researcher <i>Advisors:</i> Prof. Vladimir Skokov, Prof. Thomas Schäfer Determined the dynamical critical exponent of the Model H universality class non-perturbatively. Applied fluid simulation methods to solve stochastic partial differential equations on GPU.	01/2022 –
CERN , Summer Student <i>Advisors:</i> Dr. Mateusz Fila, Dr. Benedikt Hegner Contributed to the development of a task-scheduling framework in Julia aimed at high-energy physics applications.	06/2024 – 08/2024
Brookhaven National Laboratory , DOE SULI Intern <i>Advisor:</i> Dr. Swagato Mukherjee Analyzed lattice QCD data to extract proton energies from hadron correlators at various momenta.	06/2023 – 08/2023

PUBLICATIONS

- C. Chattopadhyay, **J. Ott**, T. Schäfer, and V. V. Skokov. “Critical fluid dynamics in two and three dimensions”. *Phys. Rev. D* 111.3 (2025), p. 034026. [arXiv:2411.15994]
- C. Chattopadhyay, **J. Ott**, T. Schäfer, and V. V. Skokov. “Simulations of Stochastic Fluid Dynamics near a Critical Point in the Phase Diagram”. *Phys. Rev. Lett.* 133.3 (2024), p. 032301. [arXiv:2403.10608]
- C. Chattopadhyay, **J. Ott**, T. Schäfer, and V. Skokov. “Dynamic scaling of order parameter fluctuations in model B”. *Phys. Rev. D* 108.7 (2023), p. 074004. [arXiv:2304.07279]

AWARDS

Dean of Science Fellowship Massachusetts Institute of Technology	2025 – 2028
Graduate Research Fellowship Honorable Mention National Science Foundation	2025
Outstanding Senior Award for Research NCSU College of Sciences	2025
Astronaut Scholarship Astronaut Scholarship Foundation	2024
McCormick Symposium Poster Award, first place NCSU Department of Physics	2024

FUNDING

Provost’s Professional Experience Program (\$2,000), North Carolina State University	2024
NSF CERN REU (\$5,000), University of Michigan	2024
Research Assistantship (\$1,600), NCSU Office of Undergraduate Research	2023

PRESENTATIONS

Talks

NCSU Physics Department McCormick Symposium, Raleigh, NC "How to simulate a boiling plasma of quarks and gluons"	04/2025
Mathematics Honors Presentations, Raleigh, NC "Simulating stochastic diffusion in critical fluids"	04/2025
APS Division of Nuclear Physics Fall Meeting, Boston, MA "Simulating stochastic fluid dynamics near a critical point in the phase diagram"	10/2024
Astronaut Scholar Technical Conference, Houston, TX "Simulating the Critical Dynamics of Quark-Gluon Plasma"	08/2024
University of Michigan CERN REU Final Presentations, Geneva, CH "Graph-based Task Scheduling on Heterogeneous Resources"	08/2024
CERN Software Frameworks & Tools Group Meeting, Geneva, CH "Graph-based Task Scheduling on Heterogeneous Resources"	08/2024
HPC Research Symposium, Raleigh, NC "Simulating stochastic fluid dynamics with GPUs on Hazel"	04/2024

Posters

NCSU Spring Undergraduate Research Symposium, Raleigh, NC "Nonequilibrium dynamics in model H"	04/2024
NCSU Physics Department McCormick Symposium, Raleigh, NC "Nonequilibrium dynamics in model H"	04/2024
BNL Summer Symposium, Upton, NY "Determination of proton mass from lattice QCD"	08/2023

RELEVANT COURSES

Physics: Classical Mechanics I & II | Electromagnetism I & II | Quantum Mechanics I & II | Thermal Physics

Math: Complex Variables* | Introduction to Topology* | Introduction to Manifold Theory* | Lie Groups & Lie Algebras* | Probability & Stochastic Processes*

Computer Science: C and Software Tools | Data Structures and Algorithms | Theory of Computation | Quantum Computing*

*: Graduate course

SERVICE

Undergraduate DEI Committee

Collaborated with other students to form a committee now proposing and implementing departmental changes related to diversity, equity, and inclusion to improve the physics community.

President – Society of Physics Students

08/2022 – 05/2023

I worked with my fellow officers to organize club meetings and create a welcoming environment for other physics students.

- Awarded 2022–23 Notable Chapter by SPS National