

# Josh Ott

Ph.D. Student, MIT Center for Theoretical Physics  
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## EDUCATION

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

## RESEARCH EXPERIENCE

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<b>North Carolina State University</b> , 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 –
<b>CERN</b> , 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
<b>Brookhaven National Laboratory</b> , 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

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- 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

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

## FUNDING

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

## PRESENTATIONS

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### 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

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**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

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### **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