

# Josh Ott

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

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### Massachusetts Institute of Technology

2025 –

Ph.D. in Physics

### North Carolina State University

2021 – 2025

B.S. Physics, B.S. Mathematics

*Summa cum laude*

## Awards

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### Dean of Science Fellowship

2025 – 2028

Massachusetts Institute of Technology

### Graduate Research Fellowship Honorable Mention

2025

National Science Foundation

### Senior Award for Outstanding Research

2025

NCSU College of Sciences

### Astronaut Scholarship

2024

Astronaut Scholarship Foundation

### McCormick Symposium Poster Award (*first place*)

2024

NCSU Department of Physics

## Publications

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### — Articles

- C. Chattopadhyay, **J. Ott**, T. Schaefer, and V. V. Skokov. “Transport properties of stochastic fluids”. *Phys. Rev. D* 112.11 (2025), p. 114026. [arXiv:2510.12557]
- 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]

### — Proceedings

- M. Fila, B. Hegner, O. Shchur, and **J. Ott**. “R&D towards heterogeneous frameworks for future experiments”. *EPJ Web Conf.* 337 (2025), p. 01069.
- C. Chattopadhyay, **J. Ott**, T. Schaefer, and V. Skokov. “Simulating stochastic fluid dynamics” (Aug. 2025). *31st International Conference on Ultra-relativistic Nucleus-Nucleus Collisions*. [arXiv:2509.00545]

## Research Experience

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### North Carolina State University, Undergraduate Researcher

01/2022 – 08/2025

*Advisors:* Vladimir Skokov, 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.

### CERN, Summer Student

06/2024 – 08/2024

*Advisors:* Mateusz Fila, Benedikt Hegner

Contributed to the development of a task-scheduling framework in Julia aimed at high-energy physics applications.

Advisor: Swagato Mukherjee

Analyzed lattice QCD data to extract proton energies from hadron correlators at various momenta.

## Funding

<b>PKP Graduate Fellowship</b> (\$8,500), Phi Kappa Phi	2025
<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

### — Talks

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

### — Posters

U.S. Astronaut Hall of Fame Induction Weekend, Cape Canaveral, FL	05/2025
“Nonequilibrium Dynamics in Model H”	
NCSU Spring Undergraduate Research Symposium, Raleigh, NC	04/2024
“Nonequilibrium Dynamics in Model H”	
NCSU Physics Department McCormick Symposium, Raleigh, NC	04/2024
“Nonequilibrium Dynamics in Model H”	
BNL Summer Symposium, Upton, NY	08/2023
“Determination of proton mass from lattice QCD”	

## Leadership

### 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