

# Josh Ott

Ph.D. Student, MIT Center for Theoretical Physics  
joott@mit.edu · joshott.net

## Education

<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

## Awards

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

## Publications

### — Articles

- C. Chattopadhyay, R. Maguire, **J. Ott**, T. Schaefer, and V. V. Skokov. “Critical dynamics of the superfluid phase transition in Model F” (Mar. 2026). [arXiv:2603.21479]
- 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

<b>North Carolina State University</b> , Undergraduate Researcher <i>Advisors:</i> 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.	01/2022 – 08/2025
--	-------------------

**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.

**Brookhaven National Laboratory, DOE SULI Intern**

06/2023 – 08/2023

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”	

## 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.