

# Josh Ott

Ph.D. Student, MIT Center for Theoretical Physics  
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## 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, **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]

## 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

## Research Experience

<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 – 08/2025
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**CERN, Summer Student**

06/2024 – 08/2024

Advisors: Dr. Mateusz Fila, Dr. 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: Dr. Swagato Mukherjee

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

Presentations

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– **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 &amp; 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

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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