

Josh Ott

Ph.D. Student, MIT Center for Theoretical Physics
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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

Awards

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

Publications

— Articles

- C. Chattopadhyay, **J. Ott**, T. Schaefer, and V. V. Skokov. “Transport properties of stochastic fluids” (Oct. 2025). [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

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 – 08/2025
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

Advisor: Dr. Swagato Mukherjee

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

Funding

PKP Graduate Fellowship (\$8,500), Phi Kappa Phi	2025
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	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