

NOAH M. MACKAY

Postal Address: Reiherweg 4A, Apt. B33, 14469 Potsdam

Place of Birth: Natrona Heights, PA, USA

Nationality: US-American

Marital Status: Single

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Education

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| M.Sc. Astrophysics – Universität Potsdam | Oct 2024 – Today |
| <ul style="list-style-type: none">• Grade Point Average (GPA; tentative, in Bavarian Metric): 1.3• Concentration in “Theoretical Astrophysics”• Thesis Project: Tidal deformations of rotating neutron stars | |
| M.A. German Studies – Universität Potsdam | Oct 2023 – Oct 2024 |
| <ul style="list-style-type: none">• Studies were discontinued | |
| M.Sc. Physics – East Carolina University (ECU), Greenville, NC, USA | Aug 2020 – May 2022 |
| <ul style="list-style-type: none">• GPA (USA Metric): 3.709• Concentration in “Applied Physics”• Thesis Project: The shear viscosity of quark-gluon plasma under anisotropic scatterings, link: http://hdl.handle.net/10342/10649 | |
| B.Sc. Physics, | Aug 2016 – May 2020 |
| B.A. German Studies – ECU, Greenville, NC, USA | |
| <ul style="list-style-type: none">• Combined GPA (USA): 3.630 Magna cum laude
(Bavarian): 1.5• Concentration in “Research” (Physics)• Concentration in “Language and Literature” (German Studies)• Bachelor’s Thesis (Physics): Scattering theories of charged particles (unpublished)• Bachelor’s Thesis (German Studies): Erich Mühsam: His Life and Select Works (published as “Erich Mühsam”), link: https://www.litencyc.com/php/people.php?rec=true&UID=14521 | |

Employments

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|---|-----------------------|
| Physics Tutor, Universität Potsdam | Oct 2025 – Today |
| <ul style="list-style-type: none">• University-recognized physics tutor; 12-month position with an extension | |
| Scientific Assistant, Universität Potsdam | Jan 2025 – June 2025 |
| <ul style="list-style-type: none">• 6-month limited position at the Institute of Computer Science; testing the consistency of various AI models with exam questions | |
| Private Physics Tutor | Jan 2024 – May 2024 |
| <ul style="list-style-type: none">• Appointment-based sessions in Physics, either in person or over Zoom | |
| Research Assistant in Physics, ECU, Greenville, NC, USA | June 2021 – July 2022 |
| <ul style="list-style-type: none">• NSF-funded master’s thesis work and scientific publication | |

Teaching Assistant, ECU, Greenville, NC, USA	Aug 2020 – May 2021
Master's-level student assistant to the professor	
Learning Assistant, ECU, Greenville, NC, USA	Aug 2017 – May 2020
Bachelor's-level student assistant to the professor	
Physics and German tutor, ECU, Greenville, NC, USA	Jan 2017 – Aug 2017
University-recognized tutor	
Food Retailer, Food Lion, Spring Hope, NC, USA	May 2013 – Aug 2016
Part-time job during high school education; cashier	

Languages

English – Native

German – Second Language

Technical Knowledge

Wolfram Mathematica	Expert
LaTeX	Expert
MS-Office Apps (Word, PowerPoint, Excel, etc.)	Very good
Python	Advanced

Social Engagement

“Die bewaffnete Wahrheit” (The Armed Truth) Initiative – Universität Potsdam	2023 – 2025
Pro-Ukrainian initiative; clarity against disinformation (fake news) and protecting Ukrainian culture.	
Family-friendly Scientific Events	2017 – 2023
- North-Carolina Science Olympiad – ECU, Greenville, NC, USA “A Time For Science” Event – Ayden-Grifton, NC, USA - Assistant at the Museum of Natural Sciences, Raleigh, NC, USA	

Recognition

Awards and Honors

Recipient of the Sarah Patterson Lane Award (Physics), ECU, Greenville, NC, USA	2019
Delta Phi Alpha (German Honor Society)	Joined in Nov 2019
Sigma Pi Sigma (Physics Honor Society)	Joined in May 2018

Grants

NSF Graduate Research Assistantship (\$15,000)	Summer 2021 – Summer 2022
North Carolina Space Grant (\$500)	Spring 2018

Miscellaneous

Hobbies – I write novels in English and poetry in German (Full list of self-published works here: https://www.amazon.com/Noah-M-MacKay/e/B089S5N385?ref=sr_ntt_srch_lnk_1&qid=1638642620&sr=8-1)

Research

Publications (Full Listing at [ORCID](#), [INSPIRE](#); Select Works Provided)

- Noah M. MacKay. “The statistical mechanics of Hawking radiation”. *Phys. Lett. B* **870**, 139888 2025
DOI: <https://doi.org/10.1016/j.physletb.2025.139888>
- Noah M. MacKay. “Comparing a Mass Shell Model for Compact Binaries with Observed Gravitational Waves”. [arXiv:2508.07499](#) – Physical Reviews D 2025
- Noah M. MacKay. “A Mass Shell Model of Compact Binary Coalescence”. [arXiv:2408.13917](#) – Class. Quantum Gravity 2025
- Noah M. MacKay and Zi-Wei Lin. “The shear viscosity of parton matter under anisotropic scatterings”. *Eur. Phys. J. C* **82**, 918 2022
DOI: <https://doi.org/10.1140/epjc/s10052-022-10892-y>
- Noah MacKay and Jill E. Twark. “Erich Mühsam” (in Englisch and German). *The Literary Encyclopedia*. 6. March 2020 2020
DOI: <https://www.litencyc.com/php/speople.php?rec=true&UID=14521>

Scientific Presentations

- Potsdamer Tag der Wissenschaften May 10, 2025
• Topic: Die Energie von Gravitationswellen (in German)
- Technische Hochschule Wildau July 31, 2024
• Topic: Quark-Gluon Plasma – Is it REALLY the Most Perfect Fluid?
- Potsdamer Tag der Wissenschaften May 4, 2024
• Topic: Das Quark-Gluon Plasma – die perfekte Flüssigkeit? (in German)
- ECU Research and Creative Achievement Week April 5, 2023
• Topic: Comparing parton scattering cross section for QGP from the AMY formalism and AMPT model
- ECU Research and Creative Achievement Week April 4, 2022
• Topic: The shear viscosity of QGP under anisotropic scatterings

Academic Affiliations

- Featured Contributor to Wolfram Research Community Joined in April 2025
(Profile link: <https://community.wolfram.com/web/mackayn16/home>)
- Uploading self-made Mathematica code used in scientific publications/preprint uploads for open, public access

Podcasts and Interviews

Universität Potsdam – “Wir sind UP” Podcast, January 6, 2025 (in German, Spotify Episode link: <https://open.spotify.com/episode/0wrDrpjRzEIUsVRiqPt6jr>) – A German-language interview with Uni Potsdam’s Inclusion Team; about my daily routine and challenges as an autistic, international Master student.

Universität Potsdam – International Student of the Month, November 8, 2024 (link: <https://www.uni-potsdam.de/de/international/international-at-home/stories/international-student-of-the-month/11/2024-noah>) – An English-language questionnaire with the Uni Potsdam International Office.

Universität Potsdam – Portal Magazine Article, January 9, 2024 (English version, link: <https://www.uni-potsdam.de/en/headlines-and-featured-stories/detail/2024-01-08-a-fight-for-freedom-of-opinion-and-independence-students-develop-an-exhibition-on-ukraine>) – An English-translated article accounting a discussion of the “Bewaffnete Wahrheit” student initiative (originally in German).

East Carolina University – “Pirate Profile,” March 1, 2021 (link: <https://news.ecu.edu/2021/03/01/student-noah-mackay/>) – An English-language article about me, my interests, and my motivation for studying physics.

A Little About Me

I am...

Motivated and always excited to learn new topics and pursue opportunities. In addition, I am ambitious to tackle challenges, rise above limitations, and learn from past experiences. Because of my autism diagnosis, I want to show that one can make the impossible possible and achieve awareness for autism and its advocacy.

My current studies...

I study astrophysics in the English-language international Master's Program at the Universität Potsdam. My interest in physics started in my youth in the USA when I successfully earned a Bachelor of Science at East Carolina University (ECU) in 2020. Two years later, during the COVID-19 pandemic, I stayed at ECU to earn a Master of Science in Physics (with a thesis topic on theoretical particle physics). Astrophysics was never offered at ECU when I was there, but I nevertheless found it interesting enough to pursue independently. My research interests lie in gravitational physics, from gravitational waves to rotating neutron stars to effective field theory approaches to general relativity. When working on a high-priority project or at the workplace, the mission objectives and scope take a higher priority, which coincides with my excitement to learn new topics and to fixate on the task at hand.

I have...

A high capability to take responsibility for my progress in work, studies, and research projects, as well as in social interactions, despite my autism diagnosis. Due to my diagnosis, I can put focus and creative energy on the task at hand, bringing new insight and perspective into the workplace. Loyalty and respect in the workplace are most important to me, in addition to love and faithfulness to my family, loved ones, and close friends.

In the future...

It is my goal to grow academically, professionally, and personally, and to improve myself. Short-term academic goals include obtaining a PhD position, while professional goals lie in working as a physicist in applied directions. Eventual goals after achieving a PhD include completing a post-doctorate position, in order to build experience, and becoming a university-level professor. Personal goals lie in coping with and living with autism, and in the far future, being in the social and economic position to start my own family.