

AHMED SHABAN

Riddick Hall, Campus Box 8202, Raleigh, NC 27695-8202

Personal Website: <https://ashaban0.github.io> **E-mail:** arshaban@ncsu.edu**EDUCATION**

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- **Ph.D in Physics** *Aug. 2018 - August 2024 (Expected)*
 North Carolina State University
 Thesis: “*Spatially Resolved Galactic Outflows in Gravitationally Lensed Galaxies*”
 Advisor: Dr. Rongmon Bordoloi
 - **Master of Science in Physics** *Aug. 2018 - Dec. 2020*
 North Carolina State University
 - **Bachelor of Science** *Sept. 2014 - June 2018*
Major: Physics of the Earth and Universe. **Concentration:** Astrophysics
 University of Science and Technology at Zewail City of Science and Technology, Egypt.
 Honors: Cum Laude.
- Summary of the Course Work:** Linear Algebra | Differential Equations | Mathematical Physics | Analytical Mechanics | Advanced Electricity and Magnetism | Advanced Quantum Mechanics | Physical Optics | Statistical Physics | General Relativity | Computational Physics | Cosmology | Astronomy | Astrophysics.

PROFESSIONAL EXPERIENCE

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- Research Assistant, Department of Physics, NC State University** *May 2019 - Present*
- Teaching Assistant, Department of Physics, NC State University**
- Teaching Assistant & guest lecturer for PY124 (Solar system Astronomy; 110 Students). *Fall 2022*
 - Training students on how to use Telescopes in PY452 (Senior Physics Lab). *Fall 2021 & 2022*
 - Teaching Assistant for PY101 curriculum development. *Summer 2022*
 - Teaching Assistant for PY543 (Graduate Astrophysics) *Spring 2022*
 - Instructor for PY 209 (E&M Lab; total: 152 Students). *Spring 2019 & Fall 2021*
 - Tutor at the Physics Tutorial Center (PTC). *Spring 2019*
 - Online tutor for PY208 (E&M for Engineers and Scientists). *Fall 2018*
- Teaching Assistant, Zewail City of Science & Technology, Egypt**
- Teaching Assistant for PEU 331 (Stellar Structure & Evolution) *Spring 2018*

OBSERVING

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- W. M. Keck Observatory, Keck II Telescope:
 - Keck Cosmic Web Imager (KCWI): 8 nights.
 - Echellette Spectrograph & Imager (ESI): 1 night.
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OBSERVING PROPOSALS CO-INVESTIGATOR

- NASA Keck Time 2024A: "*Spatially Resolved CGM metallicity maps at $z>2$* ", PI: R. Bordoloi, ID: 25/2024A_N110, Total Time Awarded: 2 nights using KCWI on Keck Telescope II.

MENTORING

- Ayesha Darekar: Undergraduate student. *Jan. 2021 - May 2024*
I am co-advising Ayesha with Dr. Rongmon Bordoloi for her undergraduate research project. She studies the absorbing system in the foreground of a gravitationally lensed quasar systems using KCWI.

AWARDS/SCHOLARSHIPS

- **Graduate School Summer Fellowship:** NC State University, 2500\$. *June 2022*
- **Merit-Based Scholarship** for my undergraduate studies at University of Science and Technology at Zewail City, Egypt. *Sept. 2014 - June 2018*

SERVICE AND PUBLIC OUTREACH

- Co-organizer of the weekly Astrophysics journal club, NC State University. *2019- present*
- Juror at The 2024 US Invitational Young Physicists Tournament, Raleigh, NC. *Feb. 2024*
- Volunteer at the astronomy days event at NC Museum of Natural Sciences. *Jan. 2023*
- Organizing a star gazing event in Oak island with the Egyptian students at NC State. *Sept. 2022*
- Organizing an event to observe the 2019 Transit of Mercury at NC State University. *Nov. 2019*

TECHNICAL SKILLS

- **Programming:** Python (Astropy, matplotlib, numpy, scipy, Pandas, Sckikit-Learn, Tensorflow, Keras), Matlab, R, Java, and SQL.
- **Symbolic Programming:** Mathematica.
- **Operating Systems:** Linux and Windows.
- **Astrophysics Softwares:** DS9, QFitsView, and Astropy.

INVITED TALKS

- "*Dissecting a 30 kpc Galactic Outflow*", Invited talk at the Astrocoffee journal club at the Johns Hopkins University, Baltimore, Maryland, on October 30, 2023.
- "*Spatially Resolving Galactic Outflows and the CGM using Gravitational Lensing*", Invited talk at the Low Density Universe subgroup at the Space Telescope Science Institute (STScI), Baltimore, Maryland, on October 30, 2023.
- "*Cosmic Lens on Galactic Winds*", Invited talk at the Galaxies and AGN journal club at the Space Telescope Science Institute (STScI), Baltimore, Maryland, on October 31, 2023.

CONFERENCE TALKS & POSTERS

- **Shaban, A.** 2023, "**Spatially Resolved Galactic Outflow at $z \sim 2$ Using Gravitational Lensing**". Talk+Poster. In '*Oases in the Cosmic Desert: Understanding the Circumgalactic Medium*' conference, Arizona State University.
- **Shaban, A.,** Bordoloi, R. and O'Meara, J., 2023, January. "**Small Scale Variation of Circumgalactic Medium Using Gravitational Lensing Tomography**". American Astronomical Society Meeting #241, id. 327.01. Bulletin of the American Astronomical Society, Vol. 55, No. 2 e-id 2023n2i327p01
- **Shaban, A.** and Bordoloi, R., 2020, June. "**A Spatially Resolved Study of Galactic Outflows in a Gravitationally Lensed Galaxy**". In *American Astronomical Society Meeting Abstracts# 236* (Vol. 236, pp. 307-01).

LIST OF PUBLICATIONS

ORCID: 0000-0002-8858-7875

First Author Publications:

1. **Ahmed Shaban,** Rongmon Bordoloi, John Chisholm, et al., **Dissecting a 30 kpc Galactic Outflow at $z \sim 1.7$,** *Monthly Notices of the Royal Astronomical Society (MNRAS)*: (2023), 526 (4), 6297.
2. **Ahmed Shaban,** Rongmon Bordoloi, John Chisholm, et al., **A 30 kpc Spatially Extended Clumpy and Asymmetric Galactic Outflow at $z \sim 1.7$,** *The Astrophysical Journal*, (2022): 936 (1), 77.

Co-Author Publications:

1. Naomi Giertych, **Ahmed Shaban,** Pragya Haravu, & Jonathan P Williams, **A Statistical Primer on Classical Period-Finding Techniques in Astronomy,** *Reports on Progress in Physics*, (2024): 87 (7), 078401.
2. Rongmon Bordoloi, John M. O'Meara, Keren Sharon, Jane R. Rigby, Jeff Cooke, **Ahmed Shaban,** et al., **Resolving the H I in damped Lyman α systems that power star formation,** *Nature*, (2022): 606, pages 59-63.