

# Md Mohsin

PHD CANDIDATE · PHYSICS

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| <https://scholar.google.com/citations?user=diqDnxwAAAAJ&hl=en> | <https://www.linkedin.com/in/md-mohsin-phys/> |

[https://twitter.com/m\\_d\\_mohsin](https://twitter.com/m_d_mohsin)

## Education

### University of Texas at San Antonio

PHD (CANDIDATE) PHYSICS

San Antonio, Texas, USA

12/2024 (expected)

### University of Texas at San Antonio

MS PHYSICS

San Antonio, Texas, USA

08/2022

### University of Chittagong

MS PHYSICS

Chittagong, Bangladesh

02/2008

### University of Chittagong

B.Sc. (HONS.) PHYSICS

Chittagong, Bangladesh

08/2006

## Professional Experience

- 2020–present **Graduate Teaching Assistant**, Department of Physics and Astronomy, University of Texas at San Antonio.
- 2021–2022 **Post Baccalaureate Fellow**, Department of Physics and Astronomy, University of Texas at San Antonio.
- 2020–2021 **Graduate Research Assistant**, Department of Physics and Astronomy, University of Texas at San Antonio.
- 2014–present **Assistant Professor**, Department of Physics, University of Chittagong, Bangladesh.
- 2013–2017 **Adjunct Lecturer**, School of Engineering & Computer Sciences, Chittagong Independent University, Bangladesh.
- 2012–2014 **Lecturer**, Department of Physics, University of Chittagong, Bangladesh.
- 2009–2012 **Officer**, Dutch-Bangla Bank Limited, Dhaka, Bangladesh.

## Certifications

Certified Entry-Level **Python** Programmer (2023). OpenEDG, Python Institute.

Wolfram Technology Certified | Level 1 | **Statistics** (2023). Wolfram U.

Wolfram Technology Certified | Level 1 | **Differential Equation** (2022). Wolfram U.

Wolfram Technology Certified | Level 1 | **Mathematica** (2021). Wolfram U.

Wolfram Technology Certified | Level 1 | **Wolfram Language** (2021). Wolfram U.

## Skills

### Computer Programming

Python, C++, and Wolfram Language.

### Scientific Software

Mathematica, COMSOL, MATLAB, Origin, Material Studio, VMD, and VASP.

### Operating Systems

Windows, Linux, and Mac.

### Selected Applications

Word Processing, Spread Sheet, and Presentation applications.

LaTeX and Text editors.

### Language

Native or Bilingual Proficiency: Bengali

Full Professional Proficiency: English

Elementary Proficiency: Chinese and Hindi

## Publications

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Google Scholar Citations: 13 (as on 2023, Dec 27)

### RESEARCH ARTICLE

Hunley, C., **Mohsin, M.**, & Marucho, M. (2022). Electrical impulse characterization along actin filaments in pathological conditions. *Computer Physics Communications*, 275, 108317. <https://doi.org/10.1016/j.cpc.2022.108317>

Rahman, A. K. M. R., Meaze, A. K. M. M. H., Chakraborty, S. R., & **Mohsin, M.** (2020). Evaluations of  $n + {}^{27}\text{Al}$  reaction in the energy range 0.1–200 MeV. *Indian Journal of Physics*, 94(8), 1255–1262. <https://doi.org/10.1007/s12648-019-01555-y>

Ferdous, J., Gafur, Md. A., Das, S. K., Chakraborty, S. R., **Mohsin, M.**, Deb, A. K., & Qadir, Md. R. (2014). Study of  $\text{Cu}_x\text{Zn}_{1-x}\text{Fe}_2\text{O}_4$  ferrite humidity sensors with and without naphthalene. *Sensor Letters*, 12(9), 13531360. <https://doi.org/10.1166/sl.2014.3297>

Ghose, P., Abdul Gafur, Md., Das, S. K., Chakraborty, S. R., **Mohsin, M.**, Deb, A. K., & Rakibul Qadir, Md. (2014). Effects of flux concentrations and sintering temperature on dental porcelain. *The European Physical Journal Applied Physics*, 65(2), 20701. <https://doi.org/10.1051/epjap/2014130378>

### MAGAZINE ARTICLE

**Mohsin, M.** (2023). Advancing infection and disease treatment in San Antonio and beyond. *Catalyst: The Magazine of the College of Sciences, UTSA* (Fall 2023), 11–13.

**Mohsin, M.** (2023). This is what a scientist looks like: Raul Montes. *Catalyst: The Magazine of the College of Sciences, UTSA* (Spring 2023), 20.

## Presentations

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### CONFERENCE

**Mohsin, M.**, & Marucho, M. (2023, February 2). *Cytoskeleton filaments and their potential role in electrical activities of healthy and dysfunctional neurons* [Poster session]. San Antonio Military Health and Universities Research Forum (SURF), San Antonio, TX, United States.

**Mohsin, M.**, Hunley, C., & Marucho, M. (2022, October 13–15). *Ionic transport along actin filaments* [Poster session]. Meeting of the Texas Section of the American Physical Society (TSAPS), Houston, TX, United States. <https://meetings.aps.org/Meeting/TSF22/Session/H01.13>

**Mohsin, M.**, Hunley, C., & Marucho, M. (2022, September 19). *Actin filaments acting as signal propagation pathways in muscle and non-muscle cells* [Poster session]. Triangle Cytoskeleton Meeting (TCM), Raleigh, NC, United States.

**Mohsin, M.** & Deb, A. K. (2009, May). *Lorentz and CPT violations in neutrino oscillation* [Conference abstract]. International Physics Conference, Dhaka, Bangladesh.

### INVITED TALKS

March 2017. *Lecture on physics*. Jamal Nazrul Islam Youth Science Festival, Fulki, Chittagong, Bangladesh.

## Research Experience

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### University of Texas at San Antonio - Department of Physics and Astronomy

San Antonio, TX

ADVISOR: DR. MARCELO MARUCHO

2022–present

- Oscillatory signal generation and propagation along microtubule.

### University of Texas at San Antonio - Department of Physics and Astronomy

San Antonio, TX

ADVISOR: DR. MARCELO MARUCHO

2021–2022

- Electrical signal propagation along actin filaments in physiological and pathological conditions.

### University of Chittagong - Department of Physics

Chittagong, Bangladesh

ADVISOR: DR. ARUN KUMAR DEB

2006–2007

- Master's Thesis: Study of Lorentz and CPT violations in neutrino physics.

## Teaching Experience

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### UNIVERSITY OF TEXAS AT SAN ANTONIO, SAN ANTONIO, USA

Fall 2023 **PHY-1631 Algebra-based Physics-II Lab**, Teaching Assistant  
Summer 2023 **PHY-1971 Physics for Scientist and Engineers-II Lab**, Teaching Assistant  
Spring 2023 **PHY-1631 Algebra based Physics-II Lab**, Teaching Assistant  
Fall 2022 **PHY-1971 Physics for Scientist and Engineers-II Lab**, Teaching Assistant  
Summer 2022 **PHY-1611 Algebra based Physics-I Lab**, Teaching Assistant  
Fall 2020 **PHY-1631 Algebra based Physics-II Lab**, Teaching Assistant  
Spring 2020 **PHY-1631 Algebra based Physics-II Lab**, Teaching Assistant

### UNIVERSITY OF CHITTAGONG, CHITTAGONG, BANGLADESH

2019 **PHY-371 Modern Physics**, Assistant Professor  
2018–2019 **PHYS-403 Quantum Mechanics-II**, Assistant Professor  
2014–2019 **PHYS-101 Mathematical Physics-I and Classical Mechanics-I**, Assistant Professor  
2018 **PHYS-208 Physics Practical-II**, Assistant Professor  
2016–2018 **PHYS-303 Quantum Mechanics-I**, Assistant Professor  
2017 **MATH-107 Physics-I**, Assistant Professor  
2015–2017 **PHYS-204 Computer Fundamental and Programming**, Assistant Professor  
2016 **PHYS-203 Statistical Mechanics and Radiation**, Assistant Professor  
2015–2016 **AC-115 Physics-I**, Assistant Professor  
2015 **AC-215 Physics-II Practical**, Assistant Professor  
2014–2015 **OCEAN-103 Physics**, Assistant Professor  
2014 **PHYS-107 Physics Practical-I**, Assistant Professor  
**PHYS-201 Classical Mechanics-II**, Assistant Professor  
**PHY-141 Heat and Thermodynamics, Waves and Oscillation, Structure of Matter**,  
Lecturer  
**AC-406 Physics-II (Heat, Thermodynamics and Optics)**, Lecturer  
2012–2014 **PHYS-301 Optics**, Lecturer  
**PHYS-101 Mathematical Physics-I and Classical Mechanics-I**, Lecturer

### CHITTAGONG INDEPENDENT UNIVERSITY, CHITTAGONG, BANGLADESH

Spring 2017 **PHY-101 Physics-I**, Adjunct Lecturer  
Spring 2016 **PHY-101L Physics-I Lab**, Adjunct Lecturer  
**PHY-101 Physics-I**, Adjunct Lecturer  
Autumn 2015 **PHY-102 Physics-II**, Adjunct Lecturer  
Summer 2015 **PHY-201 Perspective of Modern Physics**, Adjunct Lecturer  
Summer 2014 **PHY-102 Physics-II**, Adjunct Lecturer

## Mentoring

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### University of Chittagong - Department of Physics

*Chittagong, Bangladesh*

STUDENT: MD. YEASIR ARAFAT

2017

- Master's Thesis: Inverse Weibull distribution in analysis of wind speed data for wind power generation at few prospective locations in Bangladesh.

## Honors, Scholarships, Awards, Fellowships, & Grants \_\_\_\_\_

### SCHOLARSHIPS, AWARDS, FELLOWSHIPS, & GRANTS

2023	<b>Writing Scholarship</b> , College of Sciences, University of Texas at San Antonio	\$250
	<b>Writing Scholarship</b> , College of Sciences, University of Texas at San Antonio	\$50
2022	<b>Travel Grant</b> , Texas Section of APS student awards	\$110
	<b>Travel Grant</b> , The Graduate School Professional Development Award, University of Texas at San Antonio	\$ 750
2021	<b>College of Science Alvarez Scholarship</b> , College of Sciences, University of Texas at San Antonio	\$ 500
2020	<b>Competitive Graduate Scholarship</b> , College of Sciences, University of Texas at San Antonio	\$ 1,000
2014	<b>Summer School Fees</b> , The High Energy Accelerator Research Organization (KEK)	INR 71,000
	<b>Travel Grant</b> , The International Centre for Theoretical Physics (ICTP)	Travel Expenses
	<b>Travel Grant</b> , European Organization for Nuclear Research (CERN) and Deutsches Elektronen-Synchrotron (DESY)	Health Insurance

### HONORS

**Who's Who at UTSA** (2021) for outstanding accomplishments and excellence as a student. University of Texas at San Antonio, San Antonio, Texas, USA.

## Outreach & Professional Development \_\_\_\_\_

### SERVICE AND OUTREACH

2022–2023	<b>Student Representative, Faculty Meeting</b> , Graduate Society of Physics Students (GSPS), Department of Physics and Astronomy, The University of Texas at San Antonio.	San Antonio, USA
2022	<b>President</b> , Bangladeshi Students' Association (BSA) at UTSA, The University of Texas at San Antonio.	
2021–2022	<b>Member</b> , FGSA Nominating Committee, American Physical Society (APS).	
2021–2023	<b>Volunteer Judge</b> , Science Fair, Alamo Regional Science and Engineering Fair (ARSEF).	
2020	<b>Participant</b> , Group Project, Transdisciplinary Team Grand Challenge: Social Justice, University of Texas at San Antonio.	
2020	<b>Volunteer Judge</b> , Science Fair, John Jay Science and Engineering Academy High School.	
2018–2019	<b>Secretary</b> , Chittagong University Club (City), University of Chittagong.	Chittagong, Bangladesh
2018	<b>Rapporteur</b> , Seminar Week, Faculty of Science, University of Chittagong.	
2016	<b>Joint Secretary</b> , Chittagong University Teachers Association, University of Chittagong.	
2015	<b>Volunteer Judge</b> , Debate Competition, Faculty of Social Sciences, University of Chittagong.	
2015	<b>Volunteer Judge</b> , Debate Competition, Faculty of Arts, University of Chittagong.	

### SUMMER SCHOOLS

**First Bangladesh-CERN School on Particle Physics** (2014, December 15–18). Bose Center for Advanced Study and Research in Natural Sciences of University of Dhaka and The European Center for Nuclear Research (CERN), Dhaka, Bangladesh.

**Second Asia-Europe-Pacific School in High Energy Physics (AEP SHEP)** (2014, November 4–17). Tata Institute of Fundamental Research of the Government of India and The European Center for Nuclear Research (CERN), Puri, India.

## PYTHON COURSES

Python Essentials 1 (2023), Cisco Networking Academy  
Automate the Boring Stuff with Python Programming (2020), Udemy

## WRITING COURSES FROM UNIVERSITY OF CALIFORNIA, IRVINE, OFFERED THROUGH COURSERA

Advanced Writing (2023)  
Introduction to Research for Essay Writing (2023)  
Getting Started with Essay Writing (2022)  
Grammar and Punctuation (2022)

## WOLFRAM (MATHEMATICA) COURSES

Practical Programming with Wolfram Language (2023)  
Introduction to Statistics (2023)  
Differential Equation (2022)  
Parallel Programming in the Wolfram Language (2022)  
Wolfram Workshop at the University of Texas System (2021)  
Hands on Start to Mathematica (2020)

## MATHWORKS (MATLAB) COURSES

MATLAB Onramp (2021)

## UNIVERSITY OF TEXAS AT SAN ANTONIO TRAINING

Ableism at Work in Higher Education (2023)  
Roadrunner Assistantship Academy 2023 (2023)  
Compliance Annual Refresher Training (2022)  
Training in the Responsible Conduct of Research (2022)  
Citation Management for Science and Engineering: BibTex/LaTex (2021)  
Standards of Conduct Training (2021)  
Simplifying Citations with Endnote (2020)  
Simplifying Citations with Zotero (2020)  
SA 0551 - Research Recovery Training: Returning to Campus During COVID 19 (2020)  
SCT100 - Standards of Conduct Training (2020)  
Accommodating Disabilities (EDU-US) (New - 2016) (2020)  
Harassment & Discrimination Prevention (2020)  
Managing Bias (2020)  
Diversity: Inclusion in the Modern Workplace (EDU) (2020)  
SA 443.01 - Hazard Communications & Laboratory Safety (2020)  
SA 401 - Hazardous Waste Generator Training (2020)

## AMERICAN ASSOCIATION FOR LABORATORY ANIMAL SCIENCE (AALAS) TRAINING

Working With Laboratory Mouse (2023)  
Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress (2023)  
Pain Management in Laboratory Animals (2023)  
Ethical Decision-Making in Animal Research (2023)

## UNIVERSITY OF CHITTAGONG TRAINING

SPSS & Use of Computer in Research (2017)

Quality Assurance in Higher Education and Induction Program (2015)

Transforming English Language Skills in the Higher Education Sector in Bangladesh (2014)

Workshop on Teaching Methods (2012)

## DUTCH-BANGLA BANK LIMITED TRAINING

Money Laundering Prevention Act-2009 and Anti Terrorism Act 2009 (2010)

27th Foundation Training Course of Dutch-Bangla Bank Limited (2010)

## PROFESSIONAL MEMBERSHIPS

American Physical Society (APS)

Graduate Society of Physics Students (GSPS) at UTSA

Bangladesh Physical Society (BPS)