Dr. Md Nazmus Sakib

Scientist-1
Computational Physics Incorporated
8001 Braddock Road
Suit 210, Springfield, VA 22151, USA

Adjunct Faculty
Department of Physics & Astronomy
George Mason University
4400 University Dr., MSN 3F3, Planetary Hall
Room 222F, Fairfax, VA 22030, USA

Home Address:
3321 Willow Crescent Drive, Apt 11,
Fairfax, VA 22030 USA.

Phone:	(309) 569-5131
Email:	msakib@gmu.edu/msakib@cpi.com
Personal Email:	md.nazmus0719@gmail.com
Website:	sites.google.com/view/msakib/home
LinkedIn:	md-nazmus-sakib-83b798193
Orchid:	orcid.org/0000-0002-7006-7409

Brief Bio and Current Research

Md Nazmus Sakib, PhD, is a specialist in space physics and aeronomy, particularly focused on atmospheric electrons in planetary atmospheres such as Earth, Mars, and Titan. His expertise lies in scientific data analysis observed by spacecraft and radars. Additionally, he holds an interest in interdisciplinary research such as coronal mass ejections from the Sun and atmospheric gravity waves in the lower atmosphere of Earth.

Professional Preparation

PhD in Physics: George Mason University, Fairfax, VA, USA, **Aug 2018–May 2025**

Dissertation: Exploring the Structure and Variability of the Terrestrial Ionosphere Using High-Resolution Model Inputs (Click here to read the thesis).

Master of Science in Physics and Astronomy: Western Illinois University, Macomb, IL, USA, **2016-2018.**

Master of Science in Physics: University of Dhaka, Bangladesh, **(2011-2012), non-thesis**.

Bachelor of Science in Physics: University of Dhaka, Bangladesh, **(2007-2011), non-thesis**.

Research Projects

(2021-Present) "Resolving Long-Standing E-region Data-Model Discrepancies" with Computational Physics Inc., Springfield, VA, USA. This project is funded by National Science Foundation **(NSF)**, Click here to read the award detail from NSF website.

(2020-2021) "Physical Processes that Govern Structure & Dynamics of CMEs" with Predictive Science Inc., San Diego, CA, USA. This project is funded by National Aeronautics and Space Administration **(NASA)** grant (NNH19ZDA001N-TMS).

Employment

(December 2025 – Present) Scientist-1 (part time), Satellite Mission Team, Computational Physics Inc., Springfield, VA, USA.

(August 2025 – Present) Adjunct Faculty, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA.

(May 2025 – August 2025) Researcher, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA.

(2024 – May 2025) Graduate Assistant, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA.

(2020 – 2024) Graduate Research Assistant, Space Weather Lab, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA in collaboration with Computational Physics Inc., Springfield, VA, USA.

(2018 – 2020) Graduate Teaching Assistant, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA.

(2016 – 2018) Teaching Support Assistant, Department of Physics and Astronomy, Western Illinois University, Macomb, IL, USA.

Publications (selected peer-reviewed)

(Number of citation: 29 (h-index: 4) on February 20, 2026)

Published Papers

1. **Sakib, M. N.**, Soto, E., Yiğit, E., Evans, J. S., Meier, R. R., (2023), **Validation of E-region Model Electron Density Profiles with AURIC utilizing High-Resolution Cross Sections**, AGU Journal of Geophysical Research: Space Physics, 128, e2023JA031512.
   Click here to read the full paper https://doi.org/10.1029/2023JA031512.

2. Soto, E., Evans, J. S., Meier, R. R., Tashiro, M., **Sakib, M. N.**, & Yiğit, E. (2024). **A missing piece of the E-region puzzle: High-resolution photoionization cross sections and solar irradiances in models**, AGU Journal of Geophysical Research: Space Physics, 129(4), e2023JA031870.
   Click here to read the full paper https://doi.org/10.1029/2023JA031870.

3. Yiğit, E., Gann, A. L., Medvedev, A. S., Gasperini, F., Wu, Q., & **Sakib, M. N.** (2024). **Observation of vertical coupling during a major sudden stratospheric warming by ICON and GOLD: a case study of the 2020/2021 warming event.** Frontiers in Astronomy and Space Sciences, 11, 1384196.
   Click here to read the full paper https://doi.org/10.3389/fspas.2024.1384196.

4. **Md Nazmus Sakib**, and Erdal Yiğit (2022)- "**A Brief Overview of Gravity Wave Retrieval Techniques From Observations**". Frontiers in Astronomy and Space Sciences:
   Click here to read the full paper https://doi.org/10.3389/fspas.2022.824875.

Work under review - JGR Space Physics

1. **MD Nazmus Sakib,** Emmaris Soto, Joseph Scott Evans, Robert R. Meier, and Erdal Yiğit (2025), **Terrestrial Photoelectron Flux Calculation using High-Resolution Photoionization and Photoabsorption Cross Sections and Solar Irradiance**, Authorea Preprints.
   Click here to read the full preprint of the paper.

Conference proceedings/ extended abstracts (selected)

MN Sakib, Ayden LS Gann, E Yiğit, Ed Thiemann, JS Evans -"**Variation of Martian Photoelectron Flux During Regional Dust Storms Observed by MAVEN**" - AGU Fall Meeting 2025, December 15-19, 2025, New Orleans, Louisiana, USA
Click here to read the original online abstract.

MN Sakib, E Soto, JS Evans, R Meier, E Yiğit -"**Ionospheric Photoelectron Flux Spectrum Validation in the E-region and Above under Varying Solar Conditions using High-resolution Photoionization Cross Sections and Solar EUV Irradiances**" - AGU Fall Meeting 2024, December 9-13, 2024, Washington DC, USA
Click here to read the original online abstract at NASA ADS.

MN Sakib, E Soto, E Yiğit, JS Evans, R Meier -"**Measured and Modeled Photoelectron Flux Validation under Solar Minimum Condition using High-resolution Cross Sections**" - AGU Fall Meeting Abstracts, December 11-15, 2023, San Francisco, CA, USA
Click here to read the original online abstract at NASA ADS.

MN Sakib, E Soto, E Yiğit, JS Evans, R Meier -"**Calculated Photoelectron Flux Validation under Solar Minimum Condition using High-resolution Cross Sections**" - Coupling, Energetics and Dynamics of Atmospheric Regions Program, June 25-30, 2023, San Diego, CA, USA
Click here to read the original online abstract at conference website.

MN Sakib, E Soto, E Yiğit, JS Evans, R Meier - "**Comparison of Modeled and Measured Electron Density Profiles in the E-region at Low Solar Activity**" - AGU Fall Meeting Abstracts, 2022, Chicago, IL, USA
Click here to read the original online abstract at NASA ADS.

Emmaris Soto, J Scott Evans, Robert Meier, Brendan M McLaughlin, Motomichi Tashiro, Md Nazmus Sakib, Erdal Yiğit - "**Using High-Resolution Photoionization Cross Sections and Solar Irradiance to Resolve E-region Data/Model Discrepancies**" - AGU Fall Meeting Abstracts, 2022, SA55B-1403, Chicago, IL, USA
Click here to read the original online abstract at NASA ADS.

Zhang, Jie, Md Nazmus Sakib, Tibor Torok, Suman Dhakal, and Eleni Nikou - **"Tracking and Understanding the Trajectory of CMEs From Birth to Late Stage"**- AGU Fall Meeting Abstracts, vol. 2021, pp. SH35B-2059 , New Orleans, LA, USA
Click here to read the original online abstract at NASA ADS.

Araya, Esteban, Md Nazmus Sakib, Luca Olmi, Peter Hofner, Stan Kurtz, Ian M. Hoffman, and Hendrik Linz. **"Using Hyperfine Structure Limits to Characterize the Formaldehyde Maser in G32. 74-0.07."** In American Astronomical Society Meeting Abstracts 232, vol. 232, pp. 219-01. 2018, Denver, Colorado, USA
Click here to read the original online abstract at NASA ADS.

Selected Voluntary Services

Review activity for Geophysical Research Letters (GRL) - American Geophysical Union (AGU).

Student Volunteer - American Geophysical Union (AGU), Annual meeting 2024 (previously known as Fall meeting), Washington D.C., USA.

Assistant to the Mentor - Aspiring Scientists Summer Internship Program (ASSIP - 2023, 2024) - Physics and Astronomy, George Mason University, Fairfax, VA, USA.

Student Volunteer – "George Mason Space day" – 2023, 2024, an annual event organized by department of Physics and Astronomy, George Mason University, Fairfax, VA, USA.

Awards / Fellowships

Dissertation Completion Grant $12500, Spring 2025, Graduate Division, George Mason University

Summer Research Fellowship, $7500, Summer 2020, Department of Physics and Astronomy, George Mason University, Fairfax, VA, USA (2020)

Mason Core Excellent teaching award, Mason Core Committee, George Mason University, Fairfax, VA, USA (2019)

Best Poster Award, Natural Sciences Research Symposium at Western Illinois University, Macomb, IL, USA (Spring 2018)

References

Dr. Erdal Yiğit

Professor of Physics,
George Mason University,
Department of Physics & Astronomy;
Email: eyigit[at]gmu[dot]edu;
Phone number : 703-993-2658;
Website: sites.google.com/view/erdalyigit/home

Dr. Robert R. Meier

Research Professor of Space Science,
George Mason University,
Department of Physics & Astronomy;
Email: rmeier[at]gmu[dot]edu;
Phone number : 703-993-1269;
Website: spaceweather.gmu.edu/swl/meier.html

Dr. Jie Zhang

Professor of Physics,
George Mason University,
Department of Physics & Astronomy;
Email: jzhang7[at]gmu[dot]edu;
Phone number : 703-993-1998;
Website: solar.gmu.edu

Dr. Joseph Weingartner

Associate Professor,
George Mason University,
Department of Physics & Astronomy;
Email: jweinga1[at]gmu[dot]edu;
Phone number : 703-993-4596;