

DR. MAHDY RAHMAN CHOWDHURY [MDY]

Associate Professor

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Scopus Profile: <https://www.scopus.com/authid/detail.uri?authorId=56524254800>

Biography

#### NOTABLE ACHIEVEMENTS & CONTRIBUTIONS:

Mahdy Rahman Chowdhury (initial: Mdy) is currently working as an Associate Professor (effective from 1st May 2019), Department of Electrical and Computer Engineering (full time) and Dept. of Math & Phys. (part-time) at North South University(NSU), Dhaka, Bangladesh. Just after submitting his PhD thesis, he joined as an Assist. Professor at North South University, in January 2017. He is also the current chair of scientific review committee (SRC) of school of engineering & physical science (SEPS), NSU [effective from 1st January 2025], which consists of four departments: ECE, Dept. of math & physics, Dept. of civil & env. eng. & Architecture.

He is the 1st Bangladeshi researcher who has won (in 2023) the ICO Galilio Galilei medal award (or any award of ICO) of international commission for Optics. List of winners (from 1994): <https://www.e-ico.org/blog/awards/galileo-medal/>

– It appears that he is the youngest winner so far among all the winners since 1994.

Newsletter of ICO, January 2024, covering the detailed news & his international recognition: [https://www.e-ico.org/blog/wp-content/uploads/2024/02/ICO\\_news\\_jan\\_24.pdf](https://www.e-ico.org/blog/wp-content/uploads/2024/02/ICO_news_jan_24.pdf)

He has received the ICO Galilio Galilei medal award in the 26th congress of international commission for optics, Capetown, South Africa (October 24th, 2024) in the presence of the Nobel laureates and distinguished scientists. He was also one of the plenary speakers of that prestigious conference where two Nobel laureates of physics also presented their works:

<https://thefinancialexpress.com.bd/education/dr-mahdy-rahman-chowdhury-of-nsu-awarded>

galileo-galilei-medal-at-icos-26th-conference

List of plenary speakers in ICO's 26th congress: <https://ico26.com/plenary-speakers/>

He has established a big research group (known as NSU OPTICS, QUANTUM & MACHINE LEARNING group) & a research lab [NSU OPTICS LAB] at

NSU: <https://sites.google.com/view/nsuopticslab/members?authuser=0> – He simultaneously supervises 4 completely different (but interconnected) research groups covering

4 distinct research areas:

1. Optics/Photonics/Electromagnetics 2. Quantum Mechanics 3. Quantum Computing & Information 4. AI (Machine or Deep Learning)

For more about 4 groups, visit this page: <https://sites.google.com/view/nsuopticslab/home>

His recent journal articles in all the 4 distinct areas can be found in his google

scholar: [https://scholar.google.com.sg/citations?hl=en&user=PxNOguMAAAAJ&view\\_op=list\\_works&sortby=pubdate](https://scholar.google.com.sg/citations?hl=en&user=PxNOguMAAAAJ&view_op=list_works&sortby=pubdate)

Several RAs & research students of this lab/ research group have gone for direct PhD (with full scholarship) in the top ranked universities of the world (including Cornell university, Johns Hopkins university, National University of Singapore, University of California San Diego & so on) after publishing top quality journals under his direct supervision. A partial alumni list of the students & RAs of his lab:

<https://sites.google.com/view/nsuopticslab/alumni?authuser=0>

\*\*\* He has authored a textbook [University level ] of basic Electromagnetism & Optical Physics in 2021 [in Bengali]: <https://www.rokomari.com/book/212629/alo-o-torit-chumbok>

#### SHORT BIOGRAPHY & OVERALL PROFILE:

He was born 12th October 1987. He passed SSC (2003) and HSC (2005) from Pabna Cadet College. Later, he secured 13th merit position in BUET admission test 2005. In February 2011, he received B.Sc. degree in Electrical and Electronic Engineering (EEE) from BUET, Bangladesh. After that he was a lecturer (full time) in University of Asia Pacific and (later) in Presidency University (full time), Bangladesh. Later, he started his PhD as a direct PhD student (without MSc) in Electrical and Computer Engineering dept., National University of Singapore, Singapore from January, 2013. He submitted his PhD thesis at the end of 2016 (PhD Supervisor: Prof. Qiu Cheng Wei). In his PhD, he

worked on the theory of electromagnetic/optical force and optical manipulations. Official date of his PhD degree confirmation: 30th April, 2017.

So far (2011-2024; 13 years) he has published 52 peer reviewed international journals (with moderate to high impact factor) including five in Nature Publishing Group , 11 refereed conference articles, one international book chapter and one text book of physics in Bengali language. His total (cumulative) impact factor of published 52 journals is around 200 and his total google scholar citations is around 2000 (with h-index 21; i-10 index 38). His all publications (in details) are available in his google scholar page and Research gate profile. He has published 39 journals [total (cumulative) impact factor around 150] after joining NSU (2017-2024).

Notably, his one theoretical journal, with all Bangladeshi authors (mostly undergraduate students), published as the cover story of Q1 international physics journal – Annalen Der Physik in December, 2015. He was the corresponding author. After joining North South University (NSU), Among his several published journals, two articles have been published in very high impact factor journals with the affiliation of Bangladesh and NSU: (i) Nature Publishing Group's journal: Light Science and Applications (impact factor around 18 in 2023) and ACS NANO (impact factor over 18 in 2023).

He has won 2018 TWAS international research grant (physical science & engineering). In 2021, North South University has awarded him as one of the best researchers of SEPS (NSU) for his contribution in research during the years of 2018-2020. He has also won UGC GOLD MEDAL AWARD 2018 in physical science (announced: 7th November, 2021). This award is handed over by the President of the People's Republic of Bangladesh. In 2023, North South University has awarded him again as one of the best researchers of SEPS (NSU) for his contribution in research during the years of 2021-2022. So far, NSU has awarded (the best researcher award) twice and both times he has been placed among the top three researchers of SEPS. He is the 1st Bangladeshi researcher who has won (in 2023) the ICO Galileo Galilei medal award (or any award of ICO) of international commission for Optics. List of winners (from 1994): <https://www.e-ico.org/blog/awards/galileo-medal/>  
Newsletter of ICO, January 2024, covering the detailed news & his international recognition: [https://www.e-ico.org/blog/wp-content/uploads/2024/02/ICO\\_news\\_jan\\_24.pdf](https://www.e-ico.org/blog/wp-content/uploads/2024/02/ICO_news_jan_24.pdf)  
He is a reviewer of several reputed international journals like Journal of Physical Chemistry (American

Chemical Society), Annalen Der Physik, JOSA B (Optical Society of America) and IEEE AWPL. He is now also an official reviewer of the journals of American Physical Society (Physical Review A; from 2022). He is also an official reviewer of the journal: Nature Communications; from 2023 (impact factor around 20).

#### Research Areas

- RF, Microwave and Communication Technology
- Modeling and Simulation
- Mobile, Wireless and Web Applications Development
- Broadband Access and Communication Technologies
- Signals and Image Processing
- Artificial Intelligence & Robotics

#### Research Interests

His current research interests are primarily in Optical force/ manipulation, Photonics, Light matter interaction, Solar Sails, Metasurface design using AI, Quantum inspired metamaterial absorbers, Matter (quantum) wave tractor beams and lateral force, Quantum Computing & Information, Quantum-photonic secured communication, Quantum energy teleportation, Quantum Machine Learning, Application of AI in Biomedical and optical engineering, Applied Machine Learning & Artificial intelligence in optics & other areas (for early disease detection, for share market prediction etc), Antenna design, and Optical fiber theory/simulations.

#### Teaching

- EEE 361/ ETE 361 Electromagnetic Fields & Waves
- EEE 221 Signals and Systems
- EEE 499A Senior Design Project I
- CSE499A/EEE499A/ETE499A – Senior Design I
- EEE 141 Electrical Circuits I
- EEE 499B Senior Design Project II
- CSE499B/EEE499B/ETE499B – Senior Design II

- PHY 108 Physics II
- CSE 299 Junior Design Course
- EEE 111/ ETE 111 Analog Electronics-I

#### Research Projects & Grants

1. TWAS international research grant 2018-19
2. North South University internal research grant 2018-19
3. North South University internal research grant 2019-20
4. North South University internal research grant 2020-21
5. North South University Research excellence award 2021 (top three; among around 100 faculty members of SEPS) [For his contribution in research during 2018-20]
6. UGC GOLD MEDAL 2018 (Physical Science [announced: 7th November, 2021] ). This award is handed over by the President of the People's Republic of Bangladesh.
7. North South University internal research grant 2021-22
8. North South University Research excellence award 2023 (top three; among around 100 faculty members of SEPS) [For his contribution in research during 2021-22]
9. North South University internal research grant 2022-23
10. North South University internal research grant 2023-24
11. ICO Galilio Galilei medal award 2023 ( 1st Bangladeshi researcher) of international commission for optics

#### Professional Activity

(A) Columnist in national daily newspapers regarding international cricket:

So far his thirty articles have been published in different daily newspapers (regarding cricket), which can be found in this link:

[https://www.facebook.com/mahdy.rahman.9/media\\_set?set=a.10203842736888818.1073741832.1232153392&type=3](https://www.facebook.com/mahdy.rahman.9/media_set?set=a.10203842736888818.1073741832.1232153392&type=3)

(B) Reviewer of international journals:

\* Nature Communications

\* Physical Review A

\* Annalen Der Physik

\*JOSA B

\*IEEE Antennas and Wireless Propagation Letters

\*Progress In Electromagnetic Research

\*Elsevier, two different journals

(C) NSU Optics, Machine Learning and Quantum Research Group

After joining North South University (NSU), Mahdy Rahman has established a research group at NSU with the motivated students (both from EEE & CSE) and faculty members. This group has published several high impact factor journals in last few years. Details of this group & their lab can be found at:

<https://sites.google.com/view/nsuopticslab/home>

(D) BUET ELECTROMAGNETICS AND METAMATERIAL RESEARCH GROUP:

This virtual research group was established by Mahdy Rahman in 2012. So far this group has published several international journals and conference articles. Five undergraduate thesis have already been co-supervised (unofficially) by Mahdy Rahman. Still going on ...

(E) Writing of Text Books (University level):

He has authored a textbook [University level ] of basic Electromagnetism & Optical Physics in 2021 [in Bengali]: <https://www.rokomari.com/book/212629/alo-o-torit-chumbok>

He is now also writing a new text book of Quantum Physics in Bengali language.