Dr. Sajid Muhaimin Choudhury

Associate Professor, Department of EEE, BUET

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Brief Biography _

Dr. Sajid Choudhury is an Associate Professor in the Department of EEE, BUET. He completed his Ph.D. from Purdue University, IN, USA. His current research interest is in Photonic Quantum Computing, Photovoltaic Cells, Flat Optics with Metasurface, Photonic Devices with Phase Change Materials, Embedded Systems Design. Dr. Choudhury is a senior member of the IEEE, immediate-past-chair, IEEE Photonics Society Bangladesh Chapter, founding President, The Optica Bangladesh Section. He is a member of the National Young Academy of Bangladesh (NYAB).

A CONTROL OF THE CONT	. 1 .
Associate Professor, Department of Electrical and Electronic Engineering (EEE) Bangladesh University of Engineering and Technology (BUET) July 2022 -	- to date
Assistant Professor, Department of Electrical and Electronic Engineering (EEE) June 2013 – June 2013	uly 2022
Lecturer, Department of Electrical and Electronic Engineering (EEE) Bangladesh University of Engineering and Technology (BUET) Jan 2010 – Ju	une 2013
Lecturer, Institute of Information and Communication Technology (IICT) Bangladesh University of Engineering and Technology (BUET) Nov 2009 – J	Jan 2010
Education	
Ph.D. Purdue University, West Lafayette, IN, USA Sale of Electrical and Geometric Electric E	Aug 2019
School of Electrical and Computer Engineering • Ph.D. Thesis: WAVEFRONT MANIPULATION WITH META-SURFACES BASED ON NEW MATERIALS	
• Ph.D. Co-supervisor(s): Alexandra Boltasseva and Alexander Kildishev	
M.Sc. Bangladesh University of Engineeing and Technology (BUET) Aug 201 Department of Electrical and Electronic Engineering	1 - 2013
• M.Sc. Engg. Thesis: Design of a Fractal Antenna based on Hexaflake Fractal Structure	
• M.Sc. Engg. Supervisor: Dr. M. A. Matin	
B.Sc. Bangladesh University of Engineeing and Technology (BUET) Dec 2004 – A Department of Electrical and Electronic Engineering	Aug 2010
• CGPA: 3.94/4.0	
• Undergraduate Thesis: Design and Analysis of a Multiband Dual Feed Axially Symmetric Cassegrain Antenna System	
• Undergraduate Supervisor: Dr. M. A. Matin	
H.S.C. Notre Dame College, Dhaka	2004
• GPA: 5.00/5.00	
S.S.C. Udayan Uchchya Madhyamic Bidyalaya, Dhaka • GPA: 5.00/5.00	2002

Details of Publications from 20/05/2024 to 21/05/2025 _______

Details of Publications since last appointment ______

Details of Important design/research projects from 20/05/2024 to 21/05/2025

Postgraduate thesis supervised _____

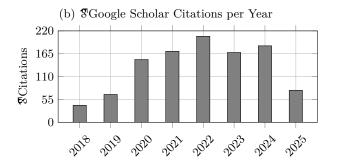
- Md Asif Hossain Bhuiyan, M.Sc. Engg. (May 2025) Polarization Insensitive Electrically Reconfigurable Metasurface For Metalensing At Near Infrared Waveband
- Md. Mahfuzul Haque, M.Sc. Engg. (Jan 2025) **Design Of Silicon-carbide Based Single-quantum-well White LED**
- Md. Ehsanul Karim, M.Sc. Engg. (June 2024) Phase Change Material Based Broadband Multifunctional Metasurface for the Visible Range
- Shamima Akter Mitu M.Sc. Engg. (May 2023) **Design of an All-optical Plasmonic Modulator for Two**Micrometer Waveband

Complete List of Publications _____

Publications Metrics

(a) \$\mathbf{T}\text{Google Scholar Metrics}

Total Citations	1133
h-index	13
i10-index	10



Journal Articles

- [J26] M. M. Haque, M. R. Islam, and S. M. Choudhury. "Investigation of the physical properties through strain effect of monolayer silicon carbide material: DFT analysis". In: *Physica B: Condensed Matter* 697 (2025), p. 416670. DOI: 10.1016/j.physb.2024.416670 **Z**. SJR Q2(IF 2.4).
- [J25] M. E. Karim, M. R. Karim, and S. M. Choudhury. "Synergizing deep learning and phase change materials for four-state broadband multifunctional metasurfaces in the visible range". In: *Optics & Laser Technology* 181 (2025), p. 111730. DOI: 10.1016/j.optlastec.2024.111730 . Citations: 1, SJR Q1(IF 5.2).
- [J24] S. Sarkar and S. M. Choudhury. "Efficiency enhancement of c-Si/TiO2 heterojunction thin film solar cell using hybrid metal-dielectric nanostructures". In: Solar Energy 296 (2025), p. 113535. DOI: 10.1016/j. solener.2025.113535 . URL: https://www.sciencedirect.com/science/article/pii/S0038092X25002981. SJR Q1(IF 6.47).
- [J23] A. Sarker and S. M. Choudhury. "Concentric annular-hexagonal plasmonic resonator with nanorod vertices for dual-band absorption in NIR and MIR for sensing applications". In: *Opt. Continuum* 4.5 (May 2025), pp. 1159–1173. DOI: 10.1364/OPTCON.558501 . URL: https://opg.optica.org/optcon/abstract.cfm? URI=optcon-4-5-1159. SJR Q3(IF 1.1).

- [J21] M. E. Karim and S. M. Choudhury. "Sb2S3/AlGaAs based Reconfigurable Metasurface for Dynamic Polarization and Directionality Control of Quantum Emitter Emission". In: RSC Advances 40 (2024). DOI: 10.1039/D4RA03726J Z. SJR Q1(IF 3.9).
- [J20] P. Mahmud, K. F. Supti, and S. M. Choudhury. "Lithium niobate photonic topological insulator-based multi-wavelength optical demultiplexer with piezoelectric switch-off". In: *Opt. Express* 32.26 (Dec. 2024), pp. 45786–45800. DOI: 10.1364/0E.541271 🗹. SJR Q1(IF 3.2).
- [J19] M. H. Himel, B. Sikder, T. Ahmed, and S. M. Choudhury. "Biomimicry in Nanotechnology: A Comprehensive Review". In: *NanoScale Advances* 5 (2023), pp. 595–614. DOI: 10.1039/D2NA00571A . *Citations: 22, SJR Q1(IF 5.6).
- [J18] M. E. Karim and S. M. Choudhury. "Reconfigurable Broadband Metasurface with Switchable Functionalities in the Visible Range". In: *Optical Materials Express* 13.5 (2023), pp. 1409–1423. DOI: 10.1364/OME.489981 . SCitations: 5, SJR Q2(IF 2.8).
- [J17] M. A. H. Bhuiyan, S. A. Mitu, and S. M. Choudhury. "TiN-GST-TiN all-optical reflection modulator for the 2μm wave band reaching 85% efficiency". In: Applied Optics 61 (2022), pp. 9262–9270. DOI: 10.1364/A0.470247 . Citations: 3, SJR Q2(IF 2.08).
- [J16] H. Roy, E. Karim, S. Mondal, and S. M. Choudhury. "Custom Gold-Patterned Rewritable Optical Disc based Plasmonic Sensor for Blood Hemoglobin Detection". In: *Optics Continuum* 1.10 (2022). DOI: 10. 1364/OPTCON.473106 2. **Citations: 1, SJR Q3(IF 1.1).
- [J15] Y. F. Abed, M. A. H. Bhuiyan, and S. M. Choudhury. "T Grating on Nano-Cavity Array based Refractive Index Sensor". In: *J. Opt. Soc. Am. B* 39.9 (2021). DOI: 10.1364/JOSAB.426526 . Citations: 1, SJR Q2(IF 2.18).
- [J14] M. M. Hassan, F. S. Sium, F. Islam, and S. M. Choudhury. "A Review on Plasmonic Nano-biosensors for Virus Detection with a Focus on Coronavirus". In: Sensing and Bio-Sensing Research 33 (2021), p. 100429. DOI: 10.1016/j.sbsr.2021.100429 . Scitations: 69, SJR Q2(IF 4.42).
- [J13] A. Sarker, S. A. Mitu, P. Das, and S. M. Choudhury. "Structurally Tunable Gear-Shaped Plasmonic Sensor". In: Optics Express 28.24 (2020), pp. 36070–36083. DOI: 10.1364/0E.410123 . Citations: 13, SJR Q1(IF 3.67).
- [J12] H. Jiang, S. M. Choudhury, Z. A. Kudyshev, D. Wang, P. Xiao, Y. Jiang, and A. V. Kildishev. "Enhancing sensitivity to ambient refractive index with tunable few-layer graphene/hBN nanoribbons". In: *Photonics Research* 7.7 (2019), pp. 815–822. DOI: 10.1364/PRJ.7.000815 . "Citations: 36, SJR Q1(IF 7.37).
- [J11] H. Jiang, H. Reddy, D. Shah, Z. A. Kudyshev, S. M. Choudhury, D. Wang, Y. Jiang, and A. V. Kildishev. "Modulating Phase by Metasurfaces with Gated Ultra-thin TiN Films". In: *Nanoscale* 11 (2019), pp. 11167–11172. DOI: 10.1039/C9NR00205G . *Citations: 10, SJR Q1(IF 6.62).
- [J10] O. Quevedo-Teruel, H. Chen, A. Díaz-Rubio, G. Gok, A. Grbic, G. Minatti, E. Martini, S. Maci, G. V. Eleftheriades, M. Chen, N. I. Zheludev, N. Papasimakis, S. M. Choudhury, Z. A. Kudyshev, S. Saha, H. Reddy, A. Boltasseva, V. M. Shalaev, A. V. Kildishev, D. Sievenpiper, C. Caloz, A. Alù, Q. He, L. Zhou, G. Valerio, E. Rajo-Iglesias, Z. Sipus, F. Mesa, R. Rodríguez-Berral, F. Medina, V. Asadchy, S. Tretyakov, and C. Craeye. "Roadmap on metasurfaces". In: Journal of Optics 21.7 (2019), p. 073002. DOI: 10.1088/2040-8986/ab161d \(\mathbb{L}\). \(\mathbb{C}\)Citations: 278, SJR Q2(IF 2.66).
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- [J3] M. Gaffar, M. Zaman, S. Choudhury, and M. A. Matin. "Design and optimisation of a novel dual-band circularly polarised microstrip antenna". In: *IET Microwaves and Antennas & Propagation* 5.14 (2011), pp. 1670–1674. DOI: 10.1049/iet-map.2010.0050 **Z**. **Scitations: 10, SJR Q2(IF 2.70).
- [J2] M. Zaman, S. Mamun, M. Gaffar, S. Choudhury, M. M. Alam, and M. Matin. "Phased Array Synthesis Using Modified Particle Swarm Optimization". In: *Journal of Engineering Science & Technology Review* 4.1 (2011). DOI: 10.25103/jestr.041.10 . "Scitations: 18, SJR Q3(IF 1.6)."
- [J1] M. A. Zaman, M. Gaffar, M. M. Alam, S. A. Mamun, S. M. Choudhury, and M. Matin. "Approximate Closed-Form Expression of the Electric Field of a Conical Horn Antenna". In: *International Journal of Computer and Electrical Engineering* 3.1 (2011), p. 48. URL: http://ijcee.org/papers/291-E337.pdf.

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- [C22] M. T. Alam, Y. Mahmud, Z. J. Nikita, and S. M. Choudhury. "Gesture Controlled Bot with Temperature & Humidity (TH) Sensing Features". In: 2024 2nd International Conference on Information and Communication Technology (ICICT). 2024, pp. 36–40. DOI: 10.1109/ICICT64387.2024.10839649 .
- [C21] M. A. H. Bhuiyan, S. A. Mitu, and S. M. Choudhury. "VO2-based All-optical Reflection Modulator for 2μm Wave Band". In: 2023 IEEE Photonics Conference (IPC). 2023, pp. 1–2. DOI: 10.1109/IPC57732. 2023.10360477 🗹 Citations: 1,
- [C20] S. A. Khan, S. T. Azad, T. Mondal, A. J. Bin Iqbal, and S. M. Choudhury. "Development of an Internet of Things based Bangla Calendar Clock". In: 2023 26th International Conference on Computer and Information Technology (ICCIT). 2023, pp. 1–6. DOI: 10.1109/ICCIT60459.2023.10441436 2.
- [C19] A. Mukit, M. S. H. Bijoy, S. M. Choudhury, and M. T. Mahmud. "Discrete Modulated Continuous-Variable Quantum Key Distribution: Security and Noise Tolerance Enhanced by Decoy States and Effective Error Correction Protocol Integration". In: 2023 IEEE International Conference on Telecommunications and Photonics (ICTP). 2023, pp. 1–5. DOI: 10.1109/ICTP60248.2023.10490525 \(\mathbb{L}\).
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- [C13] S. M. Choudhury, A. Shaltout, V. M. Shalaev, A. Boltasseva, and A. V. Kildishev. "Color Hologram Generation Using a Pancharatnam-Berry Phase Manipulating Metasurface". In: *CLEO*: 2015. Optica Publishing Group, 2015, JTu5A.89. DOI: 10.1364/CLEO_AT.2015.JTu5A.89 ZSCitations: 3,
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- [C11] J. Kim, B. Memarzadeh, A. Dutta, S. M. Choudhury, A. V. Kildishev, H. Mosallaei, and A. Boltasseva. "GZO/ZnO Multilayered nanodisk metasurface to engineer the plasma frequency". In: *CLEO*: 2014. Optica Publishing Group, 2014, FW1K.4. DOI: 10.1364/CLEO_QELS.2014.FW1K.4 【SCitations: 2,
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- [C9] S. M. Choudhury and M. A. Matin. "Effect of FSS ground plane on second iteration of hexaflake fractal patch antenna". In: 2012 7th International Conference on Electrical and Computer Engineering. 2012, pp. 694–697. DOI: 10.1109/ICECE.2012.6471645 Conference on Electrical and Computer Engineering. 2012,
- [C8] S. M. L. Kabir, M. S. Hussain, S. M. Choudhury, and A. H. Chowdhury. "Developing A Low-Cost Multiple Motor Switched Photovoltaic Powered Irrigation System". In: Proceedings of the 3rd International Conference on Water and Flood Management (ICWFM-2011). Vol. 2. 2011, pp. 577–581.
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- [C6] S. M. Choudhury, M. Gaffar, M. A. Zaman, and M. A. Matin. "Design of an X band aperture matched horn antenna by optimization of back-lobe and cross-polarization level". In: *International Conference on Electrical & Computer Engineering (ICECE 2010)*. 2010, pp. 550–553. DOI: 10.1109/ICELCE.2010.5700751
- [C5] M. Gaffar, S. M. Choudhury, M. A. Zaman, M. I. Momtaz, M. S. Alam, and M. A. Matin. "Sensitivity analysis of a circularly polarized U-slot microstrip antenna". In: *International Conference on Electrical & Computer Engineering (ICECE 2010)*. 2010, pp. 546–549. DOI: 10.1109/ICELCE.2010.5700750 .
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- [C3] M. Matin, M. A. Zaman, S. M. Choudhury, and M. Gaffar. "Analysis of a conical corrugated horn operating in the K-band with low cross-polarization and high aperture efficiency, and observing its radiation patterns". In: 2009 IEEE Antennas and Propagation Society International Symposium. 2009, pp. 1–4. DOI: 10.1109/ APS.2009.5171493 Zacitations: 4.
- [C2] M. A. Zaman, S. M. Choudhury, M. Gaffar, and M. A. Matin. "Modeling the illumination function of a cassegrain reflector for a corrugated horn feed and calculation of the far field pattern". In: 2009 Loughborough Antennas & Propagation Conference. 2009, pp. 101–104. DOI: 10.1109/LAPC.2009.5352533 Z*Citations: 6,
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 Scitations: 21,

Patents **Patents**

- [P2] E. Marinero-Caceres, A. Toppo, S. Choudhury, U. Guler, Z. Kudyshev, J. Pekny, S. Pol, H. Reddy, and V. Shalaev. "Thermophotovoltaic system and method of making the same". US20210234498A1. July 29, 2021. URL: https://patents.google.com/patent/US20210234498A1/en.
- [P1] A. Shaltout, S. Choudhury, A. V. Kildishev, A. Boltasseva, and V. M. Shalaev. "System for producing ultra-thin color phase hologram with metasurfaces". US9952557B2. Apr. 24, 2018. URL: https://patents.google.com/patent/US9952557B2/engCitations: 13,

Preprint / Manuscript Under Preparation

[X1] M. M. Haque and S. M. Choudhury. "Design of Silicon-Carbide Based Single-Quantum-Well White LED". Under review in *Heliyon*. 2024.

Membership / Fellowship of Learned Societies, Professional Institutions and Other Noteworthy Affiliations

Senior Member, Institute of Electrical and Electronic Engineers (IEEE)

- Secretary, IEEE Bangladesh Section (July 2021 May 2022)
- Chair, IEEE Young Professionals Bangladesh (Mar 2020 Apr 2022)
- Chair, IEEE Graduates of the Last Decade (Jan 2013 Dec 2013)
- Vice -Chair, IEEE Graduates of the Last Decade (Jan 2011 Dec 2012)
- Student Activities Coordinator, IEEE Bangladesh Section (Jan 2011 Dec 2012)
- Chair, IEEE BUET Student Branch (Jan 2008 Aug 2009)
- Treasurer, IEEE BUET Student Branch (Jan 2007 Dec 2008)

Member, IEEE Photonics Society

- Vice Chair, IEEE Photonics Society Bangladesh (April 2022 to date)
- Founding Chair, IEEE Photonics Society Bangladesh (Mar 2021 Apr 2022)

Member, The Optica

- Founding President, Optica Bangladesh Section May 2022 to date
- Founding Moderator, BUET Optical and Photonics Society July 2022 to date
- Treasurer, OSA Purdue Chapter, USA Jun 2016 May 2017

Member, National Young Academy of Bangladesh (NYAB), April 2021 – to date Life Member, American Alumni Association of Bangladesh (AAAB), April 2024 – to date Life Member, Association of BUET Alumni, April 2021 – to date

Student Activities at Purdue University, West Lafayette, IN, USA

- President, Nanotechnology Student Advisory Council (NSAC) (Jun 2017 May 2018)
- Vice-President, Nanotechnology Student Advisory Council (NSAC) (Jun 2016 May 2017)
- Treasurer, SPIE Purdue Chapter, USA (Jun 2015 May 2016)
- President, Bangladesh Students Association (Purdue BDSA), USA (Jul 2017 Jun 2018)
- Treasurer, Bangladesh Students Association (Purdue BDSA), USA (Jul 2015 Jun 2017)

References _			

Available upon request