

AYESHA SIDDIKA

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Dr. Qudrat-I-Khuda Road, Dhaka-1205, Bangladesh

Education

M. S. in Physics University of Dhaka, Dhaka, Bangladesh	2011
B. S. (Hons.) in Physics University of Dhaka, Dhaka, Bangladesh	2010

Professional Experience

Senior Scientific Officer Industrial Physics Division, BCSIR Dhaka Laboratories Bangladesh Council of Scientific & Industrial Research (BCSIR)	October, 2022 to Present
Scientific Officer Institute of Energy Research and Development (IERD) Bangladesh Council of Scientific & Industrial Research (BCSIR)	March, 2016 to October, 2022

Technical Skill and Competences

- **Materials (e.g., Metal, Metal Oxide, Dielectric, Magnetic materials) Synthesis and Fabrication:** Chemical reduction, polyol Method, sol-gel processing, hydrothermal/solvothermal synthesis, combustion synthesis, solid state reaction, spin coating, dip coating, sputtering, screen printing etc.
- **Material characterization Techniques:** UV-Vis-NIR spectroscopy, XRD, SEM, impedance analysis, Hall effect measurements, Four-point probe electrical measurement, Surface profilometry etc.

Research Grants (Selected)

Associate Investigator	Synthesis of silver nanoparticles and their formulation as electrodes for electronic devices (MOST SAP-2024-2025)
Associate Investigator	Experimental studies of nanostructured photoanode for Semi-Transparent Dye-Sensitized Solar Cell (MOST SAP-2022-2023)
Associate Investigator	Development of magnetic nanocomposites for photocatalytic degradation of organic pollutants from water (MOST SAP-2021-2022)
Associate Investigator	Dye-sensitized solar cell using organic and synthetic dye as light-harvesting materials (MOST SAP-2018-2019)

Publications (Selected)

- S. Tabassum, M. S. Bashar, A. Siddika, N. Yeasmin, S. Naznin, S. Afrin, S. A. Eti and A. B. M. Ismail, Synthesis of TiO₂-SiO₂ composite photocatalyst for efficient dye decolorization using a custom-built photocatalytic reactor. *Bangladesh J. Sci. Ind. Res.* 60(3) 2025 203-212
- Ayesha Siddika, Munira Sultana, Samia Tabassum, M. S. Bashar, Suravi Islam, Sadia Afrin and Nilufa Yeasmin, Performance study of dye-sensitized solar cells: a novel 'slit method' for electrolyte filling and tailoring 1D/3D TiO₂ nanorod networks. *J Mater Sci: Mater Electron* 36 (2025) 1041.
- Ayesha Siddika, Munira Sultana, M.S. Bashar, Samia Tabassum, Shahin Aziz, Md Aftab Ali Shaikh, Improved performance of dye sensitized solar cell by exploration of photoanode and ruthenium-based dye. *Optical Materials* 125 (2022) 112042.
- Ayesha Siddika, Munira Sultana, Syed Shafquat Mahmood, M. S. Bashar, Samia Tabassum. The Consequence of Thickness Variation and Post Annealing Ambience Modification on Multilayered ZnO Thin Film Coating. *AIP Conference Proceedings* 2681 (2022) 020073.
- Suravi Islam, Nazia Khatun, Md. Shehan Habib, Syed Farid Uddin Farhad, Nazmul Islam Tanvir, Md. Aftab Ali Shaikh, Samia Tabassum, Dipa Islam, Md. Sajjad Hossain, Ayesha Siddika, Effects of yttrium doping on structural, electrical and optical properties of barium titanate ceramics. *Heliyon* 8 (2022) e10529.
- Suravi Islam, Syed Abdus Satter, Nazia Khatun, Mohammad Sajjad Hossain, Syed Farid Uddin Farhad, Parimal Bala, Samia Tabassum and Ayesha Siddika. Investigation of Structural, Dielectric and Electrical Properties of Barium Titanate Ceramics Co-Doped with Bismuth and Yttrium. *Journal of Molecular and Engineering Materials*, DOI: 10.1142/S2251237319500060.
- Suravi Islam, Ayesha Siddika, Nazia Khatun, Mohammad Sajjad Hossain, Most Hosney Ara Begum and Nurzaman Ara Ahmed. Structural, Dielectric and Electric Properties of Manganese-Doped Barium Titanate. *International Journal of Nanoelectronics and Materials.* 11 4 (2018) 419-426.

Conference Presentations (Selected)

- Oral Presentation in BCSIR Congress-2023, BCSIR Campus, Dhaka-1000
- Oral Presentation in BCSIR Congress-2022, BCSIR Campus, Dhaka-1000
- Oral Presentation in ICSTB-2022, BCSIR Campus, Dhaka-1000
- Oral Presentation in ICEP 2021, Chiang Mai, Thailand
- Oral Presentation in National Conference on Physics-2019, Senate Bhaban, Dhaka University, Dhaka-1000
- Oral Presentation in ICMSS-2018, Department of Electrical and Electronic Engineering (EEE), University of Dhaka, Dhaka-1000

Professional Memberships (Selected)

- Life-member of Bangladesh Physical Society, Dhaka, Bangladesh

Professional Trainings

- Training on “Ethics, Integrity, Discipline Regulations, and Records Management.”-2026, BCSIR Dhaka Laboratories, BCSIR, Dhaka-1205.
- Training Course on Laboratory Safety and Protocol-2020, IERD, BCSIR, Dhaka-1205.
- Training on MicroRAM system-2019, CARF, BCSIR, Dhaka-1205.
- 3rd Special Foundation Training Course-2018, BPATC, Savar, Dhaka-1343

References

Available up on request

Last Updated: Tuesday, 24 February, 2026