Dr. Mohammad Jellur Rahman

Professor

Department of Physics, Bangladesh University of Engineering and technology, Dhaka-1000, Bangladesh,

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EDUCATION

- **Doctor of Philosophy (Ph.D.)** [October 2011–September 2014]-Year 2014
  Department of Optoelectronics and Nanostructure Science,
  Graduate School of Science and Technology, Shizuoka University, Shizuoka 422-8529, Japan
  Thesis: Study of the Production, Functionalization and Applications of Carbon Nanotubes
  Supervisor: Prof. Tetsu Mieno
  Research Key Words: Carbon nanotubes, arc discharge, plasma functionalization
  MEXT (Monobukagakusho) Scholar

- **Master of Philosophy (M.Phil.)** [October 2007–April 2011] - Year 2011
  Department of Physics, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh
  Thesis: Optical and AC Electrical Properties of Plasma Polymerized*o*-Methoxyaniline Thin Films
  Supervisor: Prof. Md. Abu Hashan Bhuiyan
  Research Key Words: Plasma polymer, thin films, optical and electrical properties
  ICT Fellow, GOB
  Result: GPA 3.416 (out of 4)

- **Master of Science (*M.S.*)** [July 2001 –June 2002; held in 2005] -Year 2002
  Department of Physics, University of Dhaka, Dhaka-1000, Bangladesh
  Thesis: Synthesis of Pure and Cerium Doped Barium Titanateand Study of their Different Electrical and Dielectric Properties
  Supervisor: Prof. Shamima Karim Choudhury
  STRC Fellow, University of Dhaka
  Result: First Class Thirteenth. Marks: 67.83%

- **Bachelor of Science (*B.Sc.*)** with 4 years Honours[July 1998 – June 2001; held in 2004] – Year 2001
  Department of Physics, University of Dhaka, Dhaka-1000, Bangladesh
  Specialized subjects: Solid State Physics, Computational Physics, Reactor Physics
  Result: First class tenth, Marks obtained: 61.37%

- **Higher Secondary Certificate (H.S.C.)**[December 1994 – October 1996] – Year 1996
  Science group,Dhaka board, Notre-Dame College, Dhaka-1000, Bangladesh
  Result: First Division, 70.6%

- **Secondary School Certificate (S.S.C.)** [January 1989-August 1994] – Year 1994
  Science group,Dhaka board, Vibekananda High School, Tangail-1900, Bangladesh
  Result: First Division, 80.6%

PROFESSIONAL CARRIER

Professor [01 March, 2021 – to date]

Department of Physics, Bangladesh University of Engineering and Technology (BUET)
Dhaka -1000, Bangladesh

- Lecturing courses and conducting laboratory classes in undergraduate and postgraduate level.
- As the member of board of undergraduate and postgraduate studies, participate in discussion meetings for review and suggest modification for improvement of the courses of the undergraduate and graduate level.
- Assisting newly enrolled postgraduate students in their research work in the Department of Physics, BUET.
- Supervising the graduate students in the Department of Physics, BUET.

Associate Professor [March 12, 2018 – 28 February, 2021]

Department of Physics, Bangladesh University of Engineering and Technology (BUET)
Dhaka -1000, Bangladesh

- Lecturing courses and conducting laboratory classes in undergraduate and postgraduate level.
- As the member of board of undergraduate and postgraduate studies, participate in discussion meetings for review and suggest modification for improvement of the courses of the undergraduate and graduate level.
- Assisting newly enrolled postgraduate students in their research work in the Department of Physics, BUET.
- Supervising the graduate students in the Department of Physics, BUET.

Assistant Professor [February 24, 2015 – March 11, 2018]

Department of Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka -1000, Bangladesh

- Lecturing courses and conducting laboratory classes in undergraduate and graduate level.
- As the member of board of undergraduate and postgraduate studies, participate in discussion meetings for review and suggest modification for improvement of the courses of the undergraduate and graduate level.
- Assisting newly enrolled postgraduate students in their research work in the Department of Physics, BUET.
- Supervising the graduate students in the Department of Physics, BUET.

Lecturer [June 27, 2007 – February 24, 2015]

Department of Physics, Bangladesh University of Engineering and Technology (BUET)
Dhaka -1000, Bangladesh

- Lectured courses and conducted laboratory classes in undergraduate level
- Completed Master of Philosophy (MPhil) as a part time student

Assistant Director [December 3, 2006 – June, 26 2007]

Bangladesh Bank, Dhaka-1000, Bangladesh

- Central Banking
- Monetary policy making

RESEARCH EXPERIENCE

Department of Physics, BUET, Dhaka, Bangladesh
Professor
Plasma Polymers and Polymer Nanocomposites
November 2014–Till to date

Shizuoka University, Japan
Graduate Researcher
Study of the Production, Functionalization and Applications of Carbon Nanotubes
October 2011 - September 2014

Department of Physics, BUET, Dhaka, Bangladesh
Graduate Researcher
Study of optical, structural and electrical properties of plasma polymerized thin films
November 2007 - April 2011

Semiconductor Technology Research Centre, University of Dhaka, Dhaka, Bangladesh
Research Fellow
Synthesis of Pure and Cerium Doped Barium Titanate and Study of their Different Electrical and Dielectric Properties
December 2005- November 2006

Department of Physics, DU

Graduate Researcher
Synthesis of Pure and Cerium Doped Barium Titanate and Study of their Different Electrical and Dielectric Properties
December 2004- November 2005

STUDENT SUPERVISION

A. Doctor of Philosophy (Ph.D.) Thesis

1. **Structural, Optical and Electrical Properties of Thin Films of N-Benzylaniline Synthesized by Plasma Polymerization Method**, Rani Nasrin, **Student no:** 1014144005P, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 26 September, 2023.
2. **Synthesis and Characterization of Biochar Incorporated with Co-Zn Ferrite and Carbon Nanotubes for the Removal of Cr(VI) from Wastewater**, Md. Hedayet Ullah, **Roll no:** 0421144002, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 8 December, 2025.
3. **Preparation Of Plasma Polymerized Thin Films from Organic Monomers by Inductively and Capacitively Coupled Plasma Reactors and Comparison of Thermal, Optical and Electrical Properties of the Films**, Kanta Das, Roll No.: 1024144001, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Ongoing.
4. **Morphological and Electrical Properties of Plasma Polymerized Thin Films Synthesized by AC and RF Power Sources**, Aminur Rahman, Roll No.: 1024144005, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Ongoing.

B. Master of Philosophy (M.Phil.)

1. **Synthesis of ZnO Nanorods by Microwave Irradiation of Precursor Solution and Study of their Process Parameters**, Munira Sultana, **Student no:** 0417143010, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 30 June, 2021.
2. **Study of Optical and Electrical Properties of Plasma Polymerized 1,2-Diaminocyclohexane Thin Films Synthesized by AC and RF Power Source**, Md. Mahmud Hasan, **Student no:**0416143006, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 12 June, 2021.
3. **Preparation and Optical Characterization of Zinc Selenide/Plasma Polymerized o-Methoxyaniline Hybrid Thin Films**, Farzana Yasmin, **Student no:**1017143004, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 28 February, 2024.

C. Master of Science (M.Sc.)

1. **Investigation of Structural, Optical and Electrical Properties of Zinc Selenide Thin Films Deposited by Chemical Bath Deposition Technique**, M.Sc. Thesis, Tanvir Ahmmed, **Student no:**1014142514, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, January 2017.
2. **Investigation of Structural, Mechanical, and Electrical Properties of Rubber Nanocomposites of Carbon Nanotubes**, M.Sc. Thesis, Md. Forhad Hossain, **Student no:** 1015142503, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, September 2017.
3. **Investigation of Structural, Mechanical, and Electrical Properties of Cellulose Nanocomposites of Carbon Nanotubes**, M.Sc. Thesis, Urena Mostafa, **Student no:** 1015142503F, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 27 May, 2018.
4. **Investigation of the Electrical, Thermal and Mechanical Properties of Graphene Reinforced Low Density Polyethylene Nanocomposite**, M.Sc. Thesis, Md. Mehedi Hasan Sohag, **Student no:** 0417142523F, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 11 December, 2019.
5. **Functionalization of Carbon Nanotubes using Oxygen Plasma to Prepare Jute Nanocomposites**, MSc Thesis, Md. Johurul Islam, **Student no:** 1017142504F, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 17 December, 2019.
6. **Synthesis and Characterization of Plasma Polymerized 3,4-Ethylenedioxythiophene Thin Films,** M.Sc. Thesis, Md. Juel Sarder, **Student no:** 1018142512, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 23 April, 2022.
7. **Synthesis and Characterization of Plasma Polymerized 3,4-Ethylenedioxythiophene Thin Films,** M.Sc. Thesis, Md. Saddam Sheikh, **Student no:**0419142516, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 28 May, 2023.
8. **Preparation and Characterization of Carbon Nanotube and BambooFiber Reinforced Polylactide Nanocomposites,** M.Sc. Thesis, K.M. Yamin Arafath, **Student no:** 0419142521, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Ongoing.
9. **Synthesis and Characterization of Carbon Nanotubes Reinforced Fish Gelatin Nanocomposite Sheet for Pressure Sensors,** M.Sc. Thesis, Salvin Mustakim, **Student no:**0421142503, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 20 March, 2024.

10. **Carbon Nanotube and PEDOT:PSS Reinforced Nanocomposite ofCellulose Nanocrystals for Electrode Materials,** M.Sc. Thesis, Md. Mahtabur Rahman, **Student no:** 0422142511, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 27 May, 2025.
11. **Investigation of Structural and Optical Properties of Plasma Polymerized n-Butyl Methacrylate-2-Furaldehyde Composite Thin Films**, M.Sc. Thesis, Bablur Rahman, **Student no:**0423142512, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, 10 December, 2025.
12. **Synthesis of CNT and Nickel Cobalt Sulfide Nanorod Incorporated Chitosan Ternary Nanocmposite for Energy Storage Applications**, M.Sc. Thesis, Md. Mohibur Rahman, **Student no:** 0423142505, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Ongoing.
13. **Investigations of Structural, Morphological, and Electrochemical Properties of $CaFe_2O_4$ and PEDOT:PSS Incorporated CNC Nanocomposites**, M.Sc. Thesis, Sha Mohammed Sharfuddin, **Student no:** 0424142529, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, Ongoing.

CO-SUPERVISION

1. **Study of Structural and Dielectric Properties of Pure and Cerium Doped Barium Titanate**, MS Thesis, Sabina Yasmin,Student no: 2512, Session: 2004-2005, Department of Physics, University of Dhaka, Dhaka, Bangladesh, November, 2008.
2. **Study of Structural and Frequency Dependent Dielectric Properties of Pure and Cerium Doped Barium Titanate,**MS Thesis, Md. Sahriaz Hossain Khan, Student no: 2812, Session: 2007-08, Department of Physics, University of Dhaka, Dhaka, Bangladesh, March 2009.
3. **Structural, Electrical and Dielectric Properties of Pure and Manganese Dioxide (MnO_2) Doped BariumTitanate ($BaTiO_3$) Ceramics**,MS Thesis, Rafiqul Islam, Student no: 3704, Session: 2006-07, Department of Physics, University of Dhaka, Dhaka, Bangladesh, June 2010.
4. **Alternating Current Electrical Properties of Cerium Doped Barium Titanate at Intermediate Temperature (–25 °C to 30 °C),**MS Thesis, Afia Iffat, Student no: 3120, Session: 2009-10, Department of Physics, University of Dhaka, Dhaka, Bangladesh, November 2012.
5. **Synthesis and study of Structural and Electrical properties of Cerium (Ce) doped, Manganese (Mn) doped and Ce-Mn co-doped Barium Titanate ceramics at room temperature,** MS Thesis, Myeesha Mostafa, Student no: 4413, Session: 2013-14, Department of Physics, University of Dhaka, Dhaka, Bangladesh, March 2016.
6. **Synthesis, Structural and Electrical properties of undoped, doped (Ce & Mn) and co-doped (Ce-Mn) Barium Titanate ceramics at different temperatures**, Tahmida Raheen Iqbal, Student no: 5023, Session: 2014-15, Department of Physics, University of Dhaka, Dhaka, Bangladesh, April 2017.
7. **Fabrication and Characterization of Multiwalled Carbon Nanotube Reinforced Starch Biocomposites**, Nafisa Alam, Student no: 1924, Session: 2015-16, Department of Physics, University of Dhaka, Dhaka, Bangladesh, February 2018.
8. **Fabrication and Characterization of Multiwalled Carbon Nanotube Reinforced Banana Tree Fiber Nanocomposites**, Mahjabin Binte Mostafiz, Student no: 2323, Session: 2017-18, Department of Physics, University of Dhaka, Dhaka, Bangladesh, February 2020.
9. **Preparation and characterization of Composite Boards and Sheets from Solid Leather Waste with Plant Fibers- a Waste Utilization Effort,** Md. Tauhiduzzaman, Student no: LPE-ZH-5509,

Exam roll: 81906, Reg: 2015-018-193, Session: 2019-20, M.Sc. Engineering in Leather Products Engineering, Institute of Lather Technology, University of Dhaka, Dhaka, Bangladesh, July 2022.

10. **Developing Eco-friendly Transparent Polymer Film of Graphene Oxide Reinforced Fish Gelatin for Flexible Wearable Smart Technologies**, MS Thesis, Abdullah Al Mahmud, Registration no: 2017-813-675, Session: 2021-22, Department of Physics, University of Dhaka, Dhaka, Bangladesh, November 2024.
11. **Mechanical and Thermal Properties of Reduced Graphene Oxide Reinforced Polypropylene/Banana Midrib Fiber Nanocomposites**, M.Sc. Thesis, Md. Al-Amin, Registration No.: 2171-003-21, Department of Physics, University of Barishal, Barishal, Bangladesh, April 2024.
12. **Tamarind peel-derived cellulose nanocrystals reinforced with EDA functionalized rGO nanocomposites: A multiscale property investigation**, M.Sc. Thesis, Md. Ashikur Rahman, Registration No.: 2171-001-23, Department of Physics, University of Barishal, Barishal, Bangladesh, July 2025.
13. **Synthesis and Characterization of Cellulose Nanocrystal-Based Nanocomposite Film Reinforced with MoS_2 and CNT**, M.Sc. Thesis, Mehedi Hasan, Registration No.: 2171-003-23, Department of Physics, University of Barishal, Barishal, Bangladesh, July 2025.

FUNDING

1. *Extraction of Gelatin from Fish Scale and Synthesis of Ternary Nanocomposite for Advanced Technology*, Sanction order: 39.00.0000.000.206.0031.25.203; 19/10/2025, Project ID # SRG-SRG-256609 (Tk. 900000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka-1000 (Ongoing).
2. *Extraction of Gelatin from Fish Scale and Synthesis of Ternary Nanocomposite for Advanced Technology*, Sanction order: 39.00.0000.006.99.026.24.69; 09/03/2025, Project ID # SRG-246454 (Tk. 700000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka-1000 (Completed).
3. *Carbon Nanotube and PEDOT:PSS Reinforced Nanocomposite of Cellulose Nanocrystals for Electrode Materials*, Sanction order: 24-370 RG/PHYS/ASJ - FR 3240339191; 18/12/2023, Project ID # 24-370 RG/PHYS/AS_I (USD. 24000/-), The World Academy of Sciences (TWAS), UNESCO and SIDA, Italy (Ongoing).
4. *Extraction of Gelatin from Fish Scale and Synthesis of Ternary Nanocomposite for Advanced Technology*, Sanction order: 39.00.0000.009.99.023.23-363; 18/12/2023, Project ID # SRG-236629 (Tk. 250000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka-1000 (Completed).
5. *Synthesis of Plasma Modified Magnetic Biochar Derived from water hyacinth and Its Application in Industrial Wastewater Treatment,* Grant Number: Physical Science-31-2022, Date: 01-11-2023, (Tk. 300000/-), University Grants Commission, Bangladesh (Completed).
6. *Biopolymer Extracted Nanocelluloses and Smart Fibers for Future Technology*, Sanction order:39.00.0000.009.99.024.22-901; 14/11/2022, Project ID # SRG-226630 (Tk. 300000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000 (Completed).
7. *Biopolymer Extracted Nanocelluloses and Smart Fibers for Future Technology*, Sanction order: 39.00.0000.009.14.019.21-Phy's-608-1355; 15/12/2021, (Tk. 300000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000 (Completed).

8. *Biopolymer Extracted Nanocelluloses and Smart Fibers for Future Technology*, Sanction order: 39.00.0000.009.14.011.20-Phy's-542/1878;10/12/2020, (Tk. 500000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000 (Completed).
9. *Carbon Nanotube Reinforced Nanocomposites of Natural Polymers for Biofriendly Applications*, Sanction order: 39.00.0000.09.06.024.19/Phy's-529-545; 12/01/2020, (Tk. 400000/-), Ministry of Science and Technology, Government of thePeople's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000 (Completed Successfully).
10. *Carbon Nanotube Reinforced Nanocomposites of Natural Polymers for Biofriendly Applications*, Sanction order: 39.00.0000.09.14.009.2019/PHY's-35/505; 16/01/2019, (Tk. 500000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000(Completed).
11. *Carbon Nanotube Reinforced Nanocomposites of Natural Polymers for Biofriendly Applications,* Sanction order: 39.00.0000.09.06.79.2017/PHY's-443/447, Date: 06.11.2017, (Tk. 500000/-), Ministry of Science and Technology, Government of the People's Republic of Bangladesh, Bangladesh Secretariat, Dhaka – 1000 (Completed).

FIELD OF INTEREST

- Carbon nanotubes and nanomaterials.
- Plasma modification of carbon nanomaterials.
- Study of optical, structural and electrical properties of plasma polymerized thin films.
- Study of structural and electrical properties of ceramics materials.
- Studies of crystallization, phase transition, surface morphology, mechanical micromechanical, thermal, electrical and other properties of soft condensed matters (polymeric and organic substances).

EXPERIMENTAL TECHNIQUES AND INSTRUMENTS USED

- Arc discharge method to produce carbon nanotubes, radio frequency plasma surface modification of the carbon nanotubes, and application of the carbon nanotubes especially as electro-thermal element.
- Characterization of carbon nanotubes using transmission electron microscope, scanning electron microscope, Raman spectroscopy, X-ray photoelectron spectroscopy, Time of flight mass spectroscopy, Thermogravimetric analysis, FT-IR and UV-visible spectroscopies, and optical microscopy.
- Preparation of ceramics materials using solid state reaction method.
- Preparation of organic thin films using capacitively coupled plasma polymerization technique.
- Preparation of polymer composites and blends by compression molding, extrusion molding and injection molding method.
- Differential Thermal Analyzer (DTA), Thermogravimetric Analyzer (TGA).
- Study of crystal structure by X-ray Diffraction (XRD) method.
- Optical Microscopy, Scanning electron microscopy.
- AC and DC electric measurements using impedance analyzer and electrometer respectively.
- UV-visible spectroscopy.
- FTIR Spectroscopy using IR spectrophotometer.
- Microhardness measurements using a micro-indentation tester.
- Mechanical testing using universal testing machine.

PUBLICATIONS

Manuscripts under Preparation:

1. Md. Mahmud Hasan, Mohammad Jellur Rahman, Md. Azizul Hoque and A. H. Bhuiyan, Smooth and Transparent Plasma Polymerized 1,2-Diaminocyclohexane Thin Films for Optoelectronic Applications, prepared to submit in a peer-reviewed Journal.
2. Sadia Afrin Mimu, Md. Abdul Mottalib, Mohammad Jellur Raman and Md. Abul Kalam, Multi-functional Nanocomposite Films from Bio-inspired Gelatin Ambient with Safely Functionalized Multi-walled Carbon Nanotubes

Submitted Manuscripts:

1. Sha Mohammed Sharfuddin, M. Hedayet Ullah, Kaniz Fatema Liazo, Mohammed Nazrul Islam Khan, Parimal Bala, Mohammad Jellur Rahaman, Effect of Octadecylalkylammonium Intercalated Montmorillonite on the Structural, Morphological, Magnetic, Optical, Dielectric, and Electrical Properties of Calcium Ferrite Nanocomposites, *Materials Today Communications,* 2026 (Under Review).
2. Bablur Rahman, M. Hedayet Ullah, Ratul Roy, A. H. Bhuiyan, Mohammad Jellur Rahman, Enhanced Optoelectronic and Non-linear Optical Performance of Plasma Polymerized Furan-2-carboxaldehyde-n-Butylmethacrylate Composite Thin Films via Thermal Annealing, *Results in Surfaces and Interfaces*, 2026 (Under Review).
3. Rayhan Bin Masud, Samiha Alam, Hridoy Roy, Mohammad Jellur Rahman, Md. Shahinoor Islam, Bandgap-engineered Nitrogen Plasma Functionalized Biochar-TiO_2 Composite for Enhanced Antibiotic Photodegradation, *RSC Advances,* 2026 (under Revision).
4. Bablur Rahman, Mohammad Jellur Rahman, Farzana Yasmin, Hasina Akther, Tamanna Afroze, Subrin Mostofa Khan, A. H. Bhuiyan, Electrical conduction and tailored electrical properties of plasma polymerized N, N,3,5 tetra-methylaniline and 2-(diethylamino)ethyl methacrylate bilayer thin films for optoelectronics, *Materials Today Communications*, 2026 (Under Review).

Published Manuscripts:

2026

1. M. Hedayet Ullah, Mohammad Jellur Rahman, Carbon Nanotube Incorporated Magnetic Biochar Derived from Water Hyacinth for Chromium Removal from Tannery Effluent, *Materials Advances*, 2026, Advance Publication. DOI: https://doi.org/10.1039/D6MA00330C (**IF: 4.7**)
2. Md. Al-Amin, M. Hedayet Ullah, Md. Mahtabur Rahman, Md. Khorshed Alam, Nazrul Islam Khan & Mohammad Jellur Rahman, Hybrid PP Composites Reinforced with Banana Midrib Fiber and rGO for Enhanced Mechanical and Dielectric Performance, *Scientific Reports*, Article in Press (2026). DOI: https://doi.org/10.1038/s41598-026-49074-1. (**IF: 3.9**) Published: 22 April 2026
3. Md. Mahtabur Rahman, Salvin Mustakim, M. Hedayet Ullah, Muhammad Rakibul Islam, Testu Mieno, Mohammad Jellur Rahman, Carbon Nanotube and Conducting Polymer Reinforced Biomaterials for Flexible Supercapacitor Electrodes Toward Sustainable Energy Storage, Journal of Energy Storage 162 (2026) 122060. DOI: https://doi.org/10.1016/j.est.2026.122060. (**IF: 9.8**) Available online on 7 April 2026.
4. Salvin Mustakim, Md. Mehedi Hasan Sohag, Md. Abul Kalam and Mohammad Jellur Rahman, Development of Reduced Graphene Oxide Reinforced Low-Density Polyethylene Nanocomposites with Improved Mechanical and Electrical Properties, *Journal of Materials Engineering and*

Performance, Volume 35, pages 13240–13250, (2026). https://doi.org/10.1007/s11665-025-12494-7 (**IF: 2.0**), Published online on 25 October 2025.

2025

5. Bablur Rahman, Md Saddam, M. Hedayet Ullah, A.H. Bhuiyan, Mohammad Jellur Rahman, Highly transparent plasma polymerized 2-Furaldehyde-n-Butyl methacrylate composite thin films with tunable linear and nonlinear optical properties and enhanced surface morphology for optoelectronic applications, *Materials Today Communications*, 50, January 2026, Article ID. 114554, 2025. https://doi.org/10.1016/j.mtcomm.2025.114554 (**IF: 4.5**), Published online on 22 December 2025.

6. Md. Saddam Sheikh, Hasina Akther, A. H. Bhuiyan, Mohammad Jellur Rahman, Tailored Electrical Properties and Conduction Mechanism of Plasma Polymerized 2,6-Diethylaniline and N,N,3,5-Tetramethylaniline Composite Thin Films, 2025, *AIP Advances*, 15, Article ID: 095010 (2025). DOI: https://doi.org/10.1063/5.0281998 (**IF: 1.5**), Published online on 8 September 2025.

7. Md. Al-Amin, M. Hedayet Ullah, Md. Mahtabur Rahman, Md. Khorshed Alam & Mohammad Jellur Rahman, Structural, thermal and mechanical analyses of banana midrib fiber reinforced polypropylene composite of improved properties, *Journal of Polymer Research*, 32, Article number 316, (2025). DOI: https://doi.org/10.1007/s10965-025-04543-5 **(IF:2.8),** Published on 04 September 2025

8. M. Hedayet Ullah, Mohammad Jellur Rahman, Co-Zn ferrite incorporated biochar for Cr (VI) removal from wastewater: Adsorption mechanism and process optimization with response surface methodology, *Environmental Monitoring and Assessment,* 197, Article No. 623 (2025), https://doi.org/10.1007/s10661-025-14082-7. **(IF: 2.9**) Published on 5 May, 2025

9. Salvin Mustakim, Abdul Momin, Md Abul Kalam, Tetsu Mieno, Manisha Ahamad and Mohammad Jellur Rahman, CNT and ZnO Nanorod Incorporated Fish Gelatin Nanocomposite towards Developing Flexible Pressure/Strain Sensors for Human Motion Monitoring, *Journal of Materials Chemistry A*, 13, Article ID: 14858, 2025. DOI: https://doi.org/10.1039/D4TA07700H, **(IF: 10.7**), Published on 28 Mar 2025.

10. Md Abul Kalam, Salvin Mustakim, Mohammad Jellur Rahman, Md Tushar Uddin, Md Ashraful Alam, and Mohammad Mahbubur Rahman, Bio-degradable Smart Nanocomposite Fiber from Moringa Oleifera Fiber Reinforced with Safely Functionalized Carbon Nanotubes, *AIP Advances* 15, 015001 (2025). DOI: https://doi.org/10.1063/5.0238023 (**IF**: 1.4) Published on 03 January, 2025.

2024

11. Md. Abdul Momin, Mahdi Jazini, Mohammad Jellur Rahman, Tetsu Mieno, Self-Powered Wearable Pressure Sensors for Detection and Separation of Signals for Various Human Movements, *Analysis and Sensing,* Vol. 5 (2), Article ID: e202400062, 2005. DOI: https://doi.org/10.1002/anse.202400062 (**IF**: 2.6) Published on 21 October, 2024.

12. Mohammad Mahafuzur Rahaman, Md. Abdul Momin, Abhijit Majumdar, Mohammad Jellur Rahman, Density Functional Theory (DFT) Based Local Density Approximation (LDA) Study on Tailoring Electronic and Optical Properties of SnO and In Doped SnO, *MatSci Express*, 1(3), 2024, 125-134. DOI: https://doi.org/10.69626/mse.2024.0125, Published on 03 July 2024

13. Md. Johurul Islam, Saidul Islam, Mist Toma Khatun, Md. Forhad Hossain, Mohammad Jellur Rahman and Suravi Islam, Exploring the Post-Annealing Influence on Stannous Oxide Thin Films via Chemical Bath Deposition Technique: Unveiling Structural, Optical, and Electrical Dynamics, *International Journal of Innovative Science and Research Technology,* 9(4), 2024, 2874-2880. DOI: https://doi.org/10.38124/ijisrt/IJISRT24APR1778. Available online 1 April 2024

14. M. Hedayet Ullah, Mohammad Jellur Rahman, Adsorptive Removal of Toxic Heavy Metals from Wastewater Using Water Hyacinth and Its Biochar: A Review, *Heliyon*, Vol. 10(17), Article ID:

e36869, 2024. DOI: https://doi.org/10.1016/j.heliyon.2024.e36869 (**IF**: 3.4) Available online 24 August 2024

15. Md. Juel Sarder, Md. Saddam Sheikh, Md. Abdul Momin, A.H. Bhuiyan, Mohammad Jellur Rahman, Effect of RF and AC powers on morphological, structural, and optical properties of plasma polymerized EDOT thin films, *Arabian Journal of Chemistry*, Vol. 17(9), Article ID: 105916, 2024. DOI: https://doi.org/10.1016/j.arabjc.2024.105916 (**IF**: 6.0) Available online 20 July 2024

16. Farzana Yasmin, Md. Saddam Sheikh, A. H. Bhuiyan, Mohammad Jellur Rahman, A Comprehensive Study on Structural and Optical Properties of Zinc Selenide/Poly Ortho-methoxyaniline Hybrid Thin Films Deposited by Chemical Bath Deposition and Plasma Polymerization Techniques, *Arabian Journal of Chemistry*, Vol. 17(7), Article ID: 105842, 2024. DOI: https://doi.org/10.1016/j.arabjc.2024.105842 (**IF**: 6.0) Published on 22 May 2024

17. Salvin Mustakim, Md Abul Kalam, Tetsu Mieno, Mohammad Jellur Rahman, Fish Gelatin Reinforced with Carbon Nanotubes and ZnO Nanorods for Wearable Smart Technologies, *ACS Applied Nano Materials*, *7* (5), 2024, 5202-5213. DOI: https://doi.org/10.1021/acsanm.3c05830 (**IF:**6.03). Published on February 27, 2024

18. Rani Nasrin, Mohammad Jellur Rahman, and A. H. Bhuiyan, Schottky Conduction Mechanism in Plasma Polymerized N-benzylaniline Thin Films, *Thin Solid Films*, 792 (2024) 140251. DOI: https://doi.org/10.1016/j.tsf.2024.140251 (**IF:** 2.358). Published on 5February 2024

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19. Md. Tawhiduzzaman, Md. Abdul Mottalib, Mohammad Jellur Raman and Md. Abul Kalam, Preparation and Characterization of Composite Sheets from Solid Leather Waste with Plant Fibers – A Waste Utilization Effort, *Clean Technologies and Environmental Policy*, Vol. 26,1025–1038, (2024). DOI: https://doi.org/10.1007/s10098-023-02642-9(**IF**:4.7). Published on 14 November 2023

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Presentations at Conferences, Seminars and Symposiums

1. Kanta Das, A. H. Bhuiyan, Mohammad Jellur Rahman, “A Comparative Study on Optical Properties of Plasma Polymerized Thin Films of Organic Monomers” Poster presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka (Best Poster Award Winner).
2. Bablur Rahman, M. Hedayet Ullah, Ratul Roy, A. H. Bhuiyan, Mohammad Jellur Rahman, “Enhanced Optoelectronic and Non-linear Optical Performance of Plasma Polymerized Furan-2-carboxaldehyde-n-Butylmethacrylate Composite Thin Films via Thermal Annealing” Oral presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.
3. Md. Mohibur Rahman, Salvin Mustakim, Md. Al-Amin, Mohammad Jellur Rahman, “Green Extraction of Chitosan Biopolymer from Prawn Shell and its Characterizations” Oral presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.

4. Sha Mohammed Sharfuddin, Md. Mahtabur Rahman, Mohammad Jellur Rahman, “Effects of $CaFe_2O_4$ and PEDOT:PSS on the Structural, Morphological, and Optical Properties of CNC Nanocomposites” Poster presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.
5. Md Mhamudul Hasan Munna, Md Nabil Hassan, Md. Wahadoszamen, Tanvir Ahmed, Mohammad Jellur Rahman, and Md Abul Kalam, “Investigation of Green Synthesized Silver Nanoparticles Loaded Fish Gelatin/PVANanocomposite Films for Biomedical Applications” Oral presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.
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7. Mahbubul Alam, Md. Al-Amin, Sha Mohammed Sharfuddin, Md. Khorshed Alam, Mohammad Jellur Rahman, “Structural, Optical and Morphological Properties of $NiCo_2S_4$and PEDOT: PSS Incorporated CNC Nanocomposite” Poster presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.
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9. Md. Solaiman Ovi, Bablur Rahman, Md. Al-Amin, Md. Khorshed Alam, Mohammad Jellur Rahman, “Inspection of the Optical Properties of the Plasma-Polymerized 2-Furaldehyde (FD) And N, N, 3, 5-Tetramethyl-Aniline Composite Thin Films” Poster presentation, International Conference on Physics, Organized by Bangladesh Physical Society, 9 - 11 April 2026, Department of Physics, University of Dhaka.
10. Md. Al-Amin, Mehedi Hasan, Md. Mahtabur Rahman, Md. Khorshed Alam, Mohammad Jellur Rahman, Development and Analysis of CNT/MoS_2-Reinforced Cellulose Nanocrystal Nanocomposite Films, Phy CP-20, 2nd International Conference on Frontiers in Science: Innovation & Technology for Greener Industry, *15 - 16 January, 2026, Organized by: Faculty of Science, BUET, Dhaka-1000, Bangladesh*
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20. Sha Mohammed Sharfuddin, Md. Hedayet Ullah, Parimal Bala, Mohammad Jellur Rahman, "Investigation of Structure, Morphology, and Magnetic Properties of OctadecylalkylammoniumIntercalated Montmorillonite Incorporated Calsium Ferrite Nanocomposites", oral presentation, ICSHSD, Organized by Faulty of Science, DUET, 23-24 th October 2025.
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23. M. Hedayet Ullah and Mohammad Jellur Rahman, "Optimization of Hexavalent Chromium Removal from Aqueous Solution Using Co-Zn Ferrite-Incorporated Water Hyacinth Biochar", Oral presentation, National Conference on Physics-2025, Organized by Bangladesh Physical Society (BPS), Department of Physics, University of Rajshahi, 06-07 February 2025. (Best oral presentation award)
24. Md. Mahtabur Rahman, Salvin Mustakim, Md. Hedayet Ullah, Mohammad Jellur Rahman, "Designing Advanced Electrode Materials: Cellulose Nanocrystal Nanocomposites Reinforced with PEDOT:PSS and Carbon Nanotubes," National Conference on Physics-2025, Organized by Bangladesh Physical Society (BPS), 06 − 07 February 2025, Department of Physics, University of Rajshahi.
25. Md. Al-Amin, M. Hedayet Ullah, Md. Khorshed Alam, Mohammad Jellur Rahman, Nazrul Islam Khan "Mechanical and Thermal Characteristics of Polypropylene/Banana Midrib Fiber Nanocomposites

Reinforced with Reduced Graphene Oxide" National Conference on Physics-2025, Organized by Bangladesh Physical Society, 06 – 07 February 2025, University of Rajshahi.

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33. Md. Al-Amin, M. Hedayet Ullah, Md. Khorshed Alam, Mohammad Jellur Rahman "Utilizing Statistical Methods for Predictive Modeling and Optimization of the Tensile Properties of Natural Fiber Nano Composites" Research Fair – 2024, S.N. Bose's Life, Contributions, and Contemporary Research.
34. Md. Al-Amin, M. Hedayet Ullah, Md. Khorshed Alam, Mohammad Jellur Rahman, M.N. I. Khan "Mechanical and Thermal Properties of Reduced Graphene Oxide Reinforced PP/Banana Midrib Fiber Nanocomposites" International Conference on Physics – 2024, 09 – 11 May 2024, Theme: Physics for 21st Century.
35. Md. Al-Amin, M. Hedayet Ullah, Md. Khorshed Alam, Mohammad Jellur Rahman "Extrusion Molded Natural Fiber-Reinforced Polypropylene: A Study on Composite Characteristics" Sultan Ahmed Memorial Conference, Organized by Department of Physics, University of Dhaka, 03 – 04 May 2024.
36. Salvin Mustakim, Md Abul Kalam, Tetsu Mieno, and Mohammad Jellur Rahman, "Structural, Thermal, and Mechanical Study of Gelatin Based Ternary Nanocomposite." *1st National Conference on Advances in Science and Technology*, NCAST-2023. Organized by Faculty of Science, BUET, 7 - 8 December, 2023.
37. Salvin Mustakim, Md Abul Kalam, Tetsu Mieno, and Mohammad Jellur Rahman, "Structural Investigation of 1-D nanofillers Incorporated Polymer Nanocomposite." *8th Conference of Bangladesh Crystallographic Association* (BCA), 24 – 25 November, 2023.

38. Farzana Yasmin, Md. Saddam Sheikh, A. H. Bhuiyan, Mohammad Jellur Rahman; Unvelling the Optical Properties of Zinc Selenide/Plasma Polymarized o-Methoxyaniline Hybrid Thin Film, *1st National Conference on Advances in Sciences and Technology* (NCAST-2023), *Faculty of Science*, BUET, 7- 8 December, 2023, (Abstract-Phy-pp-11), p-232.

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41. Farzana Yasmin, Saddam Sheikh, A. H. Bhuiyan, and Mohammad Jellur Rahman, Optical Characterization of Zinc Selenide/Plasma Polymerized o-Methoxyaniline Hybrid Thin Films, 1st International Science Conference for Women-2023, *organized by* Dhaka Nanomaterials Group, 15 - 16 February 2023, Hotel Pan Pacific Sonargaon, Dhaka, Bangladesh

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57. M. Sultana, Mohammad Jellur Rahman, M. S. Bashar, “Study of the size distribution of ZnO nanorods synthesized by microwave assisted irradiation of precursor”, OP- H02, International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu (ICSTB-2021), 11-13 March, 2021, Bangladesh Council of Scientific and Industrial Research, Dhaka-1205, Bangladesh.

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97. S. Yasmina, S. Choudhury, M. A. Hakim, A. H. Bhuiyan and M. J. Rahman; Structural and Dielectric Properties of Pure and Cerium Doped Barium Titanate, Presented in International Physics Conference (IPC-09), 15-17, May, 2009, Bangladesh Physical Society, Dhaka, Bangladesh.

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99. M. J. Rahman, Shamima Choudhury, A. H. Bhuiyan, S. N. Rahman and A. H. Khan; Electrical Properties of Cerium Doped Barium Titanate; Presented in Conference BPS (2007), Bangladesh Physical Society, Dhaka, Bangladesh.

Curriculum Activities:

Teaching the following courses to the Postgraduate students during my teaching period at BUET:

PHY 6014	Solid State Plasma	April 2015, April 2016, October 2016, April 2017, April 2018,
PHY 6000	Project/Thesis	October 2015 April 2016, October 2016
PHY 6002	Low Temperature Physics and Vacuum Techniques	October 2015
PHY 6018	Materials Science	October 2017, April 2018, October 2018, April 2019, April 2020, April 2021
PHY 6004	Polymer Physics	April 2018, April 2020, October 2021, October 2022
PHY 6012	Experimental Techniques in Solid State Physics	October 2018, April 2019, October 2019, April 2020, April 2021, October 2021, October 2023
PHY 6101	Nuclear Physics	October 2018, April 2019, April 2020, April 2021
PHY 6113	Advanced Nuclear Physics	April 2021, April 2022, April 2023,April 2024,

Teaching the following courses to the undergraduate students during my teaching period at BUET:

Modern Physics as part of PHY-105, PHY-113, PHY-151, PHY-157, PHY-167, PHY-117 courses to the CE, WRE, ME, IPE, NAME and ChE, MME, BME Departments.

Structure of Matter as part of PHY-105, PHY-117, PHY-151 course to the CE, ChE, WRE, IPE and NAME departments and as part of PHY-109 course to the CSE department.

Wave Mechanics as part of PHY- 117 course to the IPE department.

Also conducted Physics Sessional courses (PHY-102 and PHY-104) in each term as department scheduled time to time. Time to time participated in development and maintenance of the undergraduate laboratory.

Extra Curriculum Activities:

a) Activities Assigned by the University Authorities in Addition to own Duties:

- *Acting BPGS Secretary of the Department of Physics, BUET from October 2020 to November 2022.*
- *Acted as Postgraduate Tabulator of the Department of Physics, BUET from October 2017 to September 2020.*
- *Acted as Web-administrator of the Department of Physics, BUET from March 2016 to September 2020.*
- *Gave invigilation in the semester final exams and admission tests at BUET in 2008, 2009 and 2010, 2011, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021.*
- *Act as Paper setter, Scrutinizer /Examiner of the UG Admission test of the sessions 2014-2015, 2015-2016, 2016-2017, 2017-2018, 2018-2019, 2019-2020, 2020-2021, 2021-2022.*
- *Helped to buy and set up new laboratory apparatus for the undergraduate level.*

b) Hall Administration:
Worked as an Assistant Provost (Mess) of the Dr. M. A. Rashid Hall of BUET from June 13, 2015 to October 2020.

c) Chairman or Member of Committees formed by University Authority, Syndicate, Academic Council, Finance Committee, etc:
- *Member of the Academic Council, BUET since June 2018.*
- *Member of the Examination Committee of Undergraduate and Graduate levels of the Physics Department since June, 2018.*
- *Members of different Recruitment Committees of BUET*
- *Member of the **Board of Undergraduate Studies (BUGS)** of the Physics Department since June, 2007.*
- *Member of the **Board of Postgraduate Studies (BPGS)** of the Physics Department since June, 2015.*
- *Member, **Publication Sub-committee**, 10th Convocation, 2011, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh*
- *Members of the vigilance team to observe the law-and-order situation of different residential halls.*

d) Reviewers of:
- Applied Surface Science
- Dhaka University Journal of Sciences
- Journal of Bangladesh Academy of Sciences
- Bangladesh Journal of Physics
- The Dhaka university Journal of Science
- International Journal of Nanoscience and Nanotechnology
- Journal of Asian Architecture and Building Engineering
- Journal of Environmental Chemical Engineering
- Journal of Polymer Research
- Biomass Conversion and Biorefinery
- Journal of Advanced Research in Fluid Mechanics and Thermal Sciences
- Advances in Polymer Technology
- Optical Materials
- Journal of Reinforced Plastics and Composites
- Journal of Materials Engineering and Performance

e) Others
- Joint Secretary, Bangladesh Physical Society (2024-2025)
- Treasurer, Physics Alumni Association of BUET, (2025-2026)
- Assistant Editor of Bangladesh Journal of Physics, published by Bangladesh Physical Society science 2018.
- Chair of the Poster Session to Evaluate the Presented Poster for Best Poster Awardsin the 7th Conference of BCA, Organized Conference of Bangladesh Crystallographic Association, Dhaka-1000, Bangladesh, 8 – 9 December 2022.
- Co-Convenor of the Scientific Committee of the 7th Conference of BCA, Organized Conference of Bangladesh Crystallographic Association, Dhaka-1000, Bangladesh,8 – 9December 2022.

- Convenor of the Publication Committee of the 1st International Conference on Frontier in Sciences (ICFS - 2022), Organized by the Faculty of Science, BUET, Dhaka-1000, Bangladesh, 11 – 12 November 2022.
- Member of theAbstract Screening committee, Technical Committee, Press and Publication Committee of the National Conference on Physics, 2021, organized by Bangladesh Physical Society, 6-7 August, 2021, Dhaka, Bangladesh.

Award : Best poster award in the 2015 International Symposium toward the Future of Advanced Researches in Shizuoka University, 27–28 January, 2015, Hamamatsu, Shizuoka, Japan.

Scholarship : Japanese Govt. MEXT (Monobukagakusho) Scholarship (2011)

Membership :

- Life Member of Dhaka University Physics Alumni Association
- Life Member of the Japanese Universities Alumni Association in Bangladesh (JUAAB): JUAB-LM-0451
- Life member of Dhaka University Alumni Association (Membership number: LM-16061)
- Life member of the '*Bangladesh Physical Society*' (LM E0035)
- Life member of *Bangladesh Crystallographic Association (BCA)* (Membership number: LM 70)
- Life Member of *BUET Alumni Association*: 20111212003L
- Member of '*The Fullerenes, Nanotubes and Graphene Research Society'*
- Life member of the Association of Asia Pacific Physical Societies-Division of Plasma Physics (Membership number: 206)
- Life Member of Physics Alumni Association of BUET, LM 00005.

Fellowship : NSICT Fellowship, 2010-2011, GOB

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3. TWAS - VeryConnect (https://researchlinks.twas.org/members/6790c5a7463daa00086dfd2d)
4. Google Scholar (https://scholar.google.com/citations?hl=en&user=io5lNk8AAAAJ)

REFERENCES

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2. Prof. Shamima Choudhury
   Former Professor, Department of Physics, University of Dhaka, Dhaka-1000.
   Contact: Phone: +8801819188520, E-mail: skc.phy@gmail.com

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   Department of Physics, BUET, Dhaka-1000.
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I hereby declare that the information stated above is true.

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