Md Nazmul Hassan

CB-211/1, Mirpur 14, Dhaka-1206, Bangladesh.
Email: mnhassan.acad@gmail.com
Website: mnhassan.com
Phone: +8801997046849

Education

BSc in Nuclear Science and Engineering February, 2019 - April, 2023
Military Institute of Science and Technology (MIST)
Cumulative GPA: 3.43/4.00

Higher Secondary School Certificate Examination July 2016 to July 2018
Adamjee Cantonment College
GPA: 4.83/5.00

Secondary School Certificate Examination January 2014 to May 2016
Adamjee Cantonment Public School
GPA: 5.00/5.00

Standardized Test Scores

GRE-(24th September 2023)			
Total	Quantitative	Verbal	Analytical
307	155	152	3.5

IELTS-(16th November 2023)				
Overall	Listening	Reading	Writing	Speaking
7	8.5	7	6	6.5

Work Experience

Materials Science Division, Atomic Energy Centre, Dhaka January 2022 to Present

Research Supervisor: Dr. Md. Al-Mamun, Principle Scientific Officer, Materials Science Division, Atomic Energy Centre, Dhaka, Bangladesh Atomic Energy Commission.

Research Assistant
Duties:

- Preparing, running, and monitoring experiments related to materials science and radiation dosimetry.
- Synthesizing and preparing materials or samples for analysis using characterization techniques such as XRD, FTIR, TEM, EDX and SEM.
- Performing irradiation experiments on dosimetric materials using medical LINAC and Co-60 source for Thermoluminescence response.
- Collecting experimental data, recording observations, analysing results using statistical or scientific methods, and preparing technical reports.
- Reviewing existing research papers and technical documents to stay updated with new techniques, theories, and technologies.
- Calibrating, maintaining, and troubleshooting laboratory instruments and ensuring a safe working environment.
- Assisting senior scientists and project leads in ongoing research projects and co-authoring publications.
- Preparing presentations, progress reports, and research papers for meetings, conferences, or publications.
- Contributing ideas for new research projects, experiments, or improvements in dosimetric materials development or testing techniques.

Research Experience

- **Undergraduate Research work (Project)** July 2021 - January 2022
  - Project title: Development of a Radiation Detection and Assistant Robot.
    - Developed a remote radiation monitoring robot utilizing a GM counter, featuring real-time data telemetry, location tracking, and composite lead shielding for the control electronics and radiation source storage. This project was funded by the Department of Nuclear Science and Engineering at MIST, Dhaka.
  - Research Supervisor: Md. Sifatul Muktadir, Assistant Professor, Department of Nuclear Science and Engineering, MIST, Dhaka.

- **Undergraduate Research Work (Thesis)** January 2022 - March 2023
  - Thesis title: Synthesis and Characterization of Zinc and Yttrium doped Lithium Magnesium Borate ($LiMgBO_3$) for thermoluminescence dosimetry.
    - Synthesized Zinc and Yttrium-doped $LiMgBO_3$, assessed physical properties with XRD, FTIR, and TEM. After irradiating with a Co-60 (Gamma) source, the thermoluminescence (TL) response was studied using a TL reader, including glow curves, dose response, and sensitivity.
  - Research Supervisor: Dr. Md. Al-Mamun, Principle Scientific Officer, Materials Science Division, Atomic Energy Centre, Dhaka, Bangladesh Atomic Energy Commission.
  - Currently working as, a research assistant at Dr. Al-Mamun's lab, continuing the research.

Publications

- Muktadir, Md. Sifatul; **Hassan, Md. Nazmul**; Siddique, Md. Saimon; Nur, Dewan Nazmun; Hossain, Altab; and Chowdhury, Ahnaf Tahmid (2024) "Design and Development of a Radiation Survey and Rescue Robot with Shielding of Electronic Equipment from Radiation Damage with Image Radiation Mapping Facility," International Journal of Nuclear Security: Vol. 9: No. 2, Article 4.
- Rahat, Md Raghib, Homaira Afia Mimi, Shah Azharul Islam, Md Kamruzzaman, Md Abul Hasnat, **Md Nazmul Hassan**, Shahadat Hossain et al. "Optimized $LiZnBO_3$ Phosphor as a Promising Candidate for Low Dose Radiation Dosimetry." Nuclear Engineering and Technology (2024): 103427.
- "Exploring the Effect of Zinc Doping on the Thermoluminescence Behavior of Lithium Magnesium Borate Exposed to Gamma Radiation": under review, Journal of Radiation Research and Applied Sciences.
- "Thermoluminescence study of Electron-Irradiated $LiZnBO_3$ Phosphor for Dosimetry Application": under review, Nuclear Engineering and Technology.
- "Exploring Dysprosium Doped Lithium Strontium Borate Based Phosphor for Dosimetry Application": under review, Journal of Alloys and Compounds.

Skills and Interests

Engineering Software:	Autodesk Fusion 360, Origin, X'pert HighScore plus.
Programming:	C, Python, MATLAB, OpenMC.
Image processing software:	Adobe Lightroom, Adobe Photoshop, ImageJ.

Leadership Experience

MIST Nuclear Engineering Club

President October 2022 – May 2023

- Managed club activities and growth, organizing exciting activities to cultivate interest in nuclear science and technology.
- Arranged a comprehensive competition focused on nuclear and radiological case studies, encompassing various aspects of nuclear and radiological incidents.
- Coordinated the "Nuclear Marathon," an interactive event designed to foster collaboration and cognitive engagement through games like radiation source finding, nuclear quizzes, and treasure hunts.

Additional Experience & Training

- Attended the 4th International Conference on Energy and Power, published an abstract, and won the best poster award in the poster presentation competition held in December 2022 at MIST, Dhaka.
- Completed the Medical Imaging and Radiotherapy certification course focused on Quality Assurance (QA) and an industrial visit to Ahsania Mission Cancer & General Hospital, Uttara, Dhaka - Learnt QA's importance and industry standards of medical physics practice in Bangladesh, from October 25 to November 1, 2022.
- Attended and completed an industrial training program on Quality Assurance (QA) and Quality Control (QC) held on March 22, 2022, at SAJ Engineering & Trading Company- Learned about industry standards and NDT techniques used for QA and QC in Bangladesh.
- Attended and completed an industrial training program focused on Non-Destructive Testing (NDT) methods. Held at the NDT division, Atomic Energy Centre, Dhaka, from March 13 to March 20, 2022, and had hands-on experience with state-of-the-art NDT equipment and techniques like Radiographic Testing, Ultrasonic Testing, Magnetic Particle Testing etc.
- Attended and completed an industrial training program focused on the 3 MW TRIGA Mark 2 Research Reactor, conducted at the Atomic Energy Research Establishment (Centre for Research Reactor), Dhaka, from February 27 to March 3, 2022 - learned about various experimental facilities, reactor operation, radioisotope production and safety practices.

Research Interest

- Radiation Detection and Dosimetry.
- Low-dose radiation effects.