**MD. KAMAL HOSSAIN, Ph.D.**
Bangladesh Council of Scientific and Industrial Research (BCSIR) Laboratories, Dhaka
Dr. Qudrat-i- Khuda Road, Dhanmondi, Dhaka-1205, Bangladesh.
+88-01799590184, Kamalbcsir@gmail.com, kamalhossain@bcsir.gov.bd
https://orcid.org/0000-0001-8222-6422

## Research Experience

Highly accomplished environmental scientist with extensive expertise in **trace metals, microplastics, environmental geochemistry, ecological risk assessment, and food safety**. Author of a large body of peer-reviewed publications in high-impact journals including *Marine Pollution Bulletin*, *Science of the Total Environment*, and *PLOS ONE*. Strong experience in interdisciplinary environmental research and policy-relevant scientific investigations. Mesoporous materials, PMOs, artificial photosynthesis, anodic materials, lithium-ion battery, inorganic chemistry, nanomaterials, catalysis, $CO_2$ reduction/capture, material science, marine pollution, environmental chemistry, wastewater treatment, and solar cells.

## Analytical/spectroscopic Skills

Operation and Maintenance of SEM, FIB, EDX, HRTEM, PXRD, SAXS, FTIR, TGA, Nitrogen adsorption-desorption isotherm, BET, solid and liquid UV-NIR, solar Simulator, xenon lamp, CHONS elemental analyzer, High-temperature furnace, ICPMS, and AAS,

## Education

Ph.D. (Chemistry)
Korea Center for Artificial Photosynthesis,
Department of Chemistry,
**Sogang University**, **Seoul, South Korea,**
March 2010- February 2015.

**Ph.D. Dissertation Title**-Order Uniformly Crystalline Mesoporous $TiO_2$ Polymorphs and Periodic Mesoporous Organosilicas: Novel Synthesis, Characterization and Photocatalytic Activity.
**Supervisor: Prof. Kyung Byung Yoon ( KB Yoon)**

Master of Science in Soil, Water and Environment (2005),
**University of Dhaka,** Dhaka, Bangladesh.

Bachelor of Science in Soil, Water and Environment (2003),
**University of Dhaka,** Dhaka, Bangladesh**.**

## Career

**Principal Scientific Officer**
Bangladesh Council of Scientific and Industrial Research (BCSIR),
Ministry of Science and Technology, Republic of Bangladesh
**December 2019- to-day (Major Job Responsibilities)**

- Planning research and development strategies and policies of the division
- Designing and coordinating short-term, mid-term, and long-term research projects of mesoporous materials and related chemical synthesis and analysis (energy storage materials)
- Conducting research works by chemical synthesis and locally available raw materials for the production of catalysts for environmental pollutants (dye) degradation and solar hydrogen production
- Screening of heavy metals of industrial products using sophisticated instruments (Toxicological point of view).

- Mentoring and coaching junior colleagues on their ongoing professional development
- Giving scientific instrumental training to students and other researchers.
- Data analysis, interpreting results of research projects, and recommending associated product and service development innovations.
- Writing internal reports and scientific articles; presenting findings at scientific meetings and conferences and publishing results in international journals

- Supervising students from local universities for MS thesis and for local fellowships.
- Maintaining liaison with other government and non-government organizations and stakeholders at national and local levels for assessing the cost benefits and effectiveness of research and development activities

**Visiting Scientist**
**Commonwealth Scientific and Industrial Research Organization (CSIRO)**
**Melbourne Australia**
Department of Mineral Resources (with Prof Miao Chen)
**From August 2019-November 2019 (Major Job Responsibilities)**

- Review of extent and scope of Arsenic (As) contamination in Bangladesh waters;
- Identifying the typical information of weather, (bio)geochemical, physical, and chemical conditions for the As contamination groundwater in Bangladesh;
- Understanding the mechanisms and correlation between the As-bearing minerals/soil conditions to the As-contamination groundwater in Bangladesh;
- Review of the regulations and limits for As in water for drinking and other purposes;
- Review of the current strategies used in Bangladesh with respect to As
- Review of the monitoring/measuring techniques for As in solutions used around the world;
- Review of the methods and technologies for remediating As-contaminated drinking water;
- Future trends in this space; • Prepare detailed report • Prepare publication • Prepare draft PhD work plan

**Senior Scientific Officer**
Bangladesh Council of Scientific and Industrial Research (BCSIR),
**August 2011 – December 2019**
**Scientific Officer (Major Job Responsibilities)**
Bangladesh Council of Scientific and Industrial Research (BCSIR),
**June 2006- August, 2011**
**Member, Independent Monitoring Group (IMG), Air quality monitor**
**Dhaka Mass Transit Company Limited (DMTCL), Government Owned Company**
From December, 2018 to Today

## Research Experience

### Special Research Grants

2023-07 to 2024-06 | Grant

1. Engineering of lactate assisted Rutile (TiO2) nanostructure for photocatalytic organic pollutants degradation. Ministry of Science and Technology, Government of the People's Republic of Bangladesh (Dhaka, Bangladesh, BD). URL: https://most.portal.gov.bd/sites/default/files/files/most.portal.gov.bd/npfblock//SRG-GO%202023-2024%2018-12-2023.pdf

2022-07 to 2023-06 | Grant

2. Engineering of lactate-assisted Rutile (TiO2) nanostructure for photocatalytic organic pollutants degradation Ministry of Science and Technology, Government of the People's Republic of Bangladesh (Dhaka, Bangladesh, BD)

2021-07 to 2022-06 | Grant

3. Novel template-assisted synthesis of Anatase $Ti0_2$ catalyst and application for photocatalytic environmental pollutants degradation Ministry of Science and Technology, People Republic of Bangladesh (Dhaka, BD)

2021-08 to 2029-06 | Grant

4. Using nanotechnology for fabrication and characterization of $TiO_2$-ZnO core-shell nanocomposite and its use for environmental pollutants degradation. Ref. No-39.00.0000.09. 02. 90.18-19.313EAS-12. Dated 24.01.2019Ministry of Science and Technology, Republic of Bangladesh

2015-07 to 2016-09 | Grant

5. Using the green nanotechnology for the synthesis of TiO2 Nanoparticles and its use for dye-sensitized solar cells and wastewater treatment, No 39.00.0000.09.02.69.16-17/62 EAS-344 dated 15.01.2017, Ministry of Science and Technology, Republic of Bangladesh.

Awards

1. International Zeolite Scholarship, Sogang University (2010-2012)
2. Special allocation project for Research and Development Award (4 times)

**i. Sogang University**, **Seoul, South Korea** **(Research Experience)**

Graduate Researcher, Advisor: Prof. Kyung Byung Yoon (KB Yoon).

March 2010- February 2015

- Synthesize highly crystalline mesoporous metastable $TiO_2$-B (Bronze) Polymorph, for the first time in history and detailed characterization and photocatalytic activity
- Synthesize highly periodic mesoporous organosilicas, denoted as Sogang Mesoporos Silicas (SMS-1 and SMS-2), with microscopic structural analysis using HR-TEM and breaking the conventional synthesize route.
- Synthesize various porous Nanostructures of siliceous and non-siliceous semiconducting materials and their application on LIB, water reduction waste water purification, and dye degradation.
- Developed a new method of crystallization technique for various nanostructures.

**i. Bangladesh Council of Scientific and Industrial Research, Dhaka, Bangladesh**

**March-2015- present**

- Large-scale method developed for synthesizing of $TiO_2$B nanoparticles
- Photocatalytic water treatment technology
- Soil Organic and chemical remediation technology
- Marine pollution and Baseline Studies of Major Estuary in Bangladesh
- EIA, health exposure to toxic metals, and ambient air quality monitoring
- Protocol developed for heavy metal analysis of soil, fertilizer, pesticides, and various water samples.
- Research going on arsenic detection kit from soil and groundwater.
- Industrial support for air quality measurement in-house and ambient air quality and IEE and EIA of various industries and Dhaka Mass Rapid Transport project.

Various R & D work.

## Relevant Skills

Synthetic techniques

- MOFs synthesis, hydrothermal synthesis of zeolite X and Y, copper, and titanium di oxide nano-rod synthesis.
- Indoor and ambient industrial air quality monitoring and IEE and EIA reports.
- High-temperature calculations under oxygen, ozone treatment, silica nano-bead mono-layer preparation, spin coating and doctor blade technique, large-scale TiO2B, Cu2O and other nanostructure synthesis.

## Reviewer

Journal of Env. Sci. and Poll. Res., Nature Scientific Report,
Environmental Geochemistry and Health, Arabia Journal of Geo-Science,
MDPI (Biology, Sustainability, Land), and BJSIR

## Publications (Last 5Years )

**2025**

1. **Hossain, M. K**.; Sultana, S.; Parvin, A.; Islam, F.; Moniruzzaman, M.; Saha, B. *Arsenic and Heavy Metal Contamination in Drinking Water from an Industrial Zone in Dhaka District, Bangladesh. PLoS One* **2025**, *20*(10), e0332601.
2. Ghosh, A.; **Hossain, M. K**.; Karmaker, K. D.; Rana, Z.; Alam, M. J.; Yousuf, A. H. M. *Heavy Metal Pollution in the Sundarbans Mangrove Ecosystem: A Growing Environmental Concern. J. Hazard. Mater. Adv.* **2025**, *100887*.
3. Solayman, H. M.; Leong, K. H.; **Hossain, M. K**.; Kang, K.; Khan, M. B.; Jiang, J. J. *State-of-the-Art Advances in Hydrothermally Synthesized Carbon Quantum Dots: An Extensive Review. Nano-Struct. Nano-Objects* **2025**, *43*, 101533.
4. Rana, M. S.; Paul, S. K.; Sultana, S.; **Hossain, M. K**.; Albeshr, M. F.; Yu, J.; Arai, T. *Quantification, Characterization and Risk Assessment of Microplastics and Mesoplastics in Aquafarms of a Leading Fish-Producing Nation. J. Environ. Chem. Eng.* **2025**, *117423*.
5. Shufol, M. B. A.; Riya, K. K.; **Hossain, M. K**.; Albeshr, M. F.; Arai, T.; Yu, J.; Ngah, N. *Microplastic Contamination in Highly Consumed Wild and Cultured Asian Seabass from a Subtropical Coastal Region: Exposure and Consumer Risk Assessment. J. Food Compos. Anal.* **2025**, *107867*.
6. **Hossain, M. K**.; Sultana, S.; Karmaker, K. D.; Parvin, A.; Saha, B. *Repercussions of Anthropogenic Activities on Soil Contamination: Sources, Distribution, and Health Risks of Arsenic and Other Non-radioactive Metals in Urban Bangladesh. Environ. Geochem. Health* **2025**, *47*(4), 1–22.
7. Paray, B. A.; Riya, K. K.; Marshall, D. J.; **Hossain, M. K**.; Banik, P.; Sultana, S.; Yu, J. *Microplastic Contamination, Comparative Retention Efficiency, and Ecological Hazard in Saltmarsh, Mangrove, Sandy, and Muddy Habitats along the Northern Bay of Bengal Coast. Ocean Coast. Manag.* **2025**, *266*, 107695.
8. Khanam, J.; Hasan, M. R.; Biswas, B.; Ahmed, M. F.; Mostofa, S.; Akhtar, U. S.; **Hossain, M. K.** *Effect of Low Temperature Calcination on Microstructure of Hematite Nanoparticles Synthesized from Waste Iron Source. Heliyon* **2025**, *10*(24).
9. Solayman, H. M.; Robby, M. D. A.; Satriaji, F. V.; **Hossain, M. K.;** Kang, K.; Aziz, A. A. *Mapping Global Microplastic Pollution: Integrating Advanced Detection and Monitoring in Aquatic Ecosystems. Mar. Pollut. Bull.* **2025**, *222*, 118685.
10. Ray, G.; Haque, I.; Ahmed, T.; Hasan, M. M.; Salma, M. M.; **Hossain, M. K**.; Islam, M. S. *Synthesis of Carbon Capturing NaX Zeolite from Rice Husk Ash: Evaluation of Its Adsorption Properties. ACS Sustainable Resour. Manag.* **2025**, *2*(4), 662–672.
11. Suchi, P. D.; Saha, B.; Moniruzzaman, M.; Paul, T.; Karmaker, K. D.; **Hossain, M. K**. *Distribution Patterns and Ecological Risks of Microplastics at Major Waste Disposal Environments in Dhaka, Bangladesh. Water Air Soil Pollut.* **2025**, *236*(1), 29.
12. **Hossain, M. B**.; et al. *Rare Earth Elements in a Highly Industrialized South Asian Estuary:*

*Enrichment Patterns, Geochemical Behaviors, Contamination Status and Multi-Index Risk Evaluation. Sci. Total Environ.* **2025**, *1002*, 180628.

**13.** Bappy, M. M. M.; Rahman, M. M.; **Hossain, M. K.;** Moniruzzaman, M.; Yu, J.; Arai, T.; Paray, B. A.; Hossain, M. B. *Distribution and Retention Efficiency of Micro- and Mesoplastics and Heavy Metals in Mangrove, Saltmarsh, and Cordgrass Habitats along a Subtropical Coast. Environ. Pollut.* **2025**, *370*, 125908. https://doi.org/10.1016/j.envpol.2025.125908

**2024**

14. **Hossain, M. K**.; Parvin, A.; Parvin, A.; Islam, F.; Saha, B.; Kabir, M. A. *Health Hazardous Index-Based Trace Metals and Essential Acids Analysis of Size-Dependent Market-Available Hilsa Fish, Bangladesh: Experimental and Chemometric Approaches. Mar. Pollut. Bull.* **2024**, *208*, 116975.
15. Karmaker, K. D.; Khan, N.; Akhtar, U. S.; Moniruzzaman, M.; Parvin, A.; Ghosh, A.; **Hossain, M. K.** *First Assessment of Trace Metals in the Intertidal Zone of the World's Longest Continuous Beach, Cox's Bazar, Bangladesh. Mar. Pollut. Bull.* **2024**, *207*, 116928.
16. Parvin, A**.; Hossain, M. K**.; Parvin, A.; Hossain, M. B.; Shaikh, M. A. A.; et al. *Trace Metals in Transboundary (India–Myanmar–Bangladesh) Anadromous Fish Tenualosa ilisha and Its Consequences on Human Health. Sci. Rep.* **2024**, *13*(1), 19978.
17. Solayman, H. M.; Aziz, A. A.; Yahya, N. Y.; Leong, K. H.; Sim, L. C.; **Hossain, M. K**. *CQDs Embed g-$C_3N_4$ Photocatalyst in Dye Removal and Hydrogen Evolution: An Insight Review. J. Water Process Eng.* **2024**, *57*, 104645.
18. Rahman, M. S.; Rahman, M.; Jolly, Y. N.; **Hossain, M. K**.; Semme, S. A.; Paray, B. A. *Heavy Metals in Afforested Mangrove Sediment from the World's Largest Delta: Distributional Mapping, Contamination Status, Risk Assessment and Source Tracing. Mar. Pollut. Bull.* **2024**, *203*, 116429.
19. **Hossain, M. K**.; Islam, F.; Karmaker, K. D.; Akhtar, U. S.; Parvin, A.; et al. *Source-Specific Geochemical and Health Risk Assessment of Anthropogenically Induced Metals in a Tropical Urban Waterway. Mar. Pollut. Bull.* **2024**, *203*, 116483.
20. Solayman, H. M.; Yahya, N. Y.; Leong, K. H.; **Hossain, M. K.;** Kang, K.; Sim, L. C. *Photocatalytic Performance of Acid Exfoliated Graphitic Carbon Nitride (g-$C_3N_4$) for the Degradation of Dye under Direct Sunlight. FlatChem* **2024**, *48*, 100762.
21. Suchi, P. D.; Shaikh, M. A. A.; Saha, B.; Moniruzzaman, M.; **Hossain, M. K**.; Parvin, A. *Comprehensive Index Analysis Approach for Ecological and Human Health Risk Assessment of a Tributary River in Bangladesh. Heliyon* **2024**, *10*(13).
22. Hossain, M. B.; Islam, R.; **Hossain, M. K**.; Parvin, A.; Saha, B.; Nur, A. A. U.; Islam, M. M. *Minerals and Fatty Acid Profile of Small Indigenous Fish Species from Homestead Ponds within a Sub-Tropical Coastal Region. Heliyon* **2024**, *10*(2).
23. Salma, S.; Sultana, M. B. H.; Anisuzzaman, M.; **Hossain, M. K.;** Rana, M. S. *Ecological Risk Assessment of Microplastics and Mesoplastics in Six Common Fishes from the Bay of Bengal Coast. Mar. Pollut. Bull.* **2024**, *204*, 116544.

**2023**

24. Parvin, A.; **Hossain, M. K**.; Shahjadee, U. F.; Lisa, S. A.; Uddin, M. N.; Shaikh, M. A. A.; et al. *Trace Metal Exposure and Human Health Consequences through Consumption of Market-Available Oreochromis niloticus (L.) in Bangladesh. Environ. Sci. Pollut. Res.* **2023**, *30*(15), 45398–45413.
25. Islam, F.; Parvin, A.; Parvin, A.; Akhtar, U. S.; Shaikh, M. A. A.; Uddin, M. N.; **Hossain, M. K.** *Sediment-Bound Hazardous Trace Metals(oid) in South-Eastern Drainage System of Bangladesh: First Assessment on Human Health. Heliyon* **2023**, *9*(9).
26. Shuva Bhowmik, A. A. M.; Dewanjee, S.; Islam, S.; Saha, D.; **Hossain, M. K**.; et al. *Nutritional Profile and Heavy Metal Contamination of Nursery, Grower, and Finisher Feeds of Tilapia (Oreochromis niloticus) in Bangladesh. Food Chem. Adv.* **2023**, *11*, 100423.
27. Islam, S.; Bhowmik, S.; **Hossain, M. K**.; Nordin, N.; Rahman, M.; Ahmmed, M. K.; et al.

*Tilapia from Most of the Sources in Bangladesh Are Safe for Human Consumption: A Hazard Index (HI)-Based Study on Heavy Metals. J. Aquat. Food Prod. Technol.* **2023**, *32*(7), 1–11.

**2022**

28. Mohiuddin, M.; Hossain, M. B.; **Hossain, M. K**.; Habib, A.; Semme, S. A.; et al. *Human Health Risk Assessment for Exposure to Heavy Metals in Finfish and Shellfish from a Tropical Estuary. J. King Saud Univ. Sci.* **2022**, *34*(8), 102012.
29. Hossain, M. B.; Rahman, M. A.; **Hossain, M. K**.; Nur, A. A. U.; Sultana, S.; Semme, S.; et al. *Contamination Status and Associated Ecological Risk Assessment of Heavy Metals in Different Wetland Sediments from an Urbanized Estuarine Ecosystem. Mar. Pollut. Bull.* **2022**, *185*, 114246.
30. Parvin, A.; Moniruzzaman, M.; **Hossain, M. K**.; Saha, B.; Parvin, A.; Suchi, P. D.; et al. *Chemical Speciation and Potential Mobility of Heavy Metals in Organic Matter Amended Soil. Appl. Environ. Soil Sci.* **2022**, *1–13*

**2021**

31. Hossain, M. B.; Semme, S. A.; Ahmed, A. S. S.; **Hossain, M. K**.; Porag, G. S.; Parvin, A.; et al. *Contamination Levels and Ecological Risk of Heavy Metals in Sediments from the Tidal River Halda, Bangladesh. Arab. J. Geosci.* **2021**, *1*(1), 1–12.
32. Shorna, S.; Quraishi, S. B.; Hosen, M. M.; **Hossain, M. K.;** Saha, B.; Hossain, A.; et al. *Ecological Risk Assessment of Trace Metals in Sediment from the Old Brahmaputra River in Bangladesh. Chemistry and Ecology* **2021**, *37*(7), 607–621.
33. Hossain, M. B.; Runu, U. H.; Sarker, M. M.; **Hossain, M. K**.; Parvin, A. *Vertical Distribution and Contamination Assessment of Heavy Metals in Sediment Cores of Ship Breaking Area of Bangladesh. Environ. Geochem. Health* **2021**, *43*(7), 2841–2855.
34. Momtaz, N.; Parvin, A.; **Hossain, M. K**.; Saha, B.; Moniruzzaman, M.; Kibria, A. *Blood Meal Organic Fertiliser Application on Onion Yield. Bangladesh J. Sci. Ind. Res.* **2021**, *56*(2), 87–94.
35. Bappy, M. M. M.; Rahman, M. M.; **Hossain, M. K**.; Moniruzzaman, M.; Yu, J.; Arai, T. *Distribution and Retention Efficiency of Micro- and Mesoplastics and Heavy Metals in Mangrove, Saltmarsh, and Cordgrass Habitats along a Subtropical Coast. Environ. Pollut.* **2021**, *370*, 125908.
36. Ahmed, M. C. S.; **Hossain, M. K**.; Haque, N.; Bruckard, W. *An Overview of Arsenic Contamination in Bangladesh Ground Water. CSIRO ePublish* **2021**, *69*.

**2020**

37. Ahmed, A. S. S.; Hossain, M. B.; Semme, S. A.; Babu, S. M. O. F.; **Hossain, K.;** et al. *Accumulation of Trace Elements in Selected Fish and Shellfish Species from the Largest Natural Carp Fish Breeding Basin in Asia: A Probabilistic Human Health Risk Implication. Environ. Sci. Pollut. Res.* **2020**, *27*(24), 1–7.
38. Mostafiz, F.; Islam, M. M.; Saha, B**.; Hossain, M. K**.; Moniruzzaman, M.; et al. *Bioaccumulation of Trace Metals in Freshwater Prawn, Macrobrachium rosenbergii from Farmed and Wild Sources and Human Health Risk Assessment in Bangladesh. Environ. Sci. Pollut. Res.* **2020**, *27*(14), 16426–16438

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**Seminar/ conference proceeding/ Presentation**

- **Hossain, M. K*.;** Akhtar, U. S.; Sediment bound hazardous materials in South eastern Bay of Bangla followed by Bangladesh Delta Plan. **1st International Conference on Oceanography**, Bangladesh Oceanography Research Institute, Bangladesh. **January 27-28, 2024**

- Hossain, M. K.; Akhtar, U. S.; Yoon, K. B.; Novel synthesis of crystalline, mesoporous TiO2 –Bronze phase nanoparticle: An emerging anodic material for Lithium-ion battery". ACS Fall 2023, August 13-17, 2023.

- **Hossain, M. K.; Akhtar, U. S.; Yoon, K. B**.; Novel synthesis of high temperature tolerate order mesoporous $TiO_2$ B: A unique energy storage material. **ACS Fall 2022, August 21 - 25, 2022**

- Hossain, M. K.; Akhtar, U. S.; Yoon, K. B.; Synthesis and characterization of novel periodic mesoporous organosilicas, SMS -1 and SMS-2 and it potential application on solar cells. ACS Fall 2021, 22-26 August, USA
- **Hossain, M. K**.; Akhtar, U. S.; Ahmed, S.; Song, Yoon, K. B.; Structural Analysis of Various Morphology of Mesoporopus Organo silicas using Transmission Electron Microscope.5$^{th}$ Conference of Bangladesh Crystallographic Association, Dhaka University, Dhaka, January 2019 (Oral).
- **Hossain, M. K**.; Akhtar, U. S.; Moniruzzaman, M.; Industrial Water Pollution in Bangladesh and its Mitigation using the Catalyst under Ambient Condition. ICPEP-6, CSIR-National Botanical Research Institute, Lucknow, India from 27-30 November, 2018 (Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Yoon, K.B: Synthesis and Microscopic Structural Analyses of Periodic Mesoporous Organosilicas (PMOs), Bangladesh Chemical Congress ,2018 (Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Moniruzzaman, M; Saha, B: Technique for decomposition of environmental pollutants (soil and water) under ambient condition. International Conference on Chemical Science Technology (PP/O8),2018(Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Moniruzzaman, M; Saha, B.; Devloped New Method for synthesis of $TiO_2$ and its used for contaminated soil remediation. International Conference on Chemical Science Technology (OP/B4),2018,20. (Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Moniruzzaman, M; Saha, B.; Synthesis of High surface area crystalline $TiO_2$ Nanoparticle and its application on waste water treatment. *Bangladesh J.Sci.Ind.Res* 52( Special issue),10,2017 (Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Koirala, A. R.; Song, M. K..; Yoon, K. B.; Synthesis of Highly Crystalline Hexagonally Ordered Uniformly Mesoporous $TiO_2$B and Its Optical and Photocatalytic Properties,*16$^{th}$ Asian Chem. Congres*. 2016, 419(NM-PP-08) (Oral)
- **Hossain**, **M. K.;** Akhtar, U. S Koiral, A. R.; Song, M. K.; Yoon**,** K. B.; First Synthesis of Highly Crystalline Hexagonally Ordered Uniformly Mesoporous $TiO_2$-B and Its Optical and Photocatalytic Properties. *16$^{th}$ Asian Chem. Congres*. 2016,253(NM-OP-16) (Oral)
- **Hossain, M. K**.; Akhtar, U. S.; Koirala, A. R.; Song, M. K..; Yoon, K. B.; Synthesis of Highly Crystalline Hexagonally Ordered Uniformly Mesoporous $TiO_2$B and Its Optical and Photocatalytic Properties,*16$^{th}$ Asian Chem. Congress*. 2016,203(IC-OP-15) (Oral)

## Training and Workshop

- Application and maintenance of ICPMS, WDXRF, FTIR, GC-MS, HR-TEM, BET, FE-SEM, XRD, UV-NIR (Carry 5000), SAXS, and Atomic Absorption Spectrophotometer (AAS)
- Training on Lab Management of ISO1705/9001 for Environmental sample analysis.
- Operating system and maintenance of Particle Size Analyzer
- Operating system and maintenance of FT-Raman Spectroscopy
- Operating system and maintenance of Gas Chromatography-Mass Spectrometry (GC-MS/MS)
- Thermo-Gravimetric and Differential Thermal Analyzer (TG/DTA) & Thermomechanical Analyzer (TMA)
- Dilute Solution Viscometer Using Automated Micro- Viscometer

## Training on ISO/IEC 17025:2017

- 28$^{th}$ Accessor Training Course on ISO/IEC 17025:2017 (5 days). Bangladesh Accreditation Board (BAB)
- 33$^{rd}$ Understanding Training course on ISO/IEC 17025:2017 (3 days). Bangladesh Accreditation Board (BAB)

- Method Validation for ISO17025/2017 (5 days). Bangladesh Council of scientific and Industrial Research (BCSIR).
- Analytical Method Validation for quality in analytical laboratory (Proficiency Testing). Bangladesh Council of scientific and Industrial Research (BCSIR).

**International Workshop on Environmental pollution and Climate change (Data Analysis)**

- Short-Lived Climate Pollutants (SLCPS) National Planning and Long Range Energy Alternative Planning System- Integrated Benefits Calculator (LEAP-IBC). Stockholm Environment Institute and Department of Environment.
- Geospatial Technology-Based Water Quality Monitoring System
- Strengthening Institutional Capacity to Reduce Short-Lived Climate Pollutants(SLCPs), Inception workshop
- Role of the International Network for Government Science (INGSA) in initiating Government Science advice in Bangladesh.
- Climate and Clean Air Coalition (CCAC), Department of Environment, Republic of Bangladesh.
- Final National Action Plan for Reducing SLCPs (Black Carbon) in Bangladesh
- Workshop on Institutional Support for Implementation of Reducing Emission from Deforestation and Forest Degradation **(REDD**+) policies and Measures. UN-REDD Bangladesh National programmed.

**International Workshop on Chemical Safety and Security**

- International Symposium on Chemical Safety and Security Management ISCSSM-2020. BUET-Bangladesh National Authority for Chemical Weapons Convention (BNACWC).

- Remote Chemical Security training for Chemists, Engineers, and safety professionals -2021. Bangladesh University of Engineering and Technology and US- department of state.

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**Other Activities**

**UN –REPRESENTATIVE AS A COUNTRY DELEGATOR WITH THE MINISTRY OF ENVIRONMENT**

- The Thirteen Session of the Conference of the Parties (COP-13), the Sixteenth of the Committee for the review of the implementation of the Convention (CRIC-16), and the Thirteen Session of the Committee Science and Technology (CST-13) and its Level Segments, Ordos, Inner Mongolia China (04.09-2017-16.09.2017)
- Visiting Scientist, Common Wealth Scientific and Industrial Research Organization (CSIRO), Melbourne, Australia (From July 2019 to November 2019)

- **Independent Air Monitoring Group (IMG):** Dhaka Mass Rapid Transit Development Project. MRT Line 06. CP-05 (Since December 2018)
- **Independent Air Monitoring Group (IMG):** Dhaka Mass Rapid Transit Development Project. MRT Line 06. CP-02 (Since March 2019)
- **Independent Air Monitoring Group (IMG):** Dhaka Mass Rapid Transit Development Project. MRT Line 06. CP-06 (Since March 2022)
- **Independent Air Monitoring Group (IMG):** Dhaka Mass Rapid Transit Development Project. MRT Line 06. CP-03, 04 (Motijheel to Kamalapur Extension) (Since January 2023)
- **Baseline survey of Environment:** Dhaka Mass Rapid Transit Development Project. MRT Line 01. CP-01, (Since May 2023)

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- **Independent Air Monitoring Group (IMG):** Dhaka Mass Rapid Transit Development Project. Line 01. CP-01, (Since June 2023)
- **Baseline survey of Air quality** as Independent Monitoring Group for Hazrat Shahjalal International Airport Expansion Project (January 2020)
- **Environmental Monitoring and Mitigation Measure as IMG:** Hazrat Shahjalal International Airport Expansion Project (Since March 2020)

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**Personal Information**

| **Wife** | **Son (3)** |
|---|---|
| Dr Umme Sarmeen Akhtar | Mohammad Ahnaf Hossain Faris |
| PhD in Chemistry (Sogang University) | Mohammad Al Afif Hossain |
| Principal Scientific Officer, BCSIR, Dhaka | Mohammad Saad Adib Hossain |

**References**

**Kyung Byung Yoon** Ph.D.
Professor of Chemistry
Director, Korea Center for Artificial Photosynthesis (KCAP) and Center for Nano Material, Sogang University, Seoul, Republic of Korea.
E-mail: yoonkb@sogang.ac.kr

**Dr. Samina Ahmed**
Chairman, Bangladesh Council of Scientific and Industrial Research.
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chairman@bcsir.gov.bd

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