



ENVIRONMENT & GREEN CHEMISTRY  
SECTION

# Public Seminar

**Date: 15 January 2020 (Wednesday)**

**Time: 2:30 pm – 3:30 pm**

**Venue: Anggerik room, Institute for Advanced Studies,  
University of Malaya**

**Topic: Metal oxides, graphene and graphitic carbon  
nitride based photocatalysts nanostructures:  
Synthesis and application**

**Synopsis:**

In this seminar I would like to introduce myself, my current university, Universiti Brunei Darussalam and my past, present and future research work and achievement. I have been working on green and biogenic synthesis of metal nanoparticles (mainly Au and Ag NPs), metal oxides ( $\text{TiO}_2$ , ZnO,  $\text{SnO}_2$ ,  $\text{CeO}_2$ ,  $\text{MnO}_2$  etc), Chalcogenides (CdS, ZnS etc) graphene and graphitic carbon nitride based nanocomposites and nanohybrid photocatalysts. Mostly, these nanomaterials were/are synthesized using green and biogenic synthesis methods using biofilms, microbial fuel cells and aqueous plant extracts. The synthesized nanomaterials such as narrow band gap  $\text{TiO}_2$ , ZnO,  $\text{SnO}_2$ ,  $\text{CeO}_2$ ,  $\text{Au@TiO}_2$ ,  $\text{Ag@TiO}_2$ ,  $\text{Pt@TiO}_2$ ,  $\text{Ag@ZnO}$ ,  $\text{Au@SnO}_2$ ,  $\text{Ag@SnO}_2$ ,  $\text{Au@CeO}_2$ ,  $\text{Ag@CeO}_2$ , CNT/ $\text{MnO}_2$ , CdS-graphene, Au-Graphene, Ag-Graphene,  $\text{CeO}_2$ -Graphene, ZnO/ $\text{CeO}_2$ , PANI/ $\text{TiO}_2$ , Chitosan- $\text{SnO}_2$ , Cobalt-doped Ceria/reduced graphene oxide nanocomposite, Ag/ $\text{CeO}_2$ / $\text{ZnO}$  nanostructure, Au decorated-graphitic g- $\text{C}_3\text{N}_4$  nanostructures, Ag@g- $\text{C}_3\text{N}_4$  nanostructures etc. These synthesized nanomaterials were mainly used for photocatalysis related applications such as waste water treatment, artificial waste water treatment, dye degradation, chemicals synthesis, electrode materials, photoanodes, optoelectronic devices etc. Currently, I am focusing on the green synthesis of nanomaterials using aqueous plant extract for visible light induced photocatalytic related applications such as photocatalytic tiles, photocatalytic paints, photocatalytic deodorizing and air cleaner, photocatalytic water purification, self-cleaning, self-sterilizing, anti-fogging surfaces, organic synthesis and conversion etc.

**In Collaboration with:  
Environment and Green  
Chemistry Section, Institute  
of Chemistry Malaysia (IKM)**

## Speaker:



### **Professor Mohammad Mansoob Khan**

*Faculty of Sciences, Universiti Brunei Darussalaam, Brunei Darussalaam*

#### **BIODATA of Speaker**

Dr. Mohammad Mansoob Khan is an Associate Professor at Chemical Sciences, Faculty of Sciences, Universiti Brunei Darussalaam, Brunei Darussalaam. Before joining UBD, Dr. Khan has worked in India, Ethiopia, Oman and South Korea and has demonstrated excellence in teaching and research.

At present Dr. Khan is working in the cutting edge area of nanochemistry, nanosciences, nanotechnology, materials science and materials chemistry especially in the field of inorganic and nanohybrid materials such as synthesis of gold, silver nanoparticles, their nanocomposites and band gap engineering of semiconductors (metal oxides and chalcogenides). The synthesized nanostructures are used for hydrogen production, photocatalysis, photoelectrodes, solar cells, sensors, peroxidase mimic and biological applications such as antibacterial, antifungal, antibiofilm activities etc.

Dr. Khan is also working on synthesis of graphene and graphene-based nanocomposites for various novel applications.

Dr. Khan has 95 publications in international peer-reviewed journals, conference proceedings, books and book chapters having about 5700 citations with 40 h-index and 67 i10-index. Dr. Khan has also 04 Patents (Korean) to his credits and has opportunity to address conferences as Keynote Speakers (03 Keynote) and Invited Speakers (05 talks). Reviewers of about 6 dozens of International journals.

Dr. Khan is also:

**i. Editor of three books:**

- a. **Nanocomposites for visible light-induced photocatalysis** published by Springer in 2017.
- b. **Polymer based Nanocomposites for Energy and Environmental Applications** published by Elsevier in 2018.
- c. **Chalcogenide-based Nanomaterials as Photocatalysts** will be published by Elsevier in 2020.

**ii. Guest Editors of following Journals:**

- a. Journal of Saudi Chemical Society (2015)
- b. Journal of Nanomaterials (2017)

**iii. Life member of ten societies.**

Best wishes

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