

## Dr. Manorama

Assistant Professor  
Department of Chemistry  
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### EDUCATION:

- **Ph.D.** (Chemistry), (2011) Centre of Advanced Study in Chemistry (CAS), Banaras Hindu University, Varanasi-221005, India.
- **M.Sc.** (2005) **Analytical Chemistry**, Centre of Advanced Study in Chemistry (CAS), Banaras Hindu University, Varanasi-221005, India.
- **B. Sc.** (2003) **Botany, Chemistry, Zoology**, Govt. Post Graduate Degree College, Obra, Sonbhadra (U.P.) India

### EXPERTISE:

Electrochemical sensors, Functionalization of carbon nanotubes/graphene, preparation of nanoparticles and application in composite preparation, nanocomposite based sensors/biosensors, Ormosil and conducting polymer based sensors/biosensors

### FELLOWSHIPS AND AWARDS:

- **CSIR-UGC NET-LS (Dec 2005)**
- **CSIR-project –JRF (8<sup>th</sup> Aug 2006-14<sup>th</sup> Feb'2009)**  
Worked carried from Centre of Advanced Study in Chemistry (CAS), Banaras Hindu University, Varanasi-221005, India.
- **CSIR-SRF (1<sup>st</sup> Apr 2010-12<sup>th</sup> Aug 2011)**  
Worked carried from Centre of Advanced Study in Chemistry (CAS), Banaras Hindu University, Varanasi-221005, India.
- **First Best Oral Presentation Award**  
In National Seminar on “Recent Advances in Analytical Sciences-Indian Perspective” (RAASI), Jan 20-21, 2011, Indian Society of Analytical Scientists, Hyderabad Chapter & Indian Institute of Chemical Technology (IICT), Hyderabad for the paper “Electrochemical studies of prepared thymol blue –ormosil composite and its electroanalytical applications”

### RESEARCH PROJECTS:

S.N.	Title of the Project & Sanctioned Order no.& Date	Amount Sanctioned	Name of the funding agency	Duration
1.	A novel amperometric pesticide biosensor for organophosphates/ carbamates based on acetyl cholinesterase immobilized on graphene-gold nanoparticles (AuNPs) composite Sanction Order No: 42-299/2013(SR), Date: 25 Mar' 2013	Rs. 12,40,800/-	UGC	3 years

**SKILLS:**

Analytical instrumentation: FTIR, UV-Vis spectrophotometer, CH Instruments {Electrochemical workstation, USA} (600 series)

**LIFE MEMBERSHIP:**

- Indian Society For Electroanalytical Chemistry (ISEAC)

**LIST OF PUBLICATIONS**

## PAPERS PUBLISHED:

- Fabrication and characterization of carbon ceramic nanocomposite prepared by using multiwalled carbon nanotubes and organically modified sol-gel glasses, Ida Tiwari, Manorama Singh, K.P.Singh, Journal of Indian Chemical Society, Accepted (2014)
- Electrochemical synthesis of PANI/PAA/MWCNT/Nafion based nanocrystalline composite material (NCCM) and its application for selective electrocatalytic detection of ascorbic acid, Ida Tiwari, K.P.Singh, Manorama Singh, Craig E. Bank, *Analytical Methods*, 4 (2012)118-124
- Electrocatalytic properties and application of anthraquinone derivative-functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode for the determination of dissolved oxygen, Ida Tiwari, Manorama Singh, S.K.Aggrawal  
*Materials Research Bulletin* 47(2012) 1697-1703
- Preparation and characterization of methylene blue- SDS-multiwalled carbon nanotubes nanocomposite for the detection of hydrogen peroxide, Ida Tiwari, Manorama Singh  
*Microchimica Acta*, 174(2011)223-230
- Amperometric biosensor for nanomolar detection of hydrogen peroxide based on encapsulation of thymol blue-ormosil composite, Ida Tiwari, Manorama Singh  
*Sensor Letters* 9(2011)1323-1330
- A novel amperometric hydrogen peroxide biosensor based on Horseradish Peroxidase incorporated in organically modified sol-gel glass matrix /graphite paste with multiwalled carbon nanotubes, Ida Tiwari, K.P.Singh, Manorama Singh, *Analytical Letters*, 43 (2010) 2010-2030
- An insight review on the application of polymer-carbon nanotubes based composite materials in sensor technology, Ida Tiwari, K.P.Singh, Manorama Singh, *Russian Journal of General Chemistry* 79(2009)2685-269

## BOOK CHAPTERS:

- "Advances in sensors' nanotechnology" , Ida Tiwari, Manorama Singh, "Advanced sensor Materials" (Advanced Materials Book Series), Accepted, Editor: Ashutosh

Tiwari and Mustafa M. Demir, Managing Editors: Swapneel Deshpande and Sudheesh K. Shukla (WILEY-Scrivener Publishing, USA, Year of Publication **2014**)

- Polyaniline based advanced nanomaterials for the sensor applications , Ida Tiwari, Manorama Singh, “*Polymers for Advanced Nanomaterials: synthesis, Properties and applications*”. Editors: Amar Singh Singha (NIT Hamirpur) and Vijay Kumar Thakur (NTU-Singapore), Publisher: Studium Press LLC, Houston,Texas, USA. **2011**.

#### CONFERENCE PROCEEDINGS:

- Modification of anthraquinone-2-carboxylic acid with multiwalled carbon nanotubes and

electrocatalytic behavior of prepared nanocomposite towards oxygen reduction,

Ida Tiwari, Manorama Singh, Mandakini Gupta, *International conference on “Chemistry for Sustainable Development”* , Mauritius, *springerlinkgroups*, **2012**, p. 399

- Electrochemical hydrogen peroxide biosensor based on Safranine O/PVA modified GC electrode, Manorama Singh, Ida Tiwari, “ 4<sup>th</sup> ISEAC International Discussion meet on electrochemistry and its applications” Feb 7-10, **2011**, Tiruvananthapuram, Kerala, India.

#### PAPERS PRESENTED IN INTERNATIONAL AND NATIONAL CONFERENCES

- National symposium on “Current Trends in Chemistry” March 24-25, 2007, Department of Chemistry, BHU, Varanasi-221005
- 10<sup>th</sup> CRSI National Symposium in Chemistry, Feb 1-3, 2008, Indian Institute of Science (IISc), Bangalore
- International Conference on “Recent trends in sensor-development for the Assessment and Management of the Environment” Jan 8-10, 2009, Loyolla Institute of Frontier Energy (LIFE) Loyolla College, Chennai, Tamilnadu-600034
- National Seminar on “Recent Advances in Analytical Sciences-Indian Perspective” (RAASI), Jan 20-21, 2011, Indian Society of Analytical Scientists, Hyderabad Chapter & Indian Institute of Chemical Technology (IICT), Hyderabad [**Received first best oral presentation award**]
- 4<sup>th</sup> International Conference on “Recent trends in instrumental methods of analysis” Feb 18-20, 2011, Department of Chemistry, IIT Roorkee, Roorkee-247667
- National Seminar on “Recent Trends in Chemical Research: Challenges Ahead”, March 30-31, 2012, Department of Chemistry, GGV, Bilaspur, (C.G.) – 495009
- National seminar on “Chemistry In Our Lives”, Feb 1-2, 2013, Department of Chemistry,

Govt. R.R. College, Bilaspur (CG)-495009

- International conference “Indo-US workshop on electro analytical materials for fuel and biofuel cells” Feb 26-28’ 2013, Department of Chemistry, BHU, Varanasi-221005

#### **WORKSHOPS ATTENDED**

- National Symposium –cum-Workshop on X-Ray Crystallography, March 8-9, 2009, Department of Chemistry, Banaras Hindu University, Varanasi-221005
- National Workshop on Electroanalytical Techniques, Oct 11-13, 2010, Aligappa University, Karaikudi, Tamilnadu-630003
- National workshop on “Recent Advances in Micro-Electro-Mechanical systems RAMEMS-2011, March 7-9, 2011, MEMS Design Centre (Under NPMASS), Institute of Technology, Banaras Hindu University, Varanasi-221005