

**Proforma for information to be provided by the Teaching/ Academic/  
Research Staff**



1. Name : (first name) Ida (surname) Tiwari
2. Designation: Professor
3. Academic Qualifications:

Sr.	Degree	Institution	Year
1	PhD	Banaras Hindu University, Varanasi	2001
2.	M.Sc.	Banaras Hindu University, Varanasi	1997
3.	B.Sc. (Hons.)	Banaras Hindu University, Varanasi	1995
4.	ISC	St. John's School, D.L.W., Varanasi	1992
5.	ICSE	St. John's School, Marhauili, Varanasi	1990

4. Area of Specialization: (brief write up, 200 words)

Electrochemical Biosensors/ sensors, Composites, Nanocomposites, Sol-Gel Glass Based Electrochemical Biosensors, Polymer based composites, Sensor Arrays, Screen Printed Electrodes.

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Links: <http://www.bhu.ac.in/science/chemistry/idatiwari.php>,  
[https://www.researchgate.net/profile/Ida\\_Tiwari2](https://www.researchgate.net/profile/Ida_Tiwari2)

6. Projects Undertaken as PI/ Co PI:

- a) Council of Scientific and Industrial Research (CSIR), New Delhi; 15<sup>th</sup> Feb.' 2006 to 14<sup>th</sup> Feb.' 2009 (3 years), Rs.10,00,000; An electrocatalytic hydrogen peroxide sensor based on Horseradish peroxidase immobilized in ormosil and on gold nanoparticles, Principal Investigator.
- b) BRNS, Department Of Atomic Energy, India; 7<sup>th</sup> March' 2010 till 6<sup>th</sup> March' 2013 (3 years) Rs. 19,41,400; A novel electrochemical organically modified sol-gel glass/ gold nanoparticles based biosensor for the detection of organophosphate /carbamate insecticides, Principal Investigator.
- c) RDO, Directorate of Extramural Research and intellectual property Rights, New Delhi; (3 years) Rs. 37,95,000; Design, Synthesis, Characterization of Metallo Receptors for the Recognition of Anions of Environmental and Biological relevance Co-PI.
- d) Department of Biotechnology, New Delhi 2<sup>8th</sup> May' 2012 to 2<sup>7th</sup> Aug' 2015 (3 years,

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- 3 months)Rs. 35,56,000; A Strategic Approach to Develop "Ideal" O<sub>2</sub> Sensor Platforms Based on Doped Ormosils, Principal Investigator.
- e) UGC-UKIERI scheme (UK-INDIA Education and Research Initiative); 18<sup>th</sup> April' 2013 to 17<sup>th</sup> April '2015 (2 years) £34168; New Developments in Screen Printed Sensors: from the laboratory to the field; India Lead Partner - Dr. Ida Tiwari, UK Lead Partner- Prof. C.E. Banks, Manchester Metropolitan University, UK.
  - f) Royal Society International Exchange Grants, UK 31<sup>th</sup> March 2017 to 30<sup>th</sup> March 2019 £11200; Carbon nanomaterial enhanced miniaturized hybrid electrochemical biosensors; India Lead Partner - Dr. Ida Tiwari, UK Lead Partner- Professor S. Ravi Silva, University of Surrey, UK.

7. Awards/ Recognitions if any:

- a) Awarded Commonwealth Fellowship' 2015 to visit University of Surrey, U.K.
- b) Got Young Scientist Award' 2013 from Chemical Research Society, India for contributions in Chemistry on 2<sup>nd</sup> Feb'2013.
- c) II<sup>nd</sup> in Merit in M.Sc. Chemistry (1997), Banaras Hindu University, Varanasi, India.
- d) I<sup>st</sup> in Merit in M.Sc in Analytical Chemistry in 1997, Banaras Hindu University, Varanasi, India.
- e) Research student, Ms. M. Singh awarded Senior Research Fellowship, CSIR, New Delhi.
- f) First prize to research student, Ms. M. Singh for paper presented in National Seminar on Recent advances in analytical Sciences- Indian Perspective (RAASI) held in January 20-21, 2011 organized by Indian Society of Analytical Chemists, Hyderabad Chapter and Indian Institute of Chemical Technology, Hyderabad, India.
- g) Third prize for oral presentation to research student, Ms. M. Gupta for paper presented in National Symposium on Electrochemical Science and Technology held from August 19-20, 2011 organized by The Electrochemical Society of India, Indian Institute of Science Campus, Bengaluru, India.
- h) Research student Mr. C. M. Pandey awarded Senior Research Fellowship, CSIR, New Delhi.
- i) Best poster award for the paper entitled *Hierarchical Organic Structures for High-Performance Electrochemical Immunosensor* by research student Mr. C. M. Pandey in International Conference on Recent Advances in Analytical Science (RAAS-2014) held from 27-29 March 2014 (Organized by : Department of Chemistry, IIT-BHU & Indian Society of Analytical Scientists (ISAS) Varanasi Chapter).
- j) Research student Mr. C. M. Pandey awarded reputed UGC-Dr. D.S. Kothari Post Doctoral Fellowship, 2015.
- k) Research student Mr. C. M. Pandey awarded reputed Inspire Fellowship under Inspire Faculty Scheme, 2015.
- l) Research student Ms. N. Jaiswal awarded Senior Research Fellowship, CSIR, New Delhi, 2018.
- m) Ms. S. Mishra awarded reputed UGC-Dr. D.S. Kothari Post Doctoral Fellowship, 2018 under my mentorship.

8. List of 10 major Publications: (in order of importance)

- a) Electrochemical genosensor based on carboxylated graphene for detection of water borne pathogen, Nandita Jaiswal, Chandra Mouli Pandey, Amrita Soni, Ida Tiwari, Martin Rosillo-Lopez, Christoph G. Salzmann, Banshi Dhar Malhotra, Gajjala Sumana, *Sensors and Actuators*, 275( 2018)312-321.
- b) Highly sensitive amperometric sensing of nitrite utilizing bulk-modified MnO<sub>2</sub>decorated Graphene oxide nanocomposite screen-printed electrodes, Ida

Tiwari, Nandita Jaiswal, Christopher Foster, Craig E. Banks, *Electrochimica Acta*, 227(2017)255-266

- c) Electrochemical detection of pathogenic *Escherichia coli* specific DNA sequence based on graphene oxide- chitosan composite decorated with nickel ferrite nanoparticles; Ida Tiwari, Monali Singh, Chandra Mouli Pandey, Gajjala Sumana, *RSC Advances* DOI: 10.1039/C5RA07298K, 5( 2015)67115-67124.
- d) Graphene sheets decorated gold nanoparticles-polypyrrole based nanocomposite: Synthesis, characterization and genosensing application; Ida Tiwari, Mandakini Gupta, Chandra Mouli Pandey, *Dalton Transaction*, 44(35),(2015)15557-15566; DOI: 10.1039/c5dt01193
- e) Copper Oxide Assisted Cysteine Hierarchical Structures for Immunosensor Application; Chandra Mouli Pandey, Gajjala Sumana, Ida Tiwari, *Applied Physics Letters* 105 (2014)103706; DOI: 10.1063/1.4895579.
- f) Electrochemical genosensor based on graphene oxide modified iron oxide-chitosan hybrid nanocomposite for pathogen detection; Ida Tiwari, Monali Singh, Chandra Mouli Pandey, *Sensor and Actuators B*, 206(2015) 276-283.
- g) Nanostructuring of Hierarchical 3D Cystine Flowers for High-Performance Electrochemical Immunosensor; Chandra Mouli Pandey, Gajjala Sumana, Ida Tiwari, *Biosensors and Bioelectronics* 61 (2014) 328–335, DOI: <http://dx.doi.org/10.1016/j.bios.2014.05.015>
- h) Cationic Poly(lactic-co-glycolic acid) Iron Oxide Microspheres for Nucleic Acid Detection; Chandra Mouli Pandey, Aditya Sharma, Gajjala Sumana, Ida Tiwari , Bansi Dhar Malhotra, *Nanoscale*, DOI:10.1039/C3NR34355C, 5(2013) 3800-380.
- i) Electro-oxidation of Phenyl hydrazine on a modified electrode constructed using a nanocomposite consisting of a ruthenium terpyridyl complex, multiwalled carbon nanotubes and nafion; Ida Tiwari, Mandakini Gupta, Preeti Sinha and S.K. Aggarwal, *Electrochimica Acta*, DOI:10.1016/j.electacta.2012.04.053, 76 (2012) 106– 111
- j) Amperometric sensor for hydrogen peroxide based on methylene blue-SDS-multiwalled carbon nanotubes nanocomposite modified electrode; Ida Tiwari, Manorama Singh, *Microchimica Acta*, 174(2011)223-230.

9. Additional Information/ Achievements:

- a) Five students awarded PhD. degree under my supervision, 27 M.Sc. dissertations done under my supervision.
- b) 1 patent published.
- c) Involved in various administrative responsibilities like Member of DRC, Project screening Committee, FAC in Department of Chemistry; Member of Convocation Committee of Institute Of Science; Member of Admission Committee of Institute Of Science; Acted as Additional Superintendent of Exams for B.Sc. (Hons.), Institute Of Science. Member of Child Care Leave Committee, Institute of Science and Member of Academic Board for Examinations for M.Sc. Forensic Science, Institute of Science; Member of RET interview Committee for Home Science Dept., Women's College, 2017.
- d) Member of Proctorial Board, B.H.U. from 2017.
- e) Examiner for thesis evaluation for various Universities like Allahabad University, Pune University, Chattisgarh University.
- f) University Observer for University entrance examinations (UET, PET) in 2017, 2018.

10. Full List of Publications: (Selected 50 Publications)

- Electrochemical genosensor based on carboxylated graphene for detection of water borne pathogen, Nandita Jaiswal, Chandra Mouli Pandey, Amrita Soni, Ida Tiwari,

Martin Rosillo-Lopez, Christoph G. Salzmann, Bansi Dhar Malhotra, Gajjala Sumana, *Sensors and Actuators*, 275(2018)312-321.

- Sensitive determination of cysteine on screen printed electrodes modified with functionalized graphene. Ida Tiwari, Monali Singh, Nandita Jaiswal, C.W. Foster and Craig E. Banks, accepted *J. Electroanalytical Chemistry* (2018).
- Highly sensitive and selective determination of dopamine using a screen printed electrode of -N'-phenyl-p-phenylenediamine/multiwalled carbon nanotubes; Ida Tiwari, Monali Singh, C.W. Foster and Craig E. Banks, *Materials Research Bulletin* 101 (2018) 253–263.
- Electrochemical Sensing of Hydrogen Peroxide Using Brominated Graphene as Mimetic Catalase; Shikha Singh, Monali Singh, Kheyanath Mitra, Rajshree Singh, S. K. Sen Gupta, Ida Tiwari, Biswajit Ray, *Electrochimica Acta* 227 (2017) 255–266.
- Recent build outs in electroanalytical biosensors based on carbon-nanomaterial modified screen-printed electrode platforms, Ida Tiwari, Nandita Jaiswal, *Anal. Methods*, 9(2017) 3895 – 3907.
- Highly sensitive amperometric sensing of nitrite utilizing bulk-modified MnO<sub>2</sub>decorated Graphene oxide nanocomposite screen-printed electrodes, Ida Tiwari, Nandita Jaiswal, Christopher Foster, Craig E. Banks, *Electrochimica Acta*, 227(2017)255-266
- A naphthaoxazole based highly sensitive cell permeable ratiometric chemodosimeter for hydrazine, K.K. Upadhyay, Ida Tiwari, Shweta, Ajit, Sharad, Neeraj, *RSC Advances*, 6 (2016) 94959-94966.
- Decoration of GO with Fe spinel-Naf/DMAP: an electrochemical probe for sensing H<sub>2</sub>O<sub>2</sub> reduction; Manorama Singh, Smita R. Bhardiya and I. Tiwari *RSC Advances*, 6 (2016) 104868-104874.
- Graphene: A Unique constructional material for electroanalytical applications; Ida Tiwari, Manorama Singh; Book chapter in *Advances in Sensors' Book Series*, Vol.3 ,IFSA Publishing, S.L Passeo Lormont, 13, 4-408860 Castelldefels, Barcelona, Spain, chapter 6,135-146,2016; ISBN: 978-84-608-7705-9
- Electrochemical detection of pathogenic *Escherichia coli* specific DNA sequence based on graphene oxide- chitosan composite decorated with nickel ferrite nanoparticles; Ida Tiwari, Monali Singh, Chandra Mouli Pandey, Gajjala Sumana, *RSC Advances* DOI: 10.1039/C5RA07298K,5(2015)67115-67124.
- Graphene sheets decorated gold nanoparticles-polypyrrole based nanocomposite: Synthesis, characterization and genosensing application; Ida Tiwari, Mandakini Gupta, Chandra Mouli Pandey, *Dalton Transaction*, 44(35),(2015)15557-15566; DOI: 10.1039/c5dt01193
- Highly sensitive electrochemical immunosensor based on graphene-wrapped copper oxide-cysteine hierarchical structure for detection of pathogenic bacteria Chandra Mouli Pandey, Ida Tiwari, Vidya Nand Singh, K.N. Sood, Gajjala Sumana, Bansi Dhar Malhotra, *Sensors & Actuators: B. Chemical* 238 (2017) 1060-1069 DOI information: 10.1016/j.snb.2016.07.121
- Nanocomposite of ferrocenoyl glutaric acid hydrazone and multiwalled carbon nanotubes as a sensor of azide ion; Ida Tiwari, Mandakini Gupta, Abhishek Rai, Lallan Mishra, *Analytical Methods*, DOI: 10.1039/c6ay01282e, 8(2016) 7124-7134.
- Design of screen-printed bulk modified electrodes using anthraquinone–cysteamine functionalized gold nanoparticles and their application to the detection of dissolved oxygen; Ida Tiwari, Monali Singh, Mandakini Gupta, Jonathan P. Metters and Craig E. Banks, *Analytical Methods*, DOI: 10.1039/c4ay02271h,7(2015)2020-2027.
- Copper Oxide Assisted Cysteine Hierarchical Structures for Immunosensor Application; Chandra Mouli Pandey, Gajjala Sumana, Ida Tiwari, *Applied Physics Letters* 105 (2014)103706; DOI: 10.1063/1.4895579.
- Electrochemical genosensor based on graphene oxide modified iron oxide-chitosan hybrid nanocomposite for pathogen detection; Ida Tiwari, Monali Singh, Chandra Mouli Pandey, *Gajjala Sumana, Sensor and Actuators B*, 206(2015) 276-283.

- Application of Cationic poly(lactic-co-glycolic acid) iron oxide/chitosan based nanocomposite for determination of paraoxon; Ida Tiwari, Mandakini Gupta, Chandra Mouli Pandey, Chem Electrochem, 2(2015)280–287, DOI: 10.1002/celec.201402255.
- Anthraquinone moiety/cysteamine functionalized-gold nanoparticle/ Chitosan based nanostructured composite for the electroanalytical detection of dissolved oxygen within aqueous media; Ida Tiwari, Mandakini Gupta, R. Prakash, C.E. Banks, Analytical Methods, 6(2014) 8793-8801, DOI: 10.1039/c4ay01207k.
- Hierarchical Cystine Flower Based Electrochemical Genosensor for Detection of Escherichia coli O157:H7; Chandra Mouli Pandey, Gajjala Sumana, Ida Tiwari, RSC Advances, DOI: 10.1039/c4ra04511d, 4(2014)31047–31055.
- Nanostructuring of Hierarchical 3D Cystine Flowers for High-Performance Electrochemical Immunosensor; Chandra Mouli Pandey, Gajjala Sumana, Ida Tiwari, Biosensors and Bioelectronics 61 (2014) 328–335, DOI: <http://dx.doi.org/10.1016/j.bios.2014.05.015>
- Fabrication characterization and application 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 the Indian Chemical Society, Oct 91(2014)1793-1798.
- Simultaneous determination of hydrazine and phenyl hydrazine using 4'-(4-carboxyphenyl)-2,2':6',2''terpyridine diacetonitrile triphenylphosphine ruthenium(II) tetrafluoroborate complex / multiwalled carbon nanotubes nanocomposite modified electrode. Ida Tiwari, Mandakini Gupta, Priti. Sinha, Material Research Bulletin 60 (2014) 166–173.
- Neutral red interlinked gold nanoparticle/multiwalled carbon nanotubes hybrid nanomaterial and its application in the detection of NADH; Ida Tiwari, Mandakini Gupta, Material Research Bulletin 49 (2014) 94–101.
- Screen printed electrodes a tool for advances in sensors' field for monitoring analytes of environmental relevance, Ida Tiwari, Monali Singh, Manorama Singh in "Advances in Applied Physical and Chemical Sciences- A Sustainable Approach, 3(2014) 110-114.
- Synthesis, Crystal structure and nuclease activity of a Cu (II) complex derived from a N<sub>2</sub>O donor Schiff base; Virendra Kumar, Rakesh K. Mishra, Sachin Shukla, R. Mishra, Monali Singh, Ida Tiwari, Kamlesh Thapliyal, K.K. Upadhyay, J. Molecular structure 1047(2013)66-72.
- Cationic Poly(lactic-co-glycolic acid) Iron Oxide Microspheres for Nucleic Acid Detection; Chandra Mouli Pandey, Aditya Sharma, Gajjala Sumana, Ida Tiwari, Bansi Dhar Malhotra, Nanoscale, DOI:10.1039/C3NR34355C, 5(2013) 3800-3807
- Electro-oxidation of dopamine at N-(1, 3-dimethylbutyl) -N'-phenyl-p-phenylenediamine/multiwalled carbonnanotubes nanocomposite modified electrode; Ida Tiwari, Mandakini Gupta and Monali Singh, J. Material Research 28(2013)1777-1784.
- Electro-oxidation of Phenyl hydrazine on a modified electrode constructed using a nanocomposite consisting of a ruthenium terpyridyl complex, multiwalled carbon nanotubes and nafion; Ida Tiwari, Mandakini Gupta, Preeti Sinha and S.K. Aggarwal, Electrochimica Acta, DOI:10.1016/j.electacta.2012.04.053, 76 (2012) 106– 111.
- Electroanalytical properties and application of anthraquinone derivative-functionalized multiwalled carbon nanotubes nanowires modified glassy carbon electrode; Ida Tiwari, Manorama Singh, Mandakini Gupta and S.K. Aggarwal, DOI: 10.1016/j.materresbull.2012.03.031, Materials Research Bulletin 47 (2012) 1697–1703.
- In situ synthesis of polymer nanocomposites from PANI/PAA/MWCNTs: Analysis and characterization; Ida Tiwari, K. P. Singh, International Journal of Polymer analysis and Characterization, 17(2012)1-10, DOI:10.1080/1023666X.2012.669521.
- Composite materials based on ormosil for the construction of electrochemical sensors and biosensors; Ida Tiwari and K. P. Singh, Russian Journal of Chemistry 82(2012)157– 167, DOI:10.1134/S1070363212010264.\

- Green preparation of nanocomposite of ferrocene derivatives for monitoring environmental pollutants. Ida Tiwari and Jaya Tiwari, International Journal of Environmental Engineering and Management, ISSN: 2231-1319, Research India Publications, Editor-in-chief: Dr. Pranveer S. Satwat 3(2012) 24-28.
- Polyaniline/ polyacrylic acid/ multiwalled carbon nanotubes modified electrode for selective determination of ascorbic acid; Ida Tiwari, K.P. Singh, Manorama Singh, C.E. Banks, Analytical Methods, 4(2012)118-124, DOI: 10.1039/c1ay05415e.
- Polyaniline based Advanced Nanomaterials for the Sensor Applications; Ida Tiwari and Manorama Singh, chapter 4 in book entitled "Nanotechnology in Polymers" ISBN: 1-933699-90-6, (2012)55-67, Editors: Amar Singh Singha (NIT Hamirpur) and Vijay Kumar Thakur (NTU- SINGAPORE) Publisher: Studium Press LLC, Houston, Texas (USA).
- Amperometric sensor for hydrogen peroxide based on methylene blue-SDS-multiwalled carbon nanotubes nanocomposite modified electrode; Ida Tiwari, Manorama Singh, Microchimica Acta, 174(2011)223-230.
- An amperometric sensor for nanomolar detection of hydrogen peroxide based on encapsulation of Horseradish Peroxidase in thymol blue -ormosil composite; Ida Tiwari, Manorama Singh, V.S. Tripathi, G. Lakshminarayana and Masayuki Nogami, 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, B.C. Upadhyay and V.S. Tripathi, Analytical Letters 43 (2010) 2019–2030.
- Anhydrous proton conducting Organic-inorganic hybrid membranes synthesized from tetramethoxysilane/ methyltrimethoxysilane/diisopropyl phosphite and ionic liquid; G. Lakshminarayana, V.S. Tripathi, Ida Tiwari and Masayuki Nogami, Ionics 16(2009)385-395, DOI: 10.1007/s 11581-010-0436-z.
- An insight review on the application of polymer-carbon nanotubes based composite material in sensor technology; Ida Tiwari, K.P. Singh and Manorama Singh, Russian Journal of General Chemistry, 12 (2009) 2685-2694.
- Electrochemical sensors: Innovations in mediated electrochemistry; P.C. Pandey, Ida Tiwari, S. Upadhyay, Encyclopedia of Sensors, American Scientific Publishers, ISBN: 1-58883-056-X, Edited by C.A. Grimes, E.C. Dickey And M.V. Pishko 3(2006)255.
- Modification of anthraquinone-2-carboxylic acid with multiwalled carbon nanotubes and electrocatalytic behavior of prepared nanocomposite towards oxygen reduction, Ida Tiwari, Manorama Singh and Mandakini Gupta, Proceedings ICPAC Conference (2010), Chemistry for Sustainable Development, Editors: Ramasami / Gupta Bhowon / Jhaumeer-Laulloo / Li Kam Wah, DOI 10.1007/978-90-481-8650-1 25, © Springer Science C Business Media B.V. Chapter 25 399-410.
- A novel ormosil based electrocatalytic biosensor for glucose/ethanol based on dehydrogenase modified electrode; P.C. Pandey, S. Upadhyay, Ida Tiwari and V.S. Tripathi, Electroanalysis, 13(2001)820.
- An organically modified silicate based ethanol biosensor; P.C. Pandey, S. Upadhyay, Ida Tiwari and V.S. Tripathi, Anal. Biochem., 288 (2001)39-43.
- A novel ferrocene encapsulated palladium -linked ormosil- based electrocatalytic dopamine biosensor; P.C. Pandey, S. Upadhyay, Ida Tiwari, G. Singh and V.S. Tripathi, Sensors and Actuators B, 75(2001)48-55.
- An ormosil based peroxide biosensor- A comparative study on direct electron transport from horseradish peroxidase; P.C. Pandey, S. Upadhyay, Ida Tiwari and V.S. Tripathi, Sensors and Actuators B, 72(2001)224.
- A novel ferrocene encapsulated palladium -linked ormosil- based electrocatalytic biosensor. The role of the reactive functional group; P.C. Pandey, S. Upadhyay, Ida Tiwari and Soma Sharma, Electroanalysis, 18(2001)1519.
- Acetylthiocholine/ Acetylcholine and thiocholine/choline electrochemical sensors/ biosensors based on an organically modified sol-gel glass enzyme reactor and

graphite paste electrode; P.C. Pandey, S. Upadhyay, H.C. Pathak, C.M.D. Pandey and Ida Tiwari , Sensors and Actuators B, 62 (2000) 109.

- Studies on polycarbazole – modified electrode and its application in the development of solid-state potassium and copper (II) ion sensors; P.C. Pandey, R. Prakash, Ida Tiwari, G. Singh and V.S. Tripathi, Journal of Applied Polymer Science, 75 (2000) 1749.
- Studies on glucose biosensors based on nonmediated and mediated electrochemical oxidation of reduced glucose oxidase encapsulated within organically modified sol-gel glasses; P.C. Pandey, S. Upadhyay, H.C. Pathak, Ida Tiwari and V.S. Tripathi, Electroanalysis, 11(1999) 1251.

Date: 1.9.2018

Ida Tiwari

Signature

Place: Varanasi