# Dr. Dipanwita Majumdar

Assistant Professor, Chemistry M.Sc., Ph.D.



### **Education Details**

2005 B.Sc. B. Sc. (CHEMISTRY HONOURS) from The University of Burdwan

2007 M.Sc. M. Sc. In CHEMISTRY (INORGANIC CHEMSTRY SPECIAL) from The University of Burdwan

2011 Ph.D. Ph. D. from Jadavpur University, Research work carried out at Indian Association for the Cultivation of Science, Jadavpur, Kolkata-700032

# **Experience Details**

28-May-09 - 22-Feb-18	Lecturer, and Assistant Professor at Barasat Govt College	Assistant Professor
23-Feb-18 - Till Date	Chandernagore College, Chandannagar, Hooghly	Assistant Professor

# **Project**

2013

2014 - 2016	Completed	UGC MRP project titled Synthesis, Characterization and Electrochemical
		Studies Of Graphene-Manganese Dioxide Composites worth Rs. 5 Lakhs

#### **Journal Publications**

JUL	Journal Lubications		
2009	Observation of microwave plasmons in one-dimensional conjugated polymer chain.' B Mondal, D Majumdar and S K Saha Appl. Phys. Lett. 94 (2009) 183109.		
2009	'Mechanism of Ultrasonic Energy-Assisted Formation of V-, Y-Shaped Nano-Structures in Conjugated Polymers' D Majumdar R P Maity,S Basu, and S K Saha J. Nano Sc. & Nanotech. 9 (2009)6896-6901.		
2010	'Graphene quantum sheet: A new material for spintronic application.' S K Saha, M Baskey, D Majumdar. Adv. Mater. 22 (2010) 5531		
2010	'Observation of ferroelectric response in conjugated polymer nanotubes.' D Majumdar and S K Saha Appl. Phys. Lett., 96 (2010) 183113		
2010	'Poly(3-hexylthiophene) nanotubes with superior electronic and optical properties. D Majumdar and S K Saha Chem. Phys. Lett., 489 (2010) 219		
2010	Synthesis of single crystalline micron-sized rectangular silver bar.' B Mondal, D Majumdar and S K Saha, J. Mater. Research. 25 (2010) 383.		
2011	Nanotechnology: Its current scope and prospect 'Dipanwita Majumdar Acad. J Aureole Vol 3(2), (2011) 114-119		
2011	'Epitaxial growth of crystalline polyaniline on reduced graphene oxide D Majumdar M Baskey, S K Saha Macromol. Rapid Commun. 32 (2011) 1277		

Graphene and its composites as "supercaps". Dipanwita Majumdar Acad. J Aureole 4, (2013) 11-16

- 2014 Reduced Graphene Oxide: An Efficient Supercapacitor Material'. Dipanwita Majumdar Academic J. Aureole, 5 (2014) 42-46
- Graphene-MnO2 Composite as Electrocatalyst for Oxygen Reduction Reactions. Dipanwita Majumdar Academic J. Aureole, 6&7(1) (2015-16) 31-37
- 2015 'Charge Transport in Polypyrrole Nanotubes.'Dipanwita Majumdar, S.K.SahaJ. Nanosci. Nanotechnol. 15 (2015) 9975-9981
- Synthesis, characterization and electrochemical study of hydroxy-functionalized graphene/MnO2 nanocomposite D Majumdar, SK Bhattacharya Materials Today: Proceedings 3 (10), 3872-3877
- 2016 "Graphene-Polyaniline nanocomposites as Proficient Energy Storage Material-An Overview" Dipanwita Majumdar Innovative Energy & Research 5(2016)2
- 2016 "Sonochemically Synthesized Beta-Cyclodextrin Functionalized Graphene Oxide and its Efficient Role in Adsorption of Water Soluble Brilliant Green Dye." Dipanwita Majumdar J Environ Anal Toxicol 6 (2016) 5.
- 2016 Hydroxy functionalized Graphene: A Proficient Energy Storage Material, Dipanwita Majumdar and Sujata Pal, J Fundam. Renewable Energy Appl., 6 (2016) 209
- 'Microwave-assisted synthesis of Mn2O3 porous balls as bifunctional electrocatalyst for oxygen reduction and evolution reaction' Dipanwita Majumdar, et al Catal. Sci. Technol., 6(5) (2016) 1417-1429
- 2017 Sonochemically synthesized hydroxy-functionalized graphene–MnO2 nanocomposite for supercapacitor applications. Dipanwita Majumdar, and Swapan K BhattacharyaJ Appl Electrochem 47 (2017) 789–801
- 2017 Proficiency of graphene oxide in adsorption and removal of methylene blue from water: An overview.Dipanwita Majumdar J Environ Chem Toxicol 1 (2017) 4-8
- 2017 Detoxification of Heavy Metal ion-contaminated Drinking Water by Green Technology A Short Overview. Dipanwita Majumdar Current Green Chemistry 4 (2017) 38-44
- Functionalized Graphene-MnO2 nanocomposite in Fuel Cell Applications Dipanwita Majumdar Asian Journal of Science and Technology, 8(3),(2017) 4394-4398
- 2017 Ultrasound assisted formation of reduced graphene oxide-copper (II) oxide nanocomposite for energy storage applications Dipanwita Majumdar, Nirmal Baugh, and Swapan K Bhattacharya Colloids and Surfaces A: Physicochem. Eng. Aspects 512 (2017) 158–170.
- An Overview on Ruthenium Oxide Composites—Challenging Material for Energy Storage Applications D Majumdar Materials Science Research India 15(1),(2018) 30-40
- Anodic Oxidation of Butan-1-ol on Reduced Graphene Oxide -Supported-Pd-Ag-Nanoparticles/ Nanoalloy for Fuel Cell Applications Ankita Mahajan, Senjuti Banik, Dipanwita Majumdar and Swapan Kumar Bhattacharya ACS Omega, 4 (2019) 4658-4670
- Temperature Control Synthesis of Platinum Nanoparticle-Decorated Reduced Graphene Oxide for Electrocatalytic Oxidation of Methanol .Senjuti Banik; Ankita Mahajan; Apurba Ray; Dipanwita Majumdar; Sachindranath Das; Swapan Kumar Bhattacharya Flat Chem (2019)Flat Chem 16 (2019) 100111
- Synthesis and characterization of biopolymer based hybrid hydrogel nanocomposite and study of their electrochemical efficacy. Arindam Giri, Rahul Bhowmick, Chandraday Prodhan, Dipanwita Majumdar, Swapan Kumar Bhattacharya M Ali International Journal of Biological Macromolecules. 123 (2019) 228–238
- 2019 Engineering of Gadolinium-Decorated Graphene Oxide Nanosheets for Multimodal Bioimaging and Drug Delivery.Nitya Chawda, Mainak Basu, Dipanwita Majumdar, Raju Poddar, Santosh Kumar Mahapatra, Indrani Banerjee,ACS OMEGA 4(2019) 12470-12479
- Optimization of physicochemical and dielectric features in the conductive copolymers of aniline and 2-aminophenol US Waware, AMS Hamouda, D Majumdar Polymer Bulletin 76 (11), 5603-5617

- A Review on V2O5 and Its Carbon-Based nanocomposites as Supercapacitor Electrode Materials
  .Dipanwita Majumdar, Manas Mandal and Swapan Kumar Bhattacharya ChemElectroChem 2019, 6, 1623.
  (Wiley)
- A Review of Recent Progress in Ruthenium Oxides based Composites for Supercapacitor Applications.

  Dipanwita Majumdar, Thandavarayan Maiyalagan, Zhongqing Jiang ChemElectroChem 6 (2019) 4343 (Wiley)
- 2019 Magnetic, pseudocapacitive and H2O2-electrosensing properties of self assembled superparamagnetic Co0.3Zn0.7Fe2O4 with enhanced saturation magnetization Rituparna Mondal,; Koyel Sarkar,; Subhrajyoti Dey,; Dipanwita Majumdar,; Swapan Bhattacharya,; Pintu; Sen, Sanjay Kumar, ACS Omega 47 (2019) 12632-12646
- Synthesis, characterization and physicochemical studies of copolymers of aniline and 3 nitroaniline Umesh Somaji Waware, A. M. S. Hamouda, Dipanwita Majumdar Polym. Bull. (2019). pp1-20 DOI: https://doi.org/10.1007/s00289-019-02957-y
- Journey from Supercapacitor to Supercapatteries: Recent advancements in electrochemical energy storage system, D Majumdar et al. Emergent Materials, Springer, ISSN: 2522-574X, https://doi.org/10.1007/s42247-020-00090-5
- 2020 Review on Current Progress of MnO2?based Ternary Nanocomposites for Supercapacitor Applications, D Majumdar, Chemelectrochem, Wiley, doi: https://doi.org/10.1002/celc.202001371
- Recent advancements of copper oxide based nanomaterials for supercapacitor applications D Majumdar, S Ghosh Journal of Energy Storage, 101995, https://doi.org/10.1016/j.est.2020.101995
- Recent progress in copper sulfide based nanomaterials for high energy supercapacitor applications D Majumdar Journal of Electroanalytical Chemistry, https://doi.org/10.1016/j.jelechem.2020.114825

### **Book Publications**

- 2013 "Nanopesticides: A Challenging Domain of Current Research" BOOK CHAPTER by D Majumdar in the book: "Green Chemistry and Sustainable Agriculture Practices: A Step towards a better future", Edited by Tanmoy Chattopadhyaya and Biplab Bhowmik Published by MS Academc in collaboration with Panchkot MahavidyalayaPurulia 2013. [ISBN No: 978-81-921697-3-6].
- 2016 "Adsorption and Removal of Soluble Methylene Blue Dye from Water by Sorbefacient Graphene Oxide".Book Chapter by S. Pal and D Majumdar, pp 19-27." in the book "Modern Trends in Chemical Sciences" Edited Dr. Kamala Mitra, 2016, [ISBN: 978-93-83010-31-8].
- 2019 POLYANILINE AS PROFICIENT ELECTRODE MATERIAL FOR SUPERCAPACITOR APPLICATIONS: PANI NANOCOMPOSITES FOR SUPERCAPACITOR APPLICATIONS. BOOK CHAPTER by Dr. Dipanwita Majumdar in the book Polymer Nanocomposites for Advanced Engineering and Military Applications edited by Noureddine Ramdani IGI Global Publishers. DOI: 10.4018/978-1-5225-7838-3.ch007
- POLYANILINE NANOCOMPOSITES: CHALLENGING MATERIALS FOR ENERGY STORAGE APPLICATIONS: PANI NANOCOMPOSITES FOR SUPERCAPACITOR APPLICATIONS. Book chapter by Dr. Dipanwita Majumdar in the book Polymer Nanocomposites for Advanced Engineering and Military Applications edited by Noureddine RamdaniIGI Global Publishers. DOI: 10.4018/978-1-5225-7838-3.ch008. (April, 2019) ISBN13: 9781522578383|ISBN10: 1522578382|EISBN13: 9781522578390
- 2019 Chemistry In Laboratory (Organic, Inorganic, Physical), Authors: Dr. Subhojit Ghosh, Dr. Madhushree Das Sharma, Dr. Dipanwita Majumdar and Dr. Swarup Manna, Santra Publications Pvt Ltd, Published in 2019, ISBN No: 978-93-86911-72-8
- 2019 BOOK CHAPTER: Ultrasound-Assisted Synthesis, Exfoliation and Functionalisation of Graphene Derivatives, IN THE BOOK: Graphene Functionalization Strategies, PUBLISHED BY Springer

- Ghosh, S. and Majumdar, D. (2021). Chemical Synthesis of Conducting Polymers Nanostructures. In Conjugated Polymer Nanostructures for Energy Conversion and Storage Applications, S. Ghosh (Ed.). https://doi.org/10.1002/9783527820115.ch2
- Majumdar, D. (2021). Aqueous Electrolytes for Flexible Supercapacitors. In Flexible Supercapacitor Nanoarchitectonics (eds Inamuddin, M.I. Ahamed, R. Boddula and T. Altalhi). https://doi.org/10.1002/9781119711469.ch13
- D. MAJUMDAR, Chapter 26, Polyaniline Nanocomposites: Innovative Materials for Supercapacitor Applications PANI Nanocomposites for Supercapacitor Applications (pages 579-612) IN TH BOOK Research Anthology on Synthesis, Characterization, and Applications of Nanomaterials, Information Resources Management Association (USA)ISBN13: 9781799885917|EISBN13: 9781799887362https://www.igi-global.com/book/research-anthology-synthesis-characterization-applications/271734

### **Paper Presentation**

- 2010: Oral Presentation: on "Formation Dynamics of V- and Y-shaped Polyaniline nanowires".4-5th Feb,
   2010 ( UGC sponsored National Seminar : EMERGING CONCERNS AND ADVANCES IN
   CHEMISTRY) At Lady Brabourne College (Kolkata)
- 2011 2011: Poster presentation: 1 on "Epitaxial Growth of Single Crystalline Polyaniline on Reduced Graphene Oxide to grow High Quality P-N Junction".(UGC sponsored National Level Seminar on RECENT ADVANCES IN CHEMICAL SCIENCES AND RELATED AREAS At SreeGopal Banerjee College, Bagati, Mogra, Hooghly, West Benga
- 2013: Oral Presentation: ON THE TOPIC "Nanopesticides: A Challenging Domain of Current Research" by D Majumdar 2013.(National Conference) At Panchkot Mahavidyalaya, Purulia.
- 2015: Poster presentation: on "Synthesis, Characterization and Comparative Electrochemical Studies of Graphite-Copper (II) Oxide and Graphene Oxide-Copper (II) Oxide composites." on 1-2nd August, 2015. (National Conference/ National Symposium) at Indian Chemical Society, Kolkata
- 2015: Poster presentation: NANOS 2015- International conference being organized by GITAM University during December, 14th to 17th, 2015 on the topic "Synthesis, Characterization and Comparative Electrochemical Studies of Graphite-Copper (II) Oxide and Reduced-Graphene Oxide-Copper (II) Oxide composites."
- 2016: Poster presentation: on the topic "Role of beta-cyclodextrin-functionalized graphene oxide in removal of organic-dye water pollutants." (National Conference) At Department of Chemistry, Burdwan University from 4-6th February, 2016 at Burdwan
- 2016: Poster presentation: ICMRA 2016- "Synthesis, Characterization and Electrochemical Study of Hydroxy-Functionalized Graphene/MnO2 nanocomposite" from 11-13th March, 2016 at CMR Technical Campus, Hyderabad. (International Conference)
- 2016 Poster presentation: "Synthesis, Characterization and Electrochemical Studies of hydroxy functionalized Graphene-MnO2 Nanocomposite" Dipanwita Majumdar INTERNATIONAL CONFERENCE ON NANOTECHNOLOGY FOR BETTER LIVING (ICNBL-2016) (25/5/2016 29/5/2016 NIT SRINAGAR AND IIT KANPUR AT NIT SRINAGAR, JAMMU AND KASHMIR.
- 2016 Poster presentation: "Tuning of Charge Transport Properties in Polypyrrole Nanotubes" Dipanwita Majumdar UGC sponsored ONE DAY National Seminar 2016 RECENT ADVANCES IN LIFE SCIENCE IN THE LIGHT OF CHEMISTRY (09/09/2016) (Bethune College)
- 2016 Poster presentation on "Adsorption and Removal of Water Soluble Methylene Blue Dye by Beta-Cyclodextrin Functionalized Graphene Oxide" Dipanwita Majumdar UGC sponsored National Seminar 2016ENTHRALLING FACETS OF MOLECULAR MANIFESTATION IN CHEMICAL SCIENCES (15.9.2016-16.09.2016)Bidhannagar College, SALTLAKE.

- 2016 Poster presentation: Role of Sonochemically synthesized Beta-Cyclodextrin Functionalized Graphene Oxide in Adsorption of Water Soluble Brilliant Green Dye: Dipanwita MajumdarUGC sponsored National Seminar 2016on RECENT TRENDS IN CHEMICAL RESEAERCH (29.9.2016 -01.10.2016 at Sarojini Naidu College for Womenand Hiralal Mazumdar College for Women
- 2016 Poster presentation"Adsorption and Removal of Soluble Methylene Blue Dye from Water by Sorbefacient Graphene Oxide" Dipanwita Majumdar UGC-Sponsored two day National Seminar on "MODERN TRENDS IN CHEMICAL SCIENCES" on 25-26th November, 2016 at Department of Chemistry, Narasinha Dutt College and Prasanta Chandra Mahalanobis Mahavidyalaya
- 2018 Poster presentation: Recent Advancements of RuO2/Functionalized-Graphene Composites for Supercapacitor Applications By Dipanwita Majumdar at Recent Advances in Molecules and Materials: RA2M 2018' 2nd– 3rd August 2018, organized by School of Applied Science & Humanities, Haldia Institute of Technology, Haldia-721657 and Indian Chemical Society (International Conference)
- 2019 Poster presentation: Supercapatteries: A Revolution in Electrochemical Energy Storage Systems By Dipanwita MajumdarInternational Conference on Advances in Nanomaterials and Devices for Energy and Environment (ICAN-2019)27-29 January 2019 Advanced Materials and Nano-electronics Research Group of CNT Lab, in ABV-IIITM, Gwalior (International Conference)
- 2019 Oral presentation: Supercapacitors to Supercapatteries: Renaissance in Electrochemical Energy Storage Systems By Dipanwita MajumdarInternational Conference of Emerging Technologies and Sustainable Development 2019 (ICETSD '19) 5th and 6th March2019 Government College of Engineering and Leather Technology, Kolkata, India (International Conference)
- 2020: National Symposium on Renewable Energy for Sustainable Future: Materials & Technology Development at Heritage Institute of Technology on 27/02/2020 on : Recent progress of supercapacitors
- 2020 2020: Two-Day International Seminar on "Innovation, Expansion, Impacts and Challenges in Chemical and Biological Sciences" to be held on 8-9th January, 2020

#### Courses

2012	Orientation Program	86th Orientation Programme at Academic Staff College, The University of burdwan
2013	Refresher Course	Refreshers Course "Recent Development on Nanoscience and Technology" by Recent Development on Nanoscience and Technology School of Materials Science and nanotechnology, under ASC, Jadavpur University
2018	Refresher Course	Winter School on Environmentl Science, HRDC, The University of Burdwan, 30.01.2018 to 19.02.2018
2020	Refresher Course	Online Refresher Course in Natural Aciences, HRDC-Goa University from 15.09.2020 to 28.09.2020
2020	Short Term Course	HEALTH AND STRESS : PROBLEM AND REMEDIES, UGC-HRDC, THE UNIVERSITY OF BURDWAN, FEBRUARY 18-24, 2020

# Seminar / Workshop / Lecture Attendance

2010	Seminar	UGC sponsored STATE LEVEL SEMINAR "TECHNOLOGIES OF REVOLUTION: SOCIETY, ECONOMY & POLICY" Barasat Govt. College and Paschimbanga Itihas Samsad, 4-5th March, 2010.
2011	Conference	"Celebration of the International Year of Chemistry-2011", by Dept of Chemistry, Jadavpur University on 24-25 March 2011

2011	Seminar	UGC sponsored National SeminarEMERGING TRENDS IN PLANT SCIENCE jointly organized by PG Dept of Botany, Barasat Govt. College and Biological Sc. Dept., ISI, Kolkata on 14th &15th July, 2011.
2011	Seminar	UGC sponsored National seminar MODERN TRENDS OF RESEARCH IN CHEMISTRY organized jointly by Chemistry Dept. of Chemistry Barasat Govt. College and IACS, Kolkataon 7th & 8th Sept, 2011.
2011	Seminar	UGC sponsored National seminar on RECENT WINDOWS OF CHEMISTRY jointly organized by Chemistry Dept. of Mahadevananda Mahavidyalaya and Panihati Mahavidyalaya, on 14th December,2011
2012	Workshop	Indo-US Workshop on Frontiers of Excellence in Photovoltaics Science and Technologies at IIT Bombay on January 15-17,2012.
2013	Conference	Physical Chemistry Research: Teaching and Industrial Perspectives ,organized by Dept of Chemistry, Jadavpur University on September 28,2013
2014	Symposium	National Symposium on Recent Advances in Chemistry and Industry organized by Indian Chemical Society on 01-02 August, 2014
2015	Symposium	National Symposium on Recent Advances in Chemistry and Industry organized by Indian Chemical Society on 01-02 August, 2015
2015	Symposium	One day symposium on Medicinal Chemistry and its perspectives, Dept of Zoology, Calcutta University on 17th November,2015
2016	Conference	Higher Edu. Dept. Govt of WB Sponsored Satyasundar Barman Memorial Lecture On "Policies For Higher Education In Backward Region Of WB" at Barasat Govt. College, on 25/2/2016
2017	Conference	Quantum Physics and Consciousness: conducted by Bhaktivedanta Institute on 4-5th Feb, 2017
2017	Workshop	Science Academies Lecture Workshop On Recent Trends In Chemistry And Biology By Science Forum, Mrinalini Dutta Mahavidyapith, Birati-700051 on 4-6 March,2017
2017	Workshop	Workshop on Research-Based Pedagogical Tools (RBPT) @ IIT Gandhinagar, Gujrat in collaboration with IISER Pune and Sheffield Hallam University, UK from 10.12.2017 to 13.12.2017
2018	Conference	ACS Publications and the Indian Academy of Sciences joint meeting "Expanding Frontiers in Chemical Sciences" @ BHU, Varanasi, on 01.11.2018
2018	Seminar	National Seminar on Energy Storage and Conversion (NSESC-2018) at Department of Instrumentation Science, Jadavpur University on 06.12.2018
2019	Workshop	Workshop on "PROMOTION UNDER CAREER ADVANCEMENT SCHEME" organized by IQAC, Bejoy Narayan Mahavidyalaya on July 19, 2019
2020	Workshop	"One Week Online National Faculty Development Program on E-Contents and ICT Tools for Innovative and Effective Teaching & Learning Process" Organized by Roorkee College of Management & Computer Applications, Roorkee from 8 August to 14 August, 2020.
2020	Seminar	'RECENT TRENDS IN BIOLOGICAL AND CHEMICAL SCIENCE TO FIGHT AGAINST COVID-19 organized by Department of Zoology, Chemistry and Botany In collaboration with IQAC, Kabi Nazrul College, Murarai, Birbhum 731219, WB, India on 26.07.2020

Two Days State Level Webinar held on 7-8th August, 2020 organized by Dept. of Zoology and Dept. of Botany, supported by IQAC, Kalna College, Kalna, Purba Bardhaman, West Bengal, entitled "Covid-19: Molecular aspects and its possible managements"

### **Awards**

- Qualified in nationally competitive examination, JAM -2005, conducted by Indian Institute of Technology ( IIT ), All India Rank-162
- 2006 Qualified in nationally competitive examination, CSIR-UGC NET 2006, conducted jointly by Council of Scientific and Industrial Research (CSIR) and University Grants Commission (UGC), Govt. of India, 2006, December for lectureship and research fellowship. Selected for SPM interview under CSIR.
- Qualified in nationally competitive examination, GATE -2006, conducted by Indian Institute of Technology (IIT), All India Rank-281
- Qualified in nationally competitive examination, GATE -2007, conducted by Indian Institute of Technology (IIT), All India Rank-12
- 2011 2011: Poster award for the presentation: 1 on "Epitaxial Growth of Single Crystalline Polyaniline on Reduced Graphene Oxide to grow High Quality P-N Junction".(UGC sponsored National Level Seminar on RECENT ADVANCES IN CHEMICAL SCIENCES AND RELATED AREAS At Sree Gopal Banerjee College, Bagati, Mogra, Hooghly, West Benga
- 2016 2nd best poster presentation at International Conference on Materials Research and Applications (ICMRA-2016) fom 11-13 March 2016 @ CMR TECHNICAL CAMPUS, Kandlakoya (V), Medchal (M), RR Dist, Telangana, India-501401,(Approved by AICTE, New Delhi, Affiliated to JNTU, Hyderabad.)
- 2016 3rd Young Women Scientist paper presentation at International Conference on Nanotechnology for Better Living, 2016 jointly organized by IIT Kanpur and NIT Srinagar at Srinagar, J&K, India on 25-29th May, 2016.
- InSc Research Excellence Award-2021, InSc (Institute of Scholars), Bangalore, Regd. under Ministry of MSME, Govt. Of India and ISO 9001:2015 certified.
- InSc Young Researcher Award-2021 InSc (Institute of Scholars), Bangalore, Regd. under Ministry of MSME, Govt. Of India and ISO 9001:2015 certified.

# Memberships

- Editorial Board Member of Peer-reviewed International Journal: Materials Science Research India for 2017 and 2018
- 2 Moderator and Question Paper Setters of UG and PG Level CHEMISTRY COURSES IN various reputed Universities in India.
- 3 Life Member at Indian Physical Society
- 4 Life member of Indian Association for the Cultivation of Science, Jadavpur
- 5 Reviewer of many reputed International peer-reviewed journals (Springer, Elsevier, Wiley)
- InSc Professional Member, Institute of Scholars, Department of Awards, Muddhinapalya Bengaluru-560091, Karnataka, India