

PERSONAL INFORMATION

**Dr. Saikumar Manchala**

Postdoctoral researcher

Department of Chemistry and Nanoscience

College of Natural Sciences

Ewha Womans University

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Associate Editor: International Archives of Biomedical and Engineering Sciences

<http://www.acertindia.com/international-archives-of-biomedical-and-engineering-sciences/>

Gender Male | Date of Birth 26-08-1988 | Nationality Indian | Marital status Married

GOOGLE SCHOLAR

<https://scholar.google.co.in/citations?user=yNzNeVoAAAAJ&hl=en>

RESEARCH GATE

https://www.researchgate.net/profile/Saikumar_Manchala

❖ OBJECTIVE

To enhance my knowledge by being an integral part of a result-oriented research team which will utilize my managerial and technical potentials, there by proving to be a productive and trust worthy professional in the advancements of the organization.

❖ EXPERIENCE

August 2021 – Till know

Postdoctoral Researcher

Ewha Womans University

Department of Chemistry and Nanoscience

52 Ewhayeodae-gil, Seodaemun-gu, Seoul-03720, Korea

Under the supervision of **Prof. Jinheung Kim**<http://my.ewha.ac.kr/jinhkim/>

February 2021 – July 2021

Assistant Professor

Malla Reddy Engineering College

Department of Chemistry

Maisammaguda, Medchal, Secunderabad-500100

Telangana, India

<https://www.mrec.ac.in/>

January 2020 – January 2021

Postdoctoral Researcher

Indian Institute of Technology, Delhi

Department of Chemistry

Hauz Khas-110016, India

Under the supervision of **Prof. A. K. Ganguli**, Institute Chair Prof.<http://chemistry.iitd.ac.in/faculty/ganguli.html>

July 2014 – December 2020

Doctoral Research Scholar (PhD)

National Institute of Technology, Warangal

Department of Chemistry

Warangal-506004, India

Under the supervision of **Dr. Vishnu Shanker**, Associate Professor<https://www.nitw.ac.in/faculty/id/16382>

July 2012 – July 2014

Trainee Analyst

Spices Board India, Govt. of India
Chemistry Division
Quality Evaluation Laboratory, Guntur-522004, India
(<http://www.indianspices.com/>)

July 2011 – July 2012

Lecturer

SV Degree College, Parkal
Warangal-506002,
Telangana, India

❖ **EDUCATION**

July 2014 – June 2020

Doctoral Research Scholar (PhD)

National Institute of Technology, Warangal, India
(<http://www.nitw.ac.in/nitw/>)

Course Work

As a part of PhD programme, Course works have been carried out on the following relevant subjects for one semester.

- | | |
|---|--------------|
| 1. Advanced Analytical Techniques (CY 804) - | 'A' Grade |
| 2. Surface Analytical Techniques (CY 805) - | 'B' Grade |
| 3. Supra molecular chemistry & Nanomaterials (CY 822) - | 'A' Grade |
| 4. Solid state Chemistry (CY 824) - | 'A' Grade |
| 5. Communication skills (No Grade)- | Satisfactory |

July 2009 – June 2011

Master of Science (Organic Chemistry)

Telangana University, Telangana, India
(<http://www.telanganauniversity.ac.in/>)
Percentage of Marks: **82.27 (Distinction)**

June 2005 – April 2008

Bachelor of Science (Biotechnology, Botany, and Chemistry)

Kakatiya University, Warangal, Telangana, India
(<http://www.kakatiya.ac.in/>)
Percentage of Marks: **85.00 (Distinction)**

June 2003 – March 2005

Intermediate (Botany, Zoology, Physics, and Chemistry)

Board of Intermediate Education, Andhra Pradesh, India
(<http://bieap.gov.in/>)
Percentage of Marks: **85.50 (First Division)**

❖ **TECHNICAL QUALIFICATION**

Diploma in Computer Applications

MS-Office
NSM infotech (ISO 9001 : 2000)
Guntur, Telangana, India

❖ RESEARCH INTERESTS

- Photocatalytic, electrocatalytic, and photoelectrochemical water splitting and CO₂ reduction
- Exfoliation of 2D materials
- Nanomaterials and nanocomposites
- Carbon nanomaterials, particularly graphene-based materials
- Photocatalytic water purification
- Development of novel green reducing agents for the reduction of graphene oxide
- Supercapacitors
- Energy-related applications

❖ JOB-RELATED SKILLS

I am actively involved in innovative and quality research in the field of development of novel and efficient green reducing agents for the Graphene oxide reduction, Photocatalytic water splitting, and organic transformations during my doctoral and post-graduation studies; I acquired the following instrumental and computational expertise.

- Powder X-Ray Diffractometer, PANalytical
- FTIR Spectrophotometer, PerkinElmer
- UV-Visible-NIR Spectrophotometers, Agilent Technologies, Shimadzu, Thermo Fischer Scientific, Perkin Elmer, Analytik Jena Specord 205
- Fluorescence Spectrophotometer, TCS Solutions
- TG-DT Analyser, Netzshu
- High Performance liquid chromatography, Shimadzu: UV, PDA, FD
- CHI Electrochemical Work Station
- Supercapacitor electrode fabrication
- Gas Chromatography, Shimadzu: TCD, FID
- LC-MS/MS
- High Temperature Furnace, Hindfur
- Scanning Electron Microscope, VEGA3, Tescon, USA
- ESR Spectrophotometer, Jeol
- Other small instruments relevant for materials characterization and analysis.
- Origin, ChemDraw Ultra 12.0 etc.
- MENDELEY Reference Manager

❖ HONOURS AND AWARDS

- Got best poster presentation award at Research Conclave-2017, organized by NIT-Warangal 18th to 19th March 2017.
- Receiving scholarship from Ministry of Human Resource development (**MHRD**), Government of India, for pursuing Ph.D in the Department of Chemistry, NIT-Warangal.
- Qualified in All India Graduate Aptitude Test in Engineering (**GATE**) 2013, India.
- Secured Class 1st Rank in M.sc (Organic Chemistry), Telangana University.
- Secured 2nd prize in Model Presentation, consolation prize in Paper Presentation in “BIO-FAIR” organized by Vaagdevi Degree & PG College.
- Secured A+ Grade in District level Talent search Test, organized by Softech Educational Trust.

❖ REVIEWING EXPERIENCE

- Serving as an associate editor for the journal “International Archives of Biomedical and Engineering Sciences” published by “Academy of Competitive Examination and Research Training (**ACERT**)” institute, India from May 2020 to till know.
- Reviewer for the IOPscience Journals (Ex: Nanotechnology, Nano Futures, etc.,)
- Reviewer for the Scientific.Net Journals (Ex: Journal of Nano Research, Key Engineering Materials, Nano Hybrids and Composites, etc.,)

❖ OTHER SKILLS

- Assisted my Research Supervisor and worked in several committees in various conferences and workshops organized Department of Chemistry, Teaching Learning Centre, and Centre for Advanced Materials.
- Enjoy all sports particularly badminton, chess, and carom.
- Love to travel, like listening to music and experiencing different cultures.

❖ INVITED TALKS

- Given a lecture on “Development of Novel Green Methods for the Synthesis of Graphene for Use as Supercapacitor Applications” in “The World Conference on Nanotechnology Research & Applications (WCNR 2021)” organized at Czech Republic, Prague during September 20-21, 2021.

❖ PAPERS PRESENTED

- Presented a paper on “Synthesis and Characterisation of g-C₃N₄-NiCo₂O₄ organic-inorganic hybrid nanocomposite” in “International conference on Materials for the Millennium (MATCON-2016)” organized at CUSAT, Kochi, Kerala during January 14-16, 2016.
- Oral presentation on “A facile one pot Hydrothermal Synthesis of Three-Dimensional Reduced Graphene Oxide mediated Z-scheme CaIn₂S₄/g-C₃N₄ Heterojunction Nano composite with Enhanced Visible-Light Photocatalytic Activity” in “Asian Pacific Congress on Catalysis (APCAT-7)” organized at CUSAT, Kochi, Kerala during January 14-16, 2016.
- Presented a paper on “A facile one pot green synthesis of Silver deposited graphene” in National Conference on “Frontiers in Chemical Sciences and Technologies (FCST-2016)” organized at NIT-Warangal, during January 28-29, 2016.
- Presented a paper on “A facile one pot green synthesis of Ag deposited graphene and its biological activity” in National Symposium on “Recent Advances in Chemical & Material Sciences (RACMS- 2016)” organized at RGUKT-Basar, during August 20-21, 2016.
- Presented a paper on “A facile one pot Sonochemical Synthesis of CNT mediated Zn₂TiO₄/g-C₃N₄ hybrid Nanocomposite with Enhanced Visible-Light Photocatalytic Activity” in “Fourth International Conference on Advanced Oxidation Process (AOP-2016)” organized at BITS Pilani, K K Birla, Goa Campus during 17th to 20th December 2016.
- Presented a paper on “A facile Hydrothermal Synthesis of Three-Dimensional Graphene mediated Z-scheme ZnIn₂S₄/g-C₃N₄ Heterojunction Nanocomposite with Enhanced Visible-Light Photocatalytic Activities” in “Research Conclave 2017” organized at NIT-Warangal, during March 18th-19th, 2017.
- Presented a paper on “A facile one pot green synthesis of bimetallic Ag/Au deposited graphene and its improved photocatalytic H₂ evolution under solar light irradiation from water splitting” in “JNCASR-I2CAM School 2017” organized at JNCASR, Bangalore during 27th Nov -2nd Dec, 2017.
- Presented a paper on “Synthesis, characterization of g-C₃N₄/CdMoO₄ nanocomposites and their enhanced dye degradation performance under solarlight illumination” in “National Conference on Emerging Trends in Instrumental Methods of Chemical Analysis (ETIMCA-2019)” organized Department of Chemistry, NIT-Warangal, during January 30th-31st, 2019.

❖ WORKSHOPS AND COURSES

- Participated in Two-day workshop on Radiochemistry organized by Dept. of Chemistry, NIT- Warangal in association with "Indian Association of Nuclear Chemists and Allied Scientists (IANCAS)" held on 14-15, November 2014.
- TEQIP workshop on “Thermal Analysis of Materials Using DSC, DTA & TG, Dilatometer (TAM-II)” organized at IIT-Hyderabad, during Aug 12-14, 2015.
- TEQIP workshop on “X-Ray Scattering Techniques (SAXS & WAXS)” organized at IIT-Hyderabad, during December 28-29, 2015.

- Done GIAN Course on “Sonoprocess Engineering (Course code: 151036B04)” organized by Department of Chemical Engineering at NIT-Warangal, during February 22-26, 2016.
- Done GIAN Course on “Synthesis, Characterization, Processing and applications of Nanomaterials (Course code: 151036B01)” organized by Department of Metallurgical and Materials Engineering at NIT-Warangal, during March 7-11, 2016.
- Participated GIAN Course on “Advanced Materials for Sustainable Energy and Storage” organized by Department of Chemistry at NIT-Warangal, during May 23 - June 3, 2016.
- Participated in One day workshop on “Waste Water Treatment Technologies” organized by Department of Chemical Engineering at NIT-Warangal, during July 24, 2016.
- Participated in One-Week workshop on “Hands-on Experience on Fabrication of Nanocomposite Materials for Engineering Applications” organized by Centre for Advanced Materials, NIT-Warangal, during May 6-10, 2019.

❖ PUBLICATIONS IN PEER-REVIEWED/REFEREED INTERNATIONAL JOURNALS

- 1) **Saikumar Manchala**, Lakshmana Reddy Nagappagari, Shankar Muthukonda Venkatakrishnan, Vishnu Shanker
Facile synthesis of noble-metal free polygonal Zn₂TiO₄ nanostructures for highly efficient photocatalytic hydrogen evolution under solar light irradiation.
International Journal of Hydrogen Energy, (2018), 43, 13145-13157 (IF 5.816)
- 2) **Saikumar Manchala**, Ambedkar Gandamalla, Vempuluru Navakoteswara Rao, Shankar Muthukonda Venkatakrishnan, Vishnu Shanker
High potential and robust ternary LaFeO₃/CdS/carbon quantum dots nanocomposite for photocatalytic H₂ evolution under sunlight illumination.
Journal of Colloid and Interface Sciences (2020), 583, 255-266 (IF 8.128)
- 3) **Saikumar Manchala**, Ambedkar Gandamalla, Vempuluru Navakoteswara Rao, Shankar Muthukonda Venkatakrishnan, Vishnu Shanker
Efficient water reduction over ternary nanocarbon spheres based SrTiO₃/CdS photocatalytic system with reinforced photocurrent under sunlight illumination
Journal of Nanostructure in Chemistry (2021) (IF 6.391)
- 4) **Saikumar Manchala**, V. S. R. K. Tandava, Deshetti Jampaiah, Suresh K Bhargava, Vishnu Shanker
Novel and Highly Efficient Strategy for the Green Synthesis of Soluble Graphene by Aqueous Polyphenol Extracts of Eucalyptus Bark and Its Applications in High-Performance Supercapacitors.
ACS Sustainable Chem. Eng., (2019), 7, 13, 11612-11620 (IF 8.198)

This work also highlighted in

<https://www.pv-magazine.com/2019/06/27/researchers-develop-method-to-synthesize-graphene-from-abundanteucalyptus-bark/>

<https://www.thehindu.com/news/cities/Hyderabad/nit-finds-cost-effective-way-to-produce-graphene/article28286891.ece>

<https://www.sciencedaily.com/releases/2019/06/190624111620.htm>

<https://www.rmit.edu.au/news/all-news/2019/jun/graphene-from-gum-trees>

<https://www.thehansindia.com/news/cities/warangal/nitw-rmit-come-up-with-cost-effective-graphene--544012>

<https://telanganatoday.com/warangal-australian-researchers-find-green-way-of-producing-graphene>

https://www.chemeurope.com/en/news/1161613/branching-out-making-graphene-from-gumtrees.html?pk_campaign=ca0066&WT.mc_id=ca0066

- 5) **Saikumar Manchala**, Lakshmana Reddy Nagappagari, Shankar Muthukonda Venkatakrishnan, Vishnu Shanker
Solar-light Harvesting Bimetallic Ag/Au Decorated Graphene Plasmonic System with Efficient Photoelectrochemical Performance for the Enhanced Water Reduction Process.
ACS Applied Nano Materials, (2019), 2, 4782-4792 (IF 5.097)

- 6) Ambedkar Gandamalla, **Saikumar Manchala**, Pandiyarajan Anand, Yen-Pei Fu, Vishnu Shanker
Development of versatile g-C₃N₄/CdMoO₄ nanocomposite for enhanced photoelectrochemical oxygen evolution reaction and photocatalytic dye degradation.
Materials Today Chemistry (2021), 19, 100392 (IF 8.301)
- 7) Ambedkar Gandamalla, Saikumar Manchala, **Atul Verma, Yen-Pei Fu, Vishnu Shanker**
Microwave-assisted synthesis of ZnAl-LDH/g-C₃N₄ composite for degradation of antibiotic ciprofloxacin under visible-light illumination.
Chemosphere, (2021), 283, 131182 (IF 7.086)
- 8) **Saikumar Manchala**, V. S. R. K. Tandava, Lakshmana Reddy Nagappagari, Shankar Muthukonda Venkatakrishnan, Deshetti Jampaiah, Ylias M. Sabri, Suresh K Bhargava, Vishnu Shanker
Fabrication of a novel ZnIn₂S₄/g-C₃N₄/graphene ternary nanocomposite with enhanced charge separation for efficient photocatalytic H₂ evolution under solar light illumination.
Photochemical & Photobiological Sciences (2019), 18, 2952-2964 (IF 3.982)
- 9) Ramaiah Konakanchi, Jebiti Haribabu, Jyothi Prashanth, Venkata Bharat Nishtala, Ramachary Mallela, **Saikumar Manchala**, Durgaiyah Gandamalla, Ramasamy Karvembu, Byru Venkatram Reddy, Narsimha Reddy Yellu, Laxma Reddy Kotha
Synthesis, Structural, Biological Evaluation, Molecular Docking and DFT Studies of Co (II), Ni (II), Cu (II), Zn (II), Cd (II) and Hg (II) Complexes bearing Heterocyclic Thiosemicarbazone ligand.
Applied Organometallic Chemistry, (2018), 32, e4415 (IF 4.105)
- 10) Soumya Poshala, Sanjeeva Thunga, **Saikumar Manchala**, Dr. Hari Prasad Kokatla
In Situ Generation of Copper Nanoparticles by Rongalite and Their Use as Catalyst for Click Chemistry in Water.
Chemistry Select, (2018), 3, 13759-13764 (IF 2.109)
- 11) **Saikumar Manchala**, V. S. R. K. Tandava, Lakshmana Reddy Nagappagari, Shankar Muthukonda Venkatakrishnan, Deshetti Jampaiah, Ylias M. Sabri, Suresh K Bhargava, Vishnu Shanker
A Novel Strategy for Sustainable Synthesis of Soluble-Graphene by a Himalayan herb Delphinium denudatum Root Extract for Use as Light-Weight Supercapacitors.
Chemistryselect (2020), 5, 9, 2701-2709 (IF 2.109)
- 12) Anirban Das, Nitin Yadav, **Saikumar Manchala**, Manisha Bungla, Ashok Ganguli
Mechanistic Investigations of Growth of Anisotropic Nanostructures in Reverse Micelle
ACS Omega (2021), 6, 1007-1029 (IF 3.512)
- 13) **Saikumar Manchala**, Kaushik Pal, Vishnu Shanker
A facile soft-template synthetic approach of surface integrated nitrogen-rich carbon nanospheres for light weight supercapacitors
Journal of Molecular Structure (2021), 1229, 129788 (IF 3.196)
- 14) Ambedkar Gandamalla, **Saikumar Manchala**, Vishnu Shanker
Facile Fabrication of Novel SrMoO₄/g-C₃N₄ Hybrid Composite for High-Performance Photocatalytic Degradation of Dye Pollutant under Sunlight
Chemistryselect (2021), 6, 30, 7711-7721 (IF 2.109)
- 15) Ashok K. Ganguli, Anirban Das, **Saikumar Manchala**, Shalini Tiwari
Design of nanostructured materials for photocatalysis and photoelectrochemical applications
Journal of Molecular Structure (2020), 97, 12a, 1-8 (IF 0.284)
- 16) **Saikumar Manchala**, Ambedkar Gandamalla, Bharath Nishitala, Vishnu Shanker
SDS-assisted synthesis of polygonal CeO₂ nanostructures and their application in eco-friendly synthesis of spirooxindolopyrans and xanthenes.
(To be communicated)

- 17) **Saikumar Manchala**, Deshetti Jampaiah, V. S. R. K. Tandava, Lakshmana Reddy Nagappagari, Shankar Muthukonda Venkatakrishnan, Suresh K Bhargava, Vishnu Shanker
Solar-light responsive Graphene-based $\text{CaIn}_2\text{S}_4/\text{g-C}_3\text{N}_4$ ternary Nanojunction with enhanced Photocatalytic water reduction.
(*Manuscript under preparation*)
- 18) **Saikumar Manchala**, Ambedkar Gandamalla, Ramaiah Konakanchi
CTAB-assisted synthesis of polygonal CeO_2 nanostructures and their application in eco-friendly synthesis of spirooxindolopyrans and xanthenes.
(*To be communicated*)

❖ INTERNATIONAL CONFERENCE PROCEEDINGS

1. Synthesis and Characterization of $\text{g-C}_3\text{N}_4\text{-NiCo}_2\text{O}_4$ organic-inorganic hybrid nanocomposite, International Conference on Materials for the Millennium (MATCON 2016), Cochin University of Science and Technology, Cochin, India, 14th–16th January, 2016 (Proceeding ISBN: 978-93-80095-738).

❖ BOOK CHAPTERS

- 1 “Biocatalytic nanomaterials as an alternative to peroxidase enzymes”. (Invited)
Jaison Jeevanandam, Puja Patel, Kumar Ponnuchamy, **Saikumar Manchala**, and Michael K. Danquah
(Accepted) (Publisher: Elsevier)
- 2 “Wastewater treatment by photocatalytic biosynthesized nanoparticles”. (Invited)
Jaison Jeevanandam, **Saikumar Manchala**, and Michael K. Danquah
DOI: 10.1007/978-3-030-11155-7_137-1 ISBN: 978-3-030-11155-7 (Publisher: Springer)
- 3 “Spectroscopic and microscopic response of Graphene/CNTs based nanomaterials”. (Invited)
Saikumar Manchala, Jaison Jeevanandam, and Michael K. Danquah
ISBN: 978-981-4877-69-5 (Hardcover), 978-1-003-16033-5 (e-Book) (Publisher: Taylor & Francis)
- 4 "Plasmonic photocatalysis: an extraordinary way to harvest visible-light". (Invited)
Saikumar Manchala, Vijaykumar Elayappan, Hai-Gun Lee, and Vishnu Shanker
DOI: 10.1016/B978-0-12-820532-7.00015-1 ISBN: 978-0-12-820532-7 (Publisher: Elsevier)
- 5 "Biogenic synthesis approaches of carbon nanomaterials". (Invited)
Saikumar Manchala, Sunil kumar Venishetty, Ramakrishna Dadigala, and Stalin Dhas T
(Under preparation) (Publisher: Elsevier)
- 6 "Nanomaterials for the rapid diagnosis of SARS-CoV-2 virus". (Invited)
Puja Patel, Jaison Jeevanandam, Kumar Ponnuchamy, **Saikumar Manchala**, and Michael K. Danquah
(Accepted) (Publisher: Elsevier)
- 7 "Two dimensional metal oxide nanomaterials for electrochemical reduction of CO_2 ". (Invited)
Saikumar Manchala and Anirban Das
(Under communication) (Publisher: RSC)
- 8 “Carbon-based Photocatalytic Nanomaterials for Clean Fuel Production”
Saikumar Manchala and Jaison Jeevanandam
(Accepted) (Publisher: CRC Press)
- 9 “Layered double hydroxides: An overview of structure-property correlations, synthesis methodologies and environmental applications”
Saikumar Manchala and Naveenkumar Veldurthi
(Accepted) (Publisher: Elsevier)

❖ REFERENCES

1. Dr. Vishnu Shanker (PhD-Research Supervisor)

Associate Professor

Head of the Department

<https://www.nitw.ac.in/faculty/id/16382><https://scholar.google.co.in/citations?user=3Nxi8AwAAAAJ&hl=en>**Department of Chemistry****Affiliated Faculty:** Centre for Advanced Materials

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E-mail: vishnu@nitw.ac.invishnu.shanker@gmail.com**2. Prof. A. K. Ganguli** (Postdoc-Supervisor)

(FASc, FNASc, FRSC)

Founding Director (Institute of Nano Science & Technology-Mohali)**Deputy Director (Strategy & Planning-IITD)****Institute Chair Professor**<http://chemistry.iitd.ac.in/faculty/ganguli.html><https://scholar.google.co.in/citations?user=rvYEIw4AAAAJ&hl=en>**Department of Chemistry**

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E-mail: ashok@chemistry.iitd.ac.in;ashokganguliitd@gmail.com**3. Prof. Suresh K Bhargava** (Collaborator and Advisor)**Distinguished Professor and KIA Laureate****Associate Pro Vice-Chancellor (India, College of Science, Engineering and Health)****Director (Centre for Advanced Materials and Industrial Chemistry)**<https://www.rmit.edu.au/contact/staff-contacts/academic-staff/b/bhargavadistinguished-professor-suresh><https://scholar.google.com.au/citations?user=nd30614AAAAJ&hl=en&oi=ao>

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