BRIEF PROFILE

Dr. Sadanandam Gullapelli
Assistant Professor
Department of Chemistry, Indira Gandhi National Tribal University
Amarkantak, Madhya Pradesh, India - 484887
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Websites: https://igntu.ac.in/departments/Chemistry
https://sgpcatalysislab.wixsite.com/cer-lab

RESEARCH INTEREST

Heterogeneous Catalysis, Materials Science, Renewable Fuel Production, Biomass Conversion, H_2 Fuel Technologies, CO_2 Conversion, Soot oxidation, Photocatalysis and Catalyst Synthesis for Energy and Environmental Applications.

TEACHING INTEREST

Inorganic Chemistry, Coordination Chemistry, Organometallic Chemistry, Transition and Inner Transition Metal Chemistry, Analytical Chemistry, Nanomaterials and Nanotechnology and Catalysis.

CURRENT POSITION

2024 (Jan.)-Present: Assistant Professor, Department of Chemistry, Indira Gandhi National Tribal University, Amarkantak, and Madhya Pradesh, India.

ACADEMIC BACKGROUND AND PROFESSIONAL EXPERIENCE

2022 - 2023: Post-Doctoral Fellow, Faculty of Engineering & Applied Science, University of Regina, Regina, SK, Canada.

2017 - 2019: Post-Doctoral Fellow, School of Material Science & Engineering, Hubei University, Wuhan, China.

2015 - 2017: Post-Doctoral Fellow, Department of Chemical Engineering, University of South Africa, Johannesburg, South Africa.

2015: Ph. D (Chemistry): CSIR-Indian Institute of Chemical Technology (CSIR-IICT)/Kakatiya University, Telangana, India.

M. Sc. (Inorganic Chemistry), Osmania University, Hyderabad, Telangana, India.

B. Sc. (Maths, Physics and Chemistry), Kakatiya University, Warangal, Telangana, India.

TEACHING EXPERIENCE

2006-2007: Lecturer, Government Junior College, Mahadevpur, Karimnagar, Telangana, India.

MEMBERSHIP OF PROFESSIONAL BODIES (NATIONAL/INTERNATIONAL)

1. American Chemical Society (ACS, 31024166)
2. Asian Polymer Association (APA)
3. Catalysis Society of India (CSI)
4. Indian Photobiology Society (IPS)
5. Catalysis Society of South Africa (CATSA)
6. Academic Member in Water Institute of South Africa (WISA)
7. Fellow Member in International Institute of Organized Research (I2OR)

SCIENTIFIC VOLUNTEER EXPERIENCE

GUEST EDITOR:

1. Guest Editor, International Journal of Hydrogen Energy, Elsevier (Prof. UR Babu Honour Issue, 2017).
2. Guest Editor, Material Science for Energy Technologies, Elsevier (Special Issue on "Nanomaterials and Renewable Sources for Energy Technologies", 2018-2019).
3. Guest Editor, Material Science for Energy Technologies, Elsevier (Special Issue on "Applications of functional materials for sustainable energy"- 2022).

REGULAR REVIEWER in Elsevier, ACS, RSC, Springer, Wiley and Taylor & Francis Publisher Journals:

International Journal of Hydrogen Energy, ACS Applied Nano Materials, Applied Surface Science, Journal of Environmental Chemical Engineering, RSC Advances, Materials Chemistry and Physics, Biomass Conversion and Biorefinery, Biofuels, Catalysis Communications, Journal of Materials Science: Materials in Electronics, Emergent Materials.

PUBLICATION CITATION INDEX & WEBSITE LINKS

Citations: 1544, h – index: 18, i10 – index: 18
https://scholar.google.co.in/citations?user=e0eS-kgAAAAJ&hl=en
https://www.scopus.com/authid/detail.uri?authorId=35339991400
https://www.webofscience.com/wos/author/record/110502

PUBLICATIONS (* Corresponding author)

1. T. Seadira, T. Nelushi, **G. Sadanandam**, M. Scurrell, Photocatalytic hydrogen production from butanol reforming using Ag_2O/TiO_2 composite catalysts: Effects of AgxO and TiO_2 precursors on the activity of the composite catalysts, **Applied Catalysis O: Open 2024, 190, 206927 IF = 3.4**

2. G. Raveendra, **G. Sadanandam**, M. Harisekhar, N. Lingaiah, B. Rajender. K. Hariprasadreddy, P. Vijayanand. Biomass-derived carbohydrates to 5-Ethoxymethylfurfural. **Waste and Biomass Valorization 2024, 15, 4557–4581 IF = 3.4**

3. A. Akande, M. Mohamedali, **G. Sadanandam**, O. B. Ayodele, R. Idem, H. Ibrahim**.** Catalytic Hydrothermal Liquefaction of Camelina Sativa Residues for Renewable Biogasoline Production. **International Journal of Green Energy 2024, 21, 1-16 IF = 3.2**

4. O. Ogundowo, **G. Sadanandam**, H. Ibrahim. Furfural from Flax Straw using Sulfonated Carbonaceous Acid Catalyst: Parametric and Kinetic Studies. **Reaction Kinetics, Mechanisms and Catalysis 2023, 136, 2535–2554. IF = 1.8**

5. G. Kumaraswamy, **G. Sadanandam***, K. Ledwaba, R. Maroju, An efficient photocatalytic synthesis of benzimidazole over cobalt-loaded TiO_2 catalysts under solar light irradiation. **Journal of Photochemistry and Photobiology A: Chemistry 2022, 429, 113888. IF = 4.7**

6. K. Gullapelli, M. Ravichandar, B. Srinivas, D. Gouthami, **G. Sadanandam**, Design and synthesis of novel benzimidazoles containing 1,2,3-triazolesas in vitro, anticancer and anti-oxidant agents. **Research Journal of Chemistry and Environment 2021, 25 (11), 104-109.**

7. Praveen Kumar M, Narasimha S.T, **Sadanandam G**, Mohan K, G. Srinivas, V. Namratha, One-pot Two Step Synthesis of Fused Thiazinofuranone Linked Geminal bis 1, 2, 3-Triazole Hybrids and Their in vitro cytotoxic Screening. **Journal of Heterocyclic Chemistry 2021, 56 (6), 1379-1387. IF = 2.035**

8. **G. Sadanandam,** X. Luo, XX Chen, Y. Bao, K.P. Homewwod, Y. Gao. Cu oxide quantum dots loaded TiO_2 nanosheet photocatalyst for highly efficient and robust hydrogen generation. **Applied Surface Science 2021, 541, 148687. IF = 6.9**

9. **G. Sadanandam,** L. Zhang, M. S. Scurrell, Enhanced Photocatalytic hydrogen production over Fe-loaded TiO_2 and g-C_3N_4 composites from glycerol-water mixtures under solar light irradiation. **Journal of Renewable and Sustainable Energy 2018, 10 (3), 034703(1-13). IF = 2.219**

10. P. Venkataswamy, CH.S. Reddy, R. Gundeboina, **G. Sadanandam**, N.K. Veldurthi and M. Vithal. Nanostructured $KTaTeO_6$ and Ag-doped $KTaTeO_6$ defect pyrochlores: Promising photocatalysts for dye degradation and water splitting. **Electronic Material Letters 2018, 14 (4), 446-460. IF = 3.151**

11. T. Seadira, **G. Sadanandam**, T. Ntho, C. M. Masuku, M. S. Scurrell, Preparation and Characterization of Metals Supported on Nanostructured TiO_2 Hollow Spheres for Production of Hydrogen via Photocatalytic Reforming of Glycerol, **Applied Catalysis B: Environmental 2018, 222, 133-145. IF = 21.1**
12. **G. Sadanandam***, M. S. Scurrell, V. Durga Kumari, Photocatalytic hydrogen production activity over Ni/Al_2O_3 and TiO_2 composites from glycerol: water mixtures under solar light irradiation, **International Journal of Hydrogen Energy 2017, 42(22), 15031-1504. IF = 8.3**
13. **G. Sadanandam*,** V. Durga Kumari, M.S. Scurrell, Highly stabilized Ag_2O-loaded nano TiO_2 for hydrogen production from glycerol: water mixtures under solar light irradiation. **International Journal of Hydrogen Energy 2017, 42 (2), 807-820. IF = 8.3.**
14. T. Seadira, **G. Sadanandam**, T. Ntho, X. Lu, C.M. Masuku, M.S.Scurrell, Hydrogen production from glycerol: Conventional and green production., **Reviews in Chemical Engineering 2017, 34 (5), 695-726. IF = 8.742**
15. L. Zhang, **G. Sadanandam,** X. Liu, M.S. Scurrell, Carbon Surface Modifications by Plasma for Catalyst Support and Electrode Materials Applications. **Topics in Catalysis 2017, 60 (12-14), 823-830. IF = 2.781**
16. **G. Sadanandam**, K. Ramya, D. B. Kishore, V. Durgakumari, M. Subrahmanyam, K.V.R. Chary, A study to initiate development of sustainable Ni/γ-Al2O3 catalyst for hydrogen production from steam reforming of bio-mass derived glycerol. **RSC Advances 2014, 4 (61), 32429-32437. IF = 4.6**
17. J. Krishna Reddy, K. Lalitha, P.V. Laxma Reddy, **G. Sadanandam**, M. Subrahmanyam, V. Durga Kumari, Fe/TiO_2: A Visible Light Active Photocatalyst for the Continuous Production of Hydrogen from Water Splitting Under Solar Irradiation. **Catalyis Letters 2014, 144 (2), 340-346. IF = 2.936**
18. **G. Sadanandam**, K. Lalitha, V. Durga Kumari, M.V. Shankar, M. Subrahmanyam, Cobalt doped TiO_2: A stable and efficient photocatalyst for continuous hydrogen production from glycerol: water mixtures under solar light irradiation. **International Journal of Hydrogen Energy 2013, 38 (23), 9655–9664. IF = 8.3**
19. D. Praveen Kumar, M.V. Shankar, M.M. Kumari, **G. Sadanandam**, B. Srinivas, V. Durgakumari, Nano-size effects on CuO/TiO_2 catalysts for highly efficient H_2 production under solar light irradiation. **Chemical Communications 2013, 49 (82), 9443-9445. IF = 6.065**
20. **G. Sadanandam**, N. Sreelatha, M.V.P. Sharma, S. Kishta Reddy, B.Srinivas, K.Venkateswarlu, T. Krishnudu, M. Subrahmanyam,V. Durga Kumari. Steam reforming of glycerol for hydrogen production over Ni/SiO_2 catalyst. **ISRN Chemical Engineering 2012, 2012, 1-10. IF = 1.01**
21. B. Srinivas, V. Durga Kumari, **G. Sadanandam**, Ch. Hymavathi, M. Subrahmanyam, B. RanjanDe, Photocatalytic Synthesis of Urea from in situ Generated Ammonia and Carbon Dioxide. **Photochemistry and Photobiology 2012, 88 (2), 233-241. IF = 3.521**
22. M. Crisan, M. Zaharescu, V. Durga Kumari, M. Subrahmanyam, D. Crisan, N. Dragan, M. Raileanu, M. Jitianu, A. Rusu, **G. Sadanandam**, J. Krishna Reddy, Sol–gel based alumina powders with catalytic applications. **Applied Surface Science 2011, 258 (1), 448- 455. IF = 7.392**
23. K. Lalitha, **G. Sadanandam**, V. Durga Kumari, M. Subrahmanyam, B. Sreedhar, N.Y. Hebalkar, Highly Stabilized and Finely Dispersed Cu_2O/TiO_2: A Promising Visible Sensitive Photocatalyst for Continuous Production of Hydrogen from Glycerol:Water Mixtures. **Journal of Physical Chemistry C 2010, 114 (50), 22181-22189. IF = 4.177**
24. M.V.P. Sharma, **G. Sadanandam**, A. Ratnamala, V. Durga Kumari, M. Subrahmanyam, An efficient and novel porous nanosilica supported TiO_2 photocatalyst for pesticide degradation using solar light.. **Journal of Hazardous Materials 2009, 171 (1-3), 626- 633. IF = 11.3**

PATENTS

1. **US Patent, Patent No: US 9776162B2, Pub Date: Oct. 03, 2017**
   $CuO-TiO_2$ NANOCOMPOSITE PHOTOCATALYST FOR HYDROGEN PRODUCTION, PROCESS FOR THE PREPARATION THERE OF
   V. Durgakumari, M. Subhramanyam, B. Srinivas, **G. Sadanandam**, M.V. Shankar, B. Syamasundar, M. Mamatha Kumari, D. Praveen Kumar.
2. **India Patent, Grant Number: 302246 Grant Date: Oct. 16, 2018, Publication No. IN2080/DEL/2014.**
   V. Durgakumari, M. Subhramanyam, B. Srinivas, **G. Sadanandam**, M.V. Shankar, B. Syamasundar, M. Mamatha Kumari, D. Praveen Kumar.

BOOK CHAPTER

1. **Electrochemical capacitors: Theory, Materials and Applications, Materials Research Forum (MRF) 2018. Chapter.4,** Ultrasonic Assisted Synthesis of 2D-Functionalized Grapheneoxide@PEDOT Composite Thin Films and its Application in Electrochemical Capacitors.
   P. Ramyakrishna, B. Rajender, **G. Sadanandam**, P. Srinivas, Inamuddin

ACTIVITIES IN NATIONAL, INTERNATIONAL CONFERENCES AND WORKSHOP

1. Presented a paper on "Highly efficient Ni-Al_2O_3 and TiO_2 composite catalysts for photocatalytic degradation of Rhodamine B dye under solar light irradiation" in 2nd International Conference on "Advances in Energy and Environment for Sustainable Development (AEESD-2025), held on March 28-29, 2025 organised by Organized by Department of Chemistry, ITER, Siksha 'O' Anusandhan (Deemed to be University), Odisha, Doon University, Uttarakhand, and CSIR-IMMT, Bhubaneswar, Odisha, India.
2. Invited talk on "Development of heterogeneous photocatalysts for H_2 production: A strategic approach to enhance the catalytic activity" in International Conference on Polymers and Nanomaterials (ICPN-2025) held on March 21-23, 2025 at International and Inter University Center for Nanoscience and Nanotechnology (IIUCNN) and School of Energy Materials (SEM), Mahatma Gandhi University, Kottayam, Kerala, India.
3. Acted as a Technical Session Chair in the International Conference on Polymers and Nanomaterials (ICPN-2025) held on March 21-23, 2025 at International and Inter University Center for Nanoscience and Nanotechnology (IIUCNN) and School of Energy Materials, Mahatma Gandhi University (MGU), Kottayam, Kerala, India, held on March 21-23, 2025.
4. Presented a paper on "Design and development of highly stabilized nanostructure photocatalysts for H2 production: A structure-activity correlation" in Two day's National Conference On "Photobiology Research towards Achieving Sustainable Development" held on March 1-2, 2025 organised by Indian Photobiology Society (IPS) and Techno India University, West Bengal.
5. Acted as a Technical Session Chair in the Science Academies' Lecture Workshop on "Recent Advancement in the Development of Application for Specific Materials" held on 6-7 March, 2025 at Department of Chemistry, Indira Gandhi National Tribal University (IGNTU), Amarkantak, and Madhya Pradesh, India.
6. Acted as a Co-Coordinator in the Science Academies' Lecture Workshop on "Recent Advancement in the Development of Application for Specific Materials" held on 6-7 March, 2025 at Department of Chemistry, Indira Gandhi National Tribal University (IGNTU), Amarkantak, and Madhya Pradesh, India.
7. Acted as a Secretary in the National Level Scholar Conclave on "Recent Trends in Materials Chemistry" organised by Department of Chemistry, Indira Gandhi National Tribal University (IGNTU), Amarkantak, and Madhya Pradesh, India, In Collaboration with IQAC, IGNTU.
8. Invited Talk on "Synthesis and Characterization of Nanomaterial's for Energy and Environmental Applications" DST-SERB sponsored research facility training (Workshop) program on Fuel Cells and Electrochemical Techniques, Department of Chemistry, Faculty of Science, Indira Gandhi National Tribal University, Amarkantak, Madhya Pradesh, held on March 14, 2024.
9. Acted as a Co-Treasurer in local organizing committee of "National Conference on Emerging Smart Materials in Chemical Sciences (ESMCS-2024)". Organized by Department of Chemistry, Guru Ghasidas Vishwavidyalaya (GGV), Bilaspur and Department of Chemistry, Indira Gandhi National Tribal University (IGNTU), Amarkantak, held at Department of Chemistry, (GGV), Bilaspur on March 20-21, 2024.
10. Williston Basin Petroleum Conference, Saskatchewan CCUS Summit, May 2-3, 2023, Regina, SK, Canada, 'Hydrothermal liquefaction of lignocellulose-based synthetic biomass for renewable fuel production using Ni/Al2O3 synthesized catalysts'.
11. Acted as a Technical Session Chair in the International Conference on Emerging Materials for Technological Applications (ICEMTA – 2022) held on November 23-25, 2022 at Vignan's Institute of Information Technology (VIIT), Visakhapatnam, India and Association with Mahatma Gandhi University-Kerala and Government Science college-Karnataka.
12. International e-Conference on Materials Processing & Characterization (ICMP&C-2020)" on 18th& 19th September, 2020, Department of Physics, Chaitanya Bharathi Institute of Techonology (Autonomous), Gandipet, Hyderabad- 500 075, India.
    Photocatalytic H_2 Production from Glycerol-Water Mixtures over Fe and Ag-loaded TiO_2 Composite Systems

G. Sadanandam*, Mike S. Scurrell and K. Gullapelli
ISBN: 978-81-946476-9-0, Published: October, 2020, Published by Vandana Publications.

13. National Seminar on Recent Trends Challenges in Chemical Sciences (RTCCS) on 24th & 25th March, 2017, Department of Chemistry, Kakatiya University, Waranagal, Telangana State, India. 'Photocatalytic H_2 production from glycerol-water mixtures over silver-loaded TiO_2 and g-C_3N_4 composite systems'
14. UGC sponsored National seminar on Recent Advances in Chemistry (RAC), 30-31st, March 2015, Department of Chemistry, Kakatiya University, Waranagal, Telangana State, India. "Photocatalytic hydrogen production from biomass derived glycerol over silver doped nano TiO_2 catalyst"
15. International conference on Nano Science and Technology (6th ICONSAT-2014), 2-5th March 2014, Institute of Nano Science & Technology (INST), Mohali, Punjab, India. "Photocatalytic hydrogen production from biomass derived glycerol over Silver doped nano TiO_2 catalyst"
16. A National seminar on Hydrogen Energy and Advanced Materials (HEAM Scientist-2013) December 12-13th, 2013, University of Kerala, Trivandrum, Kerala. "Ni/γ-Al_2O_3 as a sustainable catalyst for hydrogen production from steam reforming of bio-mass derived glycerol"
17. 21st National Symposium on Catalysis (CATSYMP-21), "Catalysis for Sustainable Development" 12-14th, February 2013, Indian Institute of Chemical Technology, Hyderabad, India. "Photocatalytic hydrogen production from glycerol water mixtures over cobalt doped TiO_2 catalyst"
18. National work shop on development of novel materials for hydrogen production and photo catalysis (DNHP-2010) 26-27th March 2010, Institute of Minerals and materials Technology, Bhubaneshwar, India. "Photocatalytic reforming of biodiesel by-product to make renewable hydrogen"
19. CSIR Sponsored National Conference on Recent Advances in Chemical Research (NCRACR-2009) February 6-7th 2009, Department of Chemistry, Osmania University, Hyderabad. "Photocatalytic hydrogen production over TiO_2- based photocatalysts"
20. 19th National symposium on Catalysis for sustainable energy and chemicals 18-21th, January 2009, National Chemical Laboratory, Pune, India. "Photocatalytic degradation of pesticides using solar light over TiO_2 supported on a novel porous silica rods".

HONORS AND AWARDS AND FELLOWSHIPS

- ✓ **Obtained Distinction** in B. Sc. From Kakatiya University
- ✓ **Awarded CSIR-SRF (Senior Research Fellowship)** awarded from Council of Scientific and Industrial Research (CSIR), Govt. of India for doctoral research.
- ✓ **Best poster award (2023) in** Williston Basin Petroleum Conference, Saskatchewan CCUS Summit, Regina, SK, Canada.
- ✓ **IRSD Exemplary Young Scientist Award (2025)** which has been awarded during the during the 15th International Conference on Interdisciplinary Research for Sustainable Development 2025 (IRSD 2025) organized by Green ThinkerZ, India & International Institute of organized Research (I2OR), India
- ✓ **Postdoctoral Research Fellow (2022-2023), University of Regina, Regina, Saskatchewan, Canada.**
- ✓ Research Area: Hydrothermal liquefaction of high-moisture pulp and paper milling residues for renewable bio-crude production
- ✓ **Postdoctoral Research Fellow (2017 - 2019), Hubei University, Wuhan, China.**
  Research Area: Development of semiconductor based nano-composites for photo catalytic applications.
- ✓ **Postdoctoral Research Fellow (2015 - 2017), University of South Africa, Johannesburg, South Africa.**
  Research Area: Synthesis of various heterogeneous catalysts for H_2 production from water splitting, photo degradation of organic dyes, and fuels from CO_2 and biomass.
- ✓ **Project Fellow (**2008 - 2012), CSIR-Indian Institute of Chemical Technology, Telangana, India.
  Research Area: Developed catalysts for Hydrogen production from biomass derived glycerol Steam Reforming.