

Dr. Sarat Kumar Swain, FRSC

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- ❑ **Date of Joining as Professor** : 16th September 2011
- ❑ **Thesis Supervised (Completed):** Ph.D.: 19 M.Tech.: 04 M.Phil.: 14 M.Sc.: 48
- ❑ **Research Credentials** : **Journals:**144 **Patents:** 02 **Books Authored/Edited:** 07
 Book Chapters: 50 **Chapters in Encyclopedia:** 03
 Popular Scientific Reports: 05 **Monograph:** 01
 Conferences: 80 **h-Index (Scopus):**36
 i10-Index: 112 **Average Impact Factor of Journals:** 5.18
 Citations: >4000 **Research Projects Handled:** 04
- ❑ **Awards/Fellowship:**
 - **Fellow of Royal Society of Chemistry (FRSC)**, London UK
 - **Samanta Chandrasekhar Award-2015:** Odisha Bigyan Academy, DST, Govt. of Odisha
 - **INSA S R Fellowship (2013):** Indian National Science Academy, Govt. of India
 - **DAE Young Scientist Research Award (2008):** BRNS-DAE, Govt. of India
 - **JNCASR Visiting Fellowship (2007):** JNCASR, Bengaluru, Govt. of India
 - **BOYSCAST Post-Doc Fellowship (2004):** DST, Govt. of India
 - **Prof. R. K. Nanda Award (1994):** P G Seminar, Ravenshaw College, Cuttack, Odisha
 - **Best Science Project Award (1992):** S. V. M. College, Jagatsingpur, Odisha
- ❑ **Professional Experience:** **Teaching:** 27 years, **Post Ph.D. Experience:** 24 years
- ❑ **Research Collaborations:**
 - **Academic:** Prof. Mohammad Jawaid, Laboratory of Biocomposite Technology, Institute of Tropical Forestry and Forest Products (INTROP), University of Putra, Malaysia.
 - **Industry:** M/s. Liveco Materials LLP, 103/104, 1st Floor, Orbit Plaza, Mumbai, India
- ❑ **Administrative Experiences:**
 - Director (IQAC), VSSUT, May 2024 to till date
 - Dean (Academic Affairs), VSSUT, May 2019 to Mar 2021 & Nov 2014 to Jan 2016 (3 Years)
 - Dean (PGS&R), VSSUT, Mar 2016 to May 2017 & Nov 2014 to Jul 2015 (3 Years)
 - Head of the Department, Chemistry, VSSUT, Sept 2011 to Sept 2014 (3 Years)
 - Prof-in-charge Central Library, VSSUT, Burla, Sept 2013 to Apr 2016 (2.5 Years)
 - Chairman, Estate Committee, VSSUT, Dec 2012 to Mar 2015 (2 years)
 - First Appellant Authority, RTI Act 2005, VSSUT, Sept 2011 to Sept 2013 (2 years)
 - Deputy Registrar, Registrar (I/C), North Orissa University, Aug 2009 to Sept 2011 (2 years)
 - HoD, Chemistry, NOU, Sept 2004 to Mar 2005 & Jun 2010 to Sept 2011(2 years)
 - Programme Coordinator, NSS, NSS Bureau, NOU, Feb 2008 to Sept 2011 (3 years)
 - Secretary, Sports Council, NOU, Jul 2006- Jul 2008 (2 years)
- ❑ **Conferences/Workshop Organized (As Secretary/Convenor):** **Conference:** 06 **Workshop:** 02

□ **Research Interest:**

- Synthesis, characterization and evaluation of properties of Polymeric/nonpolymeric Nanocomposites for different applications: Designing of films for packaging applications; Hydrogels for drugs delivery and wound healing applications; Organic-Inorganic hybrid materials for dye removal; Sensing of glucose, heavy metal ions, amino acids etc.

□ **Post-Doctoral Research Fellowship:**

- **Post-Doctoral Fellow** at the Department of Polymer Engineering, **The University of Akron**, Akron, Ohio, **USA**, associated with *Prof. A. I. Isayev* through BOYSCAST Fellowship from Department of Sci. & Techn., Government of India.
- **Post-Doctoral Fellow** at Jawaharlal Nehru Centre for Advance and Scientific Research (JNCASR), Govt. of India, Bangalore, associated with *Prof C. N. R. Rao* through JNCASR Fellowship
- **INSA S R Fellow** at Indian Association for Cultivation of Science, Govt. of India, Jadavpur, Kolkata, associated with *Prof S. Ghosh*.

□ **Research Projects Handled:**

- Synthesis of polymer/clay nanocomposites by emulsifier-free emulsion technique: superabsorbency and biodegradable study, **DST-SERC, Govt. of India**, Ref: SR/FTP/CS-130/2006, 2008-2011.
- Synthesis and characterization of polymer/CNT nanocomposites by chemically functionalized carbon nanotubes, **DAE-BRNS, Govt. of India**, Ref: 2008/20/37/BRNS/1936, 2009-2012.
- Sonochemical investigation of some pharmaceutical active biopolymers and proteins for biomedical application, **DST, Govt. of Odisha**, Ref: ST-Bio-15/2014, 2014-2017.
- Preparation and characterization of graphene nanocomposites by reinforcement of transition metal based quantum dots, **CSIR, Govt. of India**, Ref: 01(2836)/15/EMR-II, 2015-2018.

□ **Academic and Professional Trainings Completed: (Total Period: ~35 weeks)**

- NPTEL-AICTE Faculty Development Programme on the topic **Pericyclic Reactions and Organic Photochemistry** from February 1st 2022 to April 30th 2022.(MOOCs) [8 weeks]
- NPTEL-SWAYAM Online Refresher Courses in “**Chemistry for Higher Education**” by SGTB Khaisa College, University of Delhi, From December 1st 2020 to March 31st 2021.[16 weeks]
- **Train the Trainers on Examination Reforms** at KLE Technological University, Hubballi, Karnataka, January 20-22, 2020.[3 days]
- **Professional Development Training** programme at IIM Tiruchy, February 19-23, 2018. [1 week]
- **Faculty Development Training** programme at IIM Raipur, October 12-16, 2015. [1 week]
- **Summer Training School on Nanotechnology: Processing and Application** at IIT Kharagpur, September 14-19, 2009.[1 week]
- **DST Advance School on Nanoscience and Nanobiology** at Indian Institute of Science, Bangalore, Feb. 5-16, 2007, Selected by Department of Science & Technology(DST), Govt. of India.[2 weeks]
- “**Green Chemistry**” at IIT Guwahati, Sponsored by Department of Science & Technology, New Delhi, February 25-26, 2005.[2 days]
- DST-Nano school (Nanotechnology) in the subject of “**Preparation, Characterization and Manipulation of Nanomaterials**” at IISc Bangalore, February 9-21, 2003.[2 weeks]
- U.G.C sponsored refresher course in the subject “**Recent Trend in Chemistry**” at Utkal University, Bhubaneswar, March 06-26, 2002.[3 weeks]

❑ **Editorial board of journals**

- Polymer-Plastic Technology and materials (*Tylor Francis*)
- American Journal of Polymer Science and Technology (*Science Publishing Group*)
- Guest Editor of Gel (MDPI)

❑ **Foreign Countries Visited in Academic assignments:**

- Department of Polymer Engineering, University of Akron, Ohio, USA,
- Institute of Materials, Malaysia, Subang Jaya, Selangor, Malaysia,
- University of Putra Malaysia, Kuala Lumpur, Malaysia,
- 3rd International Conference and Exhibition on Materials Science and Engineering, San Antonio, USA,
- 5th International conference on Nanomaterials, Bangkok, Thailand,
- University of Putra, Malaysia,

❑ **Educational Degrees:**

- **Ph.D. (Chemistry)** in the field of Polymer Chemistry from Utkal University, Bhubaneswar, Odisha, India. **Thesis Title:** Emulsifier-Free Emulsion Polymerization Involving Metal Salts and Complex Initiating Systems and Study on Solution Properties of Polymers.
- **M.Phil. (Chemistry)** with Organic Chemistry as major elective from Utkal University, Bhubaneswar, Odisha, India, passed with 1st Division. **Thesis title:** Oxa and tha Diels-Aldol reactions: A Review.
- **M.Sc. (Chemistry)** with Organic Chemistry specialization from Utkal University, Bhubaneswar, Odisha, India, passed with 1st Division.
- **B.Sc. (Chemistry Honours)** with Physics & Mathematics as minor subjects from Utkal University, Bhubaneswar, India, passed with 1st Division & Distinction.

❑ **Details of Employments:**

University / Organization	Designation & Pay	From	To	Total Period	Nature of Experience
Veer Surendra Sai University of Technology, Burla, Sambalpur (Govt. of Odisha)	Professor of Chemistry	September, 2011	Continuing	~13 years	Teaching & Research (MSc/MPhil/M Tech/PhD)
North Orissa University, Baripada (Govt. of Odisha)	Reader & Assoc. Prof. in Chemistry	August, 2004	September, 2011	~7 years	Teaching & Research (MSc/MPhil/PhD)
ICFAI University, Hyderabad (Private University)	Faculty of Chemistry (Assoc. Prof.)	July, 2003	August, 2004	1 year	Teaching & Research (B.Tech)
KIIT University, Bhubaneswar (Deemed University)	Lecturer, & Promoted to Assoc. Prof. of Chemistry	October, 1995	July, 2003	~ 8 years	Teaching & Research (B.Tech)

LIST OF RESEARCH CONTRIBUTIONS

PATENTS

1. Avraam I Isayev, **Sarat K Swain** and Sergey Lapshine “*Process Preparing Polymer Nanocomposites and Nanocomposites Prepared Therefrom*” Publication No.: **US 2010/0152325 A1**, Date of Final Grant: **June 17, 2010**.
2. **Sarat K Swain**, SkBasirudin and Kalyani Prusty “Design of Thermally Responsive Reversible Hydrophobic Gels” Indian Patent Publication No.: **201631021775 A**, Publication Date: **December 29, 2017**. Date of final Grant: **October 06, 2021**

RESEARCH PAPERS IN JOURNALS

(Impact Factor/2023; *Corresponding Author)

ORCID® ID: <https://orcid.org/0000-0003-1889-4375>

SCOPUS ID: 7102336172; Web of Science Researcher ID: [G-5788-2019](https://orcid.org/0000-0003-1889-4375)

Google Scholar: <https://scholar.google.co.in/citations?user=puINvP0AAAAJ&hl=en&oi=ao>

PAPERS IN INTERNATIONAL SCI JOURNALS

2024

1. K. M. Sahu, A. Biswal, U Manisha and **S. K. Swain*** “ Synthesis and drug release kinetics of ciprofloxacin from polyacrylamide/dextran/carbon quantum dots (PAM/Dex/CQD) hydrogels” . *International Journal of Biological Macromolecules*, (Elsevier), 269(2), 132132 (2024). (Impact Factor: 8.2) ISSN: 1879-0003. DOI: <https://doi.org/10.1016/j.ijbiomac.2024.132132> (Early view)
2. Sk. Nazrul, A. Biswal, K M Sahu, S S Sana and **S. K. Swain*** " Nano Silver Imprinted Starch-co-Polymethylmethacrylate Sandwiched Layered Double Hydroxide Nanocomposite Films for Packaging Application" *Starch Strake* (Wiley), **00**, 00-00 (2024). (Impact Factor: 2.741) ISSN: **1521-379X**. DOI: [10.1002/star.202300106](https://doi.org/10.1002/star.202300106). (Early view)
3. P K Behera, D Sahu, B R Jali, A K Barick, **S K Swain** and P Mohapatra* “A Simple Method for Synthesizing Nitrogen-Doped Carbon Quantum Dots for Fluorescent “Turn off” Mercury (II) Ion Sensing” *Journal of Fluorescence* (Springer) **00**, 00-00 (2024), (Impact Factor: 2.7), ISBN: 1573-4994. DOI: <https://doi.org/10.1007/s10895-024-03649-1>. (Early view)
4. P K Behera, D Sahu, **S K Swain** and P Mohapatra* “Capsule-shaped nano silver-embedded reduced graphene oxide nanocomposites for sensing of mercury ions” *Applied Nanoscience* (Springer) **14**, 353-361 (2024), (Impact Factor: **1.607**), ISBN: 22996-1729. DOI: <https://doi.org/10.1007/s13204-023-02980-6> .
5. J P Behera, S Patra, S K Najrul, S K surmma, D Kumar, M K Berma, A K Katare and **S K Swain*** “Nano Boron Nitride Laminated Poly(ethyl methacrylate)/Poly(vinyl alcohol) Composite Films Imprinted with Silver Nanoparticles as Gas Barrier and Bacteria Resistant Packaging Materials” *Journal of Applied Polymer Science*, **00**, 00, (Wiley), (2024). (Impact Factor: 3.0) ISSN: 1097-4628. DOI: [10.1002/app.20232930](https://doi.org/10.1002/app.20232930). (Early view)
6. S K Das, D Bharatiya, B Padhi. L Pradhan, B K Jena and **S K Swain*** “Effect of clay on TiO₂ embedded PMMA nanocomposite for high-performance energy storage application” *Journal of Energy Storage*, **82**, 110586 (Elsevier), (2024). (Impact Factor: 9.4) ISSN: 2352-1538. DOI: <https://doi.org/10.1016/j.est.2024.110586>
7. Sk. Nazrul, A. Biswal, L. Behera, and **S. K. Swain*** "Synthesis of sandwiched chitosan-g-PMMA nanocomposite by layered double hydroxides for packaging applications" *Polymer Bulletin* (Springer), **81(1)**, 633-660 (2024). (Impact Factor: 3.2) ISSN: 1436-2449. DOI: [101007/s00289-023-04732-6](https://doi.org/10.1007/s00289-023-04732-6).

8. B. Patra, A Biswal, S. Swain, L. Behera and **S. K Swain** "Role of Nano SiC in Enhancement of Mechanical, Barrier and Flame-Retardant Properties of PANI-co-PAA Films" *Polymer-Plastic Technology and Materials*, xx, xx-xx (Tylor & Francis), (2024). (Impact Factor: 2.439) ISSN: 2574-089X DOI: <https://doi.org/10.1080/25740881.2023.2297963> . (Early view)
9. S. Patra, K. M. Sahu, A A. Reddy and **S K Swain*** Polymer and Biopolymer Based Nanocomposites for Glucose Sensing, *International Journal of Polymeric Materials and Polymeric Biomaterials* 73(6), 490-521 (Tylor & Francis), (2024). (Impact Factor: 3.221) ISSN: 1563-535X. DOI: [10.1080/00914037.2023.2175824](https://doi.org/10.1080/00914037.2023.2175824).

2023

10. A. Biswal, S. Purohit, J. Pratapsingh, L. Mishra, M. Monalisa, S. B. Biswal, **S. K Swain***, "Synergistic Effect of f-MWCNT and Nano Titania on Wound Healing Efficacy of Chitosan Films in Drosophila and Rat Models" *ACS Applied Nano Materials*(ACS), 6, 24, 23064–23077 (2023) (Impact Factor: 5.9) ISSN: 2574-0970 DOI: <https://doi.org/10.1021/acsnm.3c04413>
11. S. Purohit, A. Biswal, L. Mishra, M. Monalisa, S. B. Biswal, **S. K Swain*** "In vivo Wound Healing in Drosophila Melanogaster and Mouse models: Synergistic Effect of Bovine Serum Albumin and Graphene Quantum Dots" *ACS Appl. Bio Materials* (ACS) 6, 12, 5531–5540 (2023) (Impact Factor: 4.7) ISSN: 2576-6422. DOI: <https://doi.org/10.1021/acsubm.3c00743>.
12. S. K Das, D. Bharatia, B. Parhi, and **S K Swain*** "Influential factors modulating the dielectric behaviour of transition metal oxide nanocomposites for energy storage applications: A-state-of-the-art review" *Journal of Energy Storage*, 73, 108930 (Elsevier), (2023). (Impact Factor: 9.4) ISSN: 2352-1538. DOI: <https://doi.org/10.1016/j.est.2023.108930>.
13. S. Patra, K. M Sahu, J. Mahanty, and **S. K. Swain*** "Ex Vivo Glucose Detection in Human Blood Serums with Carbon Quantum Dot-Doped Oleic Acid-Treated Chitosan Nanocomposites" *ACS Appl. Bio Mater.*(ACS) 6(12), 5730-5745 (2023) (Impact Factor: 4.7) ISSN: 2576-6422 <https://doi.org/10.1021/acsubm.3c00851>
14. P K Behera, D Sahu, **S. K. Swain**, P. Mohapatra "Capsule-shaped nano silver-embedded reduced graphene oxide nanocomposites for sensing of mercury ions" *Applied Nanoscience(Springer)*, 00-00 (2023) (Impact Factor: 3.869) ISSN: 2190-5517 <https://doi.org/10.1007/s13204-023-02980-6>
15. S. Patra, S. Mishra, B. Parhi, H. Mishra, **S. K. Swain*** "Role of transition metal nanocomposites in organic reactions: A state of art as an alternative to conventional catalysts" *Results in Chemistry* (Elsevier), 6 (2023) 101172. (Impact Factor: 2.3) ISSN: 2211-7156 <https://doi.org/10.1016/j.rechem.2023.101172>
16. **S. K. Swain***, Sk. Nazrul, S. K Das, A. Biswal and L. Behera, "Layered Double Hydroxides bundled Agar-g-PAN/Ag Nanocomposite Films: A Strategy to Improve Thermal, Barrier and Antibacterial Properties" *Materials Today Communication*, (Elsevier), 37, 107073 (2023). (Impact Factor: 3.8) ISSN: 2352-4928. DOI: <https://doi.org/10.1016/j.mtcomm.2023.107073> .
17. A Biswal, S S Purohit and **S. K. Swain*** "Chitosan based composite scaffolds in skin wound repair: A review" *Journal of Drug Delivery Science and Technology*, (Elsevier)84, 104549(2023) (Impact Factor: 5.0) ISSN: 1773-2247 DOI: [10.1016/j.jddst.2023.104549](https://doi.org/10.1016/j.jddst.2023.104549)
18. K. M. Sahu, S. Patra and **S. K. Swain*** "Host-Guest Drug Delivery by β -cyclodextrin Assisted Polysaccharide Vehicles: A Review. *International Journal of Biological Macromolecules*, (Elsevier), 240 124338(1-20) (2023). (Impact Factor: 8.2) ISSN: 1879-0003. DOI: [10.1016/j.ijbiomac.2023.124338](https://doi.org/10.1016/j.ijbiomac.2023.124338)
19. D. Bharatia, B. Parhi, and **S K Swain***"Dielectric Study of Nanostructured Ternary Composite Derived from Amalgamated CuO/Ag₂O on Graphene Oxide Sheets. *Journal of Materials Research* (Springer), 00, 00-00 (2023). (Impact Factor: 2.7) ISSN: 2044-5326. [10.1557/s43578-023-01068-9](https://doi.org/10.1557/s43578-023-01068-9)
20. S. Patra, S. S. Purohit and **S. K. Swain*** In vivo fluorescence non-enzymatic glucose sensing technique for diabetes management by CQDs incorporated dextran nanocomposites in human blood serums. *Microchemical Journal*, 109,108646 (1-10) (Elsevier), (2023). (Impact Factor: 4.8) ISSN: 0026-265X. DOI: [10.1016/j.microc.2023.108646](https://doi.org/10.1016/j.microc.2023.108646).

21. D. Bharatia, B. Parhi, H. Sahu and **S K Swain*** Factors influencing the dielectric properties of GO/MO nanocomposites: review, *Journal of Materials Science: Materials in Electronics*, **34(5)**, 452, (Springer), (2023). (Impact Factor: 2.8) ISSN: 0957-4522. DOI: [10.1007/s10854-023-09928-0](https://doi.org/10.1007/s10854-023-09928-0).
22. D. Bharatiya, S. Patra, B. Parhi and **S K Swain*** “A materials science approach towards bioinspired polymeric nanocomposites: a comprehensive review” *International Journal of Polymeric Materials and Polymeric Biomaterials*, **72(2)**, 119-134, (Tylor & Francis), (2023). (Impact Factor: 3.221) ISSN: 0091-4037. DOI: [10.1080/00914037.2021.1990057](https://doi.org/10.1080/00914037.2021.1990057).

2022

23. Sk. Nazrul, L. Behera, R. K. Singh, A. Biswal, **S. K. Swain*** “Combined Effect of Layered Double Hydroxides and Nano silver on Bacterial Inhibition and Gas Barrier Properties of Chitosan Grafted Polyacrylonitrile Nanocomposites” *Polymer-Plastic Technology and Materials*, **61(18)**, 1959-1972, (Tylor & Francis), (2022). (Impact Factor: 2.439) ISSN: 2574-089X DOI: [10.1080/25740881.2022.2086814](https://doi.org/10.1080/25740881.2022.2086814).
24. P. K. Sethy, A. Biswal, P. Mohapatra, and **S K Swain*** “Nano BN reinforced cellulose-based tripolymeric hybrid nanocomposites as packaging materials” *Polymer-Plastic Technology and Materials*, **61(11)**, 1233-1243, (Tylor & Francis), (2022). (Impact Factor: 2.439) ISSN: 2574-089X. DOI: [10.1080/25740881.2022.2044048](https://doi.org/10.1080/25740881.2022.2044048).
25. D. Bharatiya, B. Parhi, and **S K Swain*** “Effect of polycaprolactone on physicochemical, biological, and mechanical properties of polyethylene oxide and polyamino acids nano block copolymers” *Journal of Applied Polymer Science*, **139(19)**, 52116, (Wiley), (2022). (Impact Factor: 3) ISSN: 1097-4628. DOI: [10.1002/app.20213091](https://doi.org/10.1002/app.20213091).

2021

26. K. Prusty, S. Patra and **S. K. Swain*** “Nano ZnO imprinted dextran hybrid poly (N-isopropylacrylamide)/poly ethylene glycol composite hydrogels for in vitro release of ciprofloxacin” *Materials Today Communication*, **26**, 101869-670, (Elsevier), (2021). (Impact Factor: 3.8) ISSN: 0925-8388. DOI: [10.1016/j.mtcomm.2020.101869](https://doi.org/10.1016/j.mtcomm.2020.101869).
27. D. Bharatia, B. Parhi and **S K Swain*** “Preparation, characterization and dielectric properties of GO based ZnO embedded mixed metal oxides ternary nanostructured composites” *Journal of Alloys and Compounds*, **869**, 159274-82, (Elsevier), (2021). (Impact Factor: 6.2) ISSN: 03602559. DOI: doi.org/10.1016/j.jallcom.2021.159274.
28. P. K. Sethi, P. Mohapatra, S. Patra, D. Bharatia and **S. K. Swain*** “Antimicrobial and barrier properties of polyacrylic acid/GO hybrid nanocomposites for packaging application” *Nano-Structures & Nano-Objects*, **26**, 100747, (Elsevier), (2021). (Impact Factor: 5.454) ISSN: 2352-507X. DOI: [org/10.1016/j.nanoso.2021.100747](https://doi.org/10.1016/j.nanoso.2021.100747).
29. A. Biwal, P. Sethy and **S. K. Swain*** “Change in orientation of polyacrylic acid and chitosan networks by imprintment of gold nanoparticles” *Polymer-Plastic Technology and Materials*, **60(2)**, 182-194, (Tylor & Francis), (2021). (Impact Factor: 2.439) ISSN: 03602559. DOI: [10.1080/25740881.2020.1793196](https://doi.org/10.1080/25740881.2020.1793196).
30. K. Prusty and **S. K. Swain*** “Polypropylene oxide/polyethylene oxide-cellulose hybrid nanocomposite hydrogels as drug delivery vehicle” *Journal of Applied Polymer Science*, **138(9)**, 49921-30, (Wiley), (2021). (Impact Factor: 3) ISSN: 1097-4628. DOI: [10.1002/app.20200978](https://doi.org/10.1002/app.20200978).

2020

31. B. Parhi, D. Bharatia and **S. K. Swain*** “Surfactant free green synthesis of GOSiMa hybrid nanocomposite for charge storage application” *Ceramic International*, **46(17)**, 27184-192, (Elsevier), (2020). (Impact Factor: 5.2) ISSN: 0272-8842. DOI: <https://doi.org/10.1016/j.ceramint.2020.07.199>.
32. N. Sarkar, G. Sahoo and **S. K. Swain*** “Graphene quantum dot decorated magnetic graphene oxide filled polyvinyl alcohol hybrid hydrogel for removal of dye pollutants” *Journal of Molecular Liquids*, **302**, 112591-112608, (Elsevier), (2020). (Impact Factor: 6) ISSN: 0167-7322. DOI: [10.1016/j.molliq.2020.112591](https://doi.org/10.1016/j.molliq.2020.112591).
33. N. Sarkar, G. Sahoo and **S. K. Swain*** “Nanoclay sandwiched reduced graphene oxide filled macroporous polyacrylamide-agar hybrid hydrogel as an adsorbent for dye decontamination” *Nano-Structures & Nano-*

Objects, **23**, 100507-100523, (Elsevier), (2020). (Impact Factor:5.454) **ISSN:** 2352-507X. **DOI:** 10.1016/j.nanoso.2020.100507.

34. N. Sarkar, G. Sahoo and **S. K. Swain*** “Reduced graphene oxide decorated superporous polyacrylamide based interpenetrating network hydrogel as dye adsorbent” *Materials Chemistry and Physics*, **250**, 123022-123037,(Elsevier), (2020). (Impact Factor: 4.6) **ISSN:** 0254-0584. **DOI:**10.1016/j.matchemphys.2020.123022.
35. K. Prusty and **S. K. Swain*** “Nano ZrO₂ reinforced cellulose incorporated polyethylmethacrylate/polyvinyl alcohol composite films as semiconducting packaging materials” *Journal of Applied Polymer Science*, **137(42)**, 49284, (Wiley), (2020). (Impact Factor: 3) **ISSN:** 1097-4628. **DOI:**10.1002/app.49284.
36. D. Sahu, P. Mohapatra and **S. K. Swain*** “Highly orange fluorescence emission by water soluble gold nanoclusters for “turn off” sensing of Hg²⁺ ion” *Journal of Photochemistry & Photobiology, A: Chemistry*, **386**, 112098, (Elsevier), (2020). (Impact Factor: 4.3) **ISSN:** 1010-6030. **DOI:** 10.1016/j.jphotochem.2019.112098.
37. D. Sahu, N. Sarkar, P. Mohapatra and **S. K. Swain*** “Rhodamine B associated Ag/r-GO nanocomposites as ultrasensitive fluorescent sensor for Hg²⁺” *Microchemical Journal*, **154**, 104577, (Elsevier), (2020). (Impact Factor: 4.8) **ISSN:** 0026-265X. **DOI:**doi.org/10.1016/j.microc.2019.104577.
38. P. K. Sethi, K. Prusty, P. Mohapatra and **S. K. Swain*** “Nano CaCO₃ embodied poly acrylic acid/dextran nanocomposites for packaging applications” *Journal of Applied Polymer Science*, **137 (3)**, 48298-308,(Wiley), (2020). (Impact Factor: 3) **ISSN:** 1097-4628. **DOI:** 10.1002/app.48298.
39. B. Parhi, D. Bharatiya and **S. K. Swain*** “Application of quercetin flavonoid-based hybrid nanocomposites: a review” *Saudi Pharmaceutical Journal*, **28(12)**, 1719–1732, (Elsevier), (2020). (Impact Factor: 4.1) **ISSN:** 1319-0164. **DOI:** 10.1016/j.jsps.2020.10.017.

2019

40. D. Sahu, N. Sarkar, P. Mohapatra and **S. K. Swain*** “Nano gold hybrid polyvinyl alcohol films for sensing of Cu²⁺ ions” *Chemistry Select*, **4**, 9784-9793, (Wiley-VCH), (2019). (Impact Factor: 2.307)**ISSN:**2365-6549.**DOI:**10.1002/slct.201902167.
41. B. B. Singh, F. Mohanty, S. S. Das*, and **S. K. Swain** “Graphene sandwiched crumb rubber dispersed hot mix asphalt” *Journal of Traffic and Transportation Engineering*, **7(5)**, 652-667, (Elsevier), (2019). (Impact Factor:7.9) **ISSN:** 2095-7564. **DOI:** 10.1016/j.jtte.2019.02.003.
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42. G. Sahoo, N. Sarkar, **S. K. Swain*** “Biomass-based nanocomposites for packaging application” **Chapter 7:** Lignocellulosic fibre and biomass-based composite materials: processing, properties and applications, Edited by: Mohammad Jawaid, Paridah Md Tahir, Naheed Saba, **2016** (Elsevier). **ISBN:** 978-0-08-100959-8. **DOI:** 10.1016/B978-0-08-100959-8.00007-X.
43. K. Prusty, **S. K. Swain*** “Nanohydrogel chitosan in gene therapy” **Book:** Multi Volume set nanostructured in therapeutic medicine, **2016** (Elsevier).
44. N. Sarkar, G. Sahoo and **S. K. Swain*** “Soy protein nanocomposite for packaging application” **Chapter 6:** Soya based bioplastics, Edited by: V K Thakur, M Thakur & M R Kessler, **2017** (Smithers Rapra, UK). **ISBN:** 978-1-91024-222-3.
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46. **S. K. Swain***, G. Sahoo and N. Sarkar “Manufacturing of chemically modified date palm leaf fiber reinforced polymer composites” **Chapter 14:** Manufacturing of natural fibre reinforced polymer composites, Edited by: Mohd Sapuan Salit, Mohammad Jawaid, Nukman Bin Yusoff, M. Enamul Hoque, **2015** (Springer International publishing Switzerland). **ISBN:** 978-3-319-07944-8. **DOI:** 10.1007/978-3-319-07944-8_14.
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48. **S. K. Swain*** “Gas barrier properties of biopolymer-based nanocomposites: application in food packing” **Chapter 13:** Advanced materials for agriculture, food, and environmental safety, Edited by: Ashutosh Tiwari, Mikael Syväjärvi, **2014** (Wiley-Scrivener, USA). **ISBN:** 978-1-118-77343-7. **DOI:** 10.1002/9781118773857.ch13.
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FULL PAPERS PUBLISHED IN CONFERENCE PROCEEDINGS

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3. S. Gantayat, D. Rout and **S. K. Swain** "Structural and electrical properties of functionalized multiwalled carbon nanotube/epoxy composite" AIP Conf. Proc. **1731**, 050113 (2016); doi.org/10.1063/1.4947767 (21–25 December 2015). doi.org/10.1063/1.4947767.
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5. A Sarangi, G Nath*, **S K Swain*** and R Paikray "Chemical modification of natural fibers with acetone blended alcohol" **Advanced Science Letter** (American Scientific Publishers) **20**(3-4), 570-573 (2014). DOI: 10.1166/asl.2014.5367 (Impact Factor: 0.42).
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7. A K Pradhan and **S K Swain*** "Synthesis and Characterization of conducting PMMA/MWCNT nanocomposites" International conference on advances in materials and materials processing, IIT Kharagpur, December 9-11, 2011 page 75-79 (**2011**)
8. A K Pradhan and **S K Swain*** "Synthesis of PAN/MWCNT nanocomposites: Study of electrical conductivity" International Conference on Carbon Nanotubes: Potential and Challenges, IIT Kanpur, December 15-17, 2010, page 65-68 (**2010**).
9. S Lapshine, **S K Swain** and A I Isayev "Ultrasound Aided Extrusion Process for Preparation of Polyolefin-Clay Nanocomposites" Society of Plastic Engineers: 66th Annual Technical Conference (ANTEC), May 04-08 2008, Milwaukee, Wisconsin, USA, Vol. 4 2063-2067 (**2008**) ISBN 9781-60560-3209
10. **S. K. Swain** and A. I. Isayev, "Processing of Nylon 6/clay Nanocomposites by Continuous Sonication Process: Mechanical, Rheological and Structural Study", Proceeding of International and INCCOM-6 Conference on Future Trends in Composite Materials and Processing, IIT, Kanpur, December 12-14, P- 146-169 (**2007**).
11. **S. K. Swain** and A. I. Isayev, "Extrusion of Polyamide 6/clay Nanocomposites by Continuous Sonication Process: Study of Structural and Gas Barrier Properties" Proceeding of the National Conferences on Development of Composites, NIT, Rourkela, April 14-15, P- 179-185 (**2007**).
12. **S K Swain** and A I Isayev "Ultrasonic assisted Extrusion of HDPE/Clay nanocomposites" Society of Polymeric Engineering, Society of Plastic Engineers: 64th Annual Technical Conference (ANTEC), Charlotte North Carolina, USA May 07-11, 2006, Vol. 5, 2006, 923-927, (2006) ISBN: 9781-6042-35562.
13. **S. K. Swain** and A. I. Isayev, "Melt extrusion process for exfoliation of polyamide 6/clay nanocomposites: Study of oxygen permeability property" **Polym Mater: Sci. & Engg**, 96, 51-52 (**2007**) ISSN# 0743-0515 (ACS)
14. **S. K. Swain**, R. K. Samal, P. K. Sahoo, "Synthesis and Characterizations of PBA/Silicate Nanocomposites by emulsifier free emulsion free emulsion Polymerization", **Polymer Preprints ACS**,47(2), 652-653 (**2006**).ISSN # 0032-3934 (ACS).
15. **S. K. Swain** and A. I. Isayev, "HDPE/Clay nanocomposites by continuous sonication process: Mechanical and Rheological study" **Polymer Materials: Sci. & Engg** 94, 690-691 (**2006**). ISSN# 0743-0515 (ACS)
16. **S. K. Swain**, S. Lapshine and A. I. Isayev, "Polyolefine-clay Nanocomposites by Ultrasound Assisted Extrusion Process" International Symposium on material Chemistry, Bhabha Atomoc Research Centre, Mumbai, December 4-8th ,p-430-432 (**2006**)
17. A. Sarangi, G. Nath, **S K Swain** and R. Paikaray. "Acoustical investigation of acetone blended alcohols for chemical modification of natural fibers" Acoustic New Delhi, November10-15, **2013** Page 424-430.
18. T Biswal, P Mohapatra and **S K Swain** "Graphene: A new generation smart materials" **Int. J Adv. Chem Sci Appl.**, 1, 54-58. (**2013**) ISSN # 2347-7601.
19. **S. K. Swain** "Air pollution Control and Change of climate: A Short Note" 9th Regional conference, OCS, Seemanta Engineering College, Orissa, 17th Sept., p-24-26 (**2006**).

RESEARCH GUIDANCE

List of Ph.D. Scholars Supervised/Under supervision

Sl. No	Name of the students	Title of the Thesis	Status
1.	Subrata K Patra	Synthesis of polymer/copolymer-clay nanocomposites and study of their novel properties	Awarded on 4.4.2011
2.	Gyanranjan Prusty	Effect of conducting nano fillers on polymer matrixs: Evaluation of properties	Awarded on 18.09.2013
3.	Sudhir K Kisku	Synthesis and characterization of green composites: study of fire retardant and gas permeation properties	Awarded on 30.10. 2013
4.	Ajaya K Pradhan	Synthesis and characterization of polymer/CNT nanocomposites: Study of electrical and structural properties	Awarded on 12.03.2014
5.	Satyabrata Das	Protein and Biopolymer Based Bionanocomposites: Synthesis, Characterization and evaluation of Properties	Awarded on 21.08. 2014
6.	Baidyanath Mohanty	Synthesis and characterization of Aza-spiro compounds: study of their antifungal properties	Awarded on 30.03.2016
7.	Thumu Ravinder Joint Supervisor: Dr. RBN Prasad	Characterization and Modification of Lipids isolated from natural sources	Awarded on 14.03.2016
8.	Abhijit Sarangi Joint Supervisor: Dr. G. Nath	Study of compatibility of alcohol blended chemicals for natural fibers modification in making of composites by ultrasonic technique.	Awarded on 14.03. 2016
9.	Subhra Gantayat Joint Supervisor: Dr. D Rout	Fabrication and characterization of Epoxy Nanocomposites with reinforcement of Different carbon Allotropes	Awarded on 04.10.2016
10.	Gopal Chandra Pradhan Joint Supervisor: Dr. L Behera	Preparation of Hybrid Starch by Reinforcement of Nanomaterials: Characterization and study of properties	Awarded on 26.12.2017
11	Fanisma Mohanty	Designing of nano silver hybrid graphene oxide reinforced polymer composites for packaging applications	Awarded on 06.03.2019
12.	Gyanaranjan Sahoo	Effect of Graphene on structure and properties of polymeric multicomponent Nanocomposites	Awarded on 23.03.2019
13.	Deepak Sahu Joint Supervisor: Dr. P Mohapatra	Nanostructured silver and gold embedded nanocomposites for sensing of Hg ²⁺ ion	Awarded 02.06. 2020
14.	Niladri Sarkar	Biopolymer/transition metal nanoparticles composites: Synthesis, characterization and study of properties	Awarded 03.06. 2020
15.	Kalyani Prusty	Synthesis and characterization and study of potential application of acrylic based nanohydrogel	Awarded 10.01. 2021
16.	Pramod K Sethy Joint Supervisor: Dr. P Mohapatra	Nanostructured Materials Embedded Polyacrylic acid Based Hybrid Nanocomposites for Packaging Applications	Awarded 15. 09. 2021
17.	Sk. Nazurul Joint Supervisor: Dr. L Behera	Effect of layered Double Hydroxide on the properties of polymers and biopolymers.	Awarded on 17.05.2023
18.	Anuradha Biswal	<i>In vivo</i> wound healing efficacy of chitosan-based nanostructured hybrid materials in drosophila and Sprague Dawley rats	Submitted March 2024
19.	Bhagyashree Patra Joint Supervisor: Dr. L Behera	PANI nanocomposite with reinforcement of different nanomaterials: Synthesis and Characterization	Submitted May 2024
20.	Swapnita Patra	Designing of CQD imprinted polysaccharide-based nanostructured	In Progress

		hybrid materials for glucose sensing	
21.	Sachit Kumar Das	Preparation of metal oxide embedded polymeric hybrid nanocomposites for energy storage applications	In Progress
22.	Krishna Manjari Sahu	Designing of CQD doped polymer-based nanocomposites hydrogels for target drugs delivery via host-guest mechanism	In Progress
23.	Susovan Swain Joint Supervisor: Dr. P Mohapatra	Preparation and characterization of Rhodamine B-based nanocomposites for amino acid sensing	In Progress
24.	Shuvendu S. Purohit Joint Supervisor: Dr. P Mohapatra	GQD doped protein-based nanocomposite hydrogels for wound healing applications	In Progress
25.	Rajaram Mishra	Removal of Dye from water with as prepared polymer-based hydrogels	In Progress

List of Post-Doc. Scholars Supervised

Sl. No	Name of the scholars	Fellowship/Support/Affiliation	Title of the project works	Year
1.	Dr. SK Basuriddin	DS Kothari Post-Doctoral Fellowship, UGC, New Delhi	Polysaccharide composites for sensing of glucose	Nov 2014 to Mar 2016
2.	Dr. Biswajit Parhi	-do-	Application of Quercetin based hybrid nanocomposites: Synergistic effect towards Antimicrobial resistance	Nov 2019 to February 2023
3.	Dr. Debasrita Bharatia	VSSUT	Designing of oxide-based nanocomposites for study of dielectric properties	July 2020 to February 2023

List of MPhil Students Supervised

Sl. No	Name of the students	Title of the Thesis	Year
Supervised at North Orissa University, Baripada			
1.	Anima Manjari Ojha	Biocomposites an eco-friendly smart material: A review	2008
2.	Gyanaranjan Prusty	Ultrasonic investigation of PVA/PA blends in aqueous solutions	2009
3.	Pritipadma Nayak	Biodegradable composites: A short review	2009
4.	Anjana Mohanty	Preparation of starch based bionanocomposites for packaging applications	2010
5.	Prangya Paramita Priyadarshini	Study of thermal properties of Protein/clay bionanocomposites	2010
6.	Nityananda Gharai	Swelling study of PVA-co-PAM/clay nanohydrogel	2010
7.	Itishree Jena	Preparation of thermal resistant PMMA/ZrO ₂ nanocomposites with gas barrier properties	2011
8.	Sakuntala Sahu	Preparation of thermal resistant gas barrier chitosan/clay nanobiocomposites	2011
Supervised at VSSUT, Burla			
9.	Bhagyashee Patra	Enhancement of conducting properties of polyaniline with incorporation of nano Silicon carbide.	2015
10.	Harichandra Jena	Synthesis and Characterization of cellulose grafted polyacrylamide nanohydrogels	2017
11.	Manisha Kumari Maharana	Synthesis and Characterization of Polystyrene-co-Chitosan/GO/Ag Nanocomposites	2018
12.	Shital Jyotsna Sahoo	Designing of PAA/PEG hybrid materials with incorporation of	2019

		GO/CaCO ₃ for removal of dye pollutants from water	
13.	Jayprakash Behera	Preparation of nano BN reinforced PEHA thin film for packaging applications	2020
14.	Krishna Manjari Sahu	Nano silver decorated polyacrylic acid/polyethylene glycol nanocomposite hydrogels for drug delivery	2021

List of M.Tech. Students Supervised at VSSUT

Sl. No	Name of the students	Title of the thesis	Year
1.	Proxima Priyadarshni	Effect of coconut shell powder on the tribological, swelling and biodegradable properties of polypropylene	2013
2.	Tanmayee Kuntia	Preparation and characterization of Polypropylene/coconut shell biocomposites: Study of Mechanical, thermal and chemical resistant properties	2013
3.	Amrit Mallik	The effect of functionalized MCNT on the mechanical and electrical properties of PMMA nanocomposites: Optimization of parameters by Taguchi method	2013
4.	Bhargabi Shur	Synthesis of PAM-co-PVA nanohydrogels for agricultural purpose	2014

List of M.Sc. Students Supervised

Sl No	Name of the students	Title of the thesis	Year
Supervised at North Orissa University, Baripada			
1.	Mamata Patra	Olefin Metathesis: A review	2006
2.	Suwendu Kumar Panda	Solvent free organic synthesis: A short review	2007
3.	Sudhir Kumar Kisku	Degradation of polymers: A review	2007
4.	Itishree Jena	Improvement of properties of polymer/CNT nanocomposites: A review	2008
5.	Diptee Rekha Das	II-Electron delocalization in conjugated polymers: A review	2008
6.	Sasmita Pandia	Vitamin B ₁₂ : A chemical approach	2008
7.	Rasmita Giri	Effect of temperature on aqueous solution of polyvinyl alcohol: A viscometry study	2009
8.	Anjana Mohanty	Ultrasonic and viscometric investigation of albumin protein in aqueous solution	2009
9.	Pragnya P Priyadarshini	Study of compatibility and miscibility of soya protein in aqueous solution by ultrasonic and viscometric method	2009
10.	Binaya Bhusan Rath	Retention strategy: A profit making in paper industry	2010
11.	Banishree Tripathy	Preparation of polystyrene using in situ Ni(II)/EDTA/KPS complex initiating emulsion polymerization technique	2010
Supervised at VSSUT, Burla			
12.	Somalin Pradhan	Nanohydrogel: A smart materials	2012
13.	Sivani Jena	Graphene: A new allotropy of carbon	2012
14.	Kousik Debnath	Synthesis and characterization of graphene oxide reinforced iron oxide nanocomposites.	2014
15.	Loknath Ghosh	Nano CaCO ₃ incorporated polyaniline nanocomposites: Preparation and study of conducting properties	2015
16.	Madhusmita Ray	Preparation, characterization of starch/PVA semiconducting thin film with reinforcement of nano ZrO ₂	2015
17.	Trilochan Khuntia	Starch hybrid PEHA/PVA nanocomposite thin films with reinforcement of nano clay	2016
18.	Jashamita Das	BN reinforced Starch hybrid PEHA/PVA nanocomposite thin films	2016
19.	Gyanendra Presad Panda	Acoustic characterization of the compatibility of starch/chitosan blends in aqueous solutions	2017
20.	Ugrabadi Sahoo	Role of expanded graphite on the bitumen in road construction	2017
21.	Sushobhan Swain	Chitosan based gold nano clusture as switch of florescence probe for Hg ²⁺ sensor	2018

22.	Jashmin Panigrahi	Au decorated polymethacrylate/dextran nanocomposites	2018
23.	Sonali Monalisha Mallik	Effect of ZrO ₂ nanopowder on cellulose reinforced PEMA/PVAI thin films	2018
24.	Babita Sahoo	Acoustic characterization of the compatibility of silver nanofluid/copper nanofluid blends in aqueous solution	2019
25.	Upasana Mohapatro	In vitro release of ornidazole drug from trico-polymeric hybrid composite hydrogel	2019
26.	Swapnita Patra	Designing of nanogold induced sodium alginate assisted polyvinyl alcohol hybrid magnetic graphene oxide reinforced beads: A reducing agent	2020
27.	Priyanka Sahu	Nano ZnO imprinted poly(N-isopropyl acrylamide)/Poly(Acrylamide) nanocomposites hydrogels for <i>in vitro</i> release of ornidazole	2020
28.	Sudipti Priyadarshinee	Chitosan based urea hybrid carbon quantum dots as fluorescent probe for Hg ²⁺ sensor	2020
29.	Shailee Swarupa Hota	Nano silver decorated polyacrylic acid/agar nanocomposites thin film for packaging applications	2020
30.	Akankhya Das	Paper based Cu-sensitized Ag/SA nanocomposites for sensing of Hg ²⁺ ions	2021
31.	Soumya Ranjan Sahu	Nano boron nitride imprinted PAA/Chitosan nanocomposite hydrogels for removal of cationic dyes from water	2021
32.	Bhakti Prasad Sethy	Nano silver embedded chitosan/polyacrylamide for therapeutic release of aloe vera extract for wound healing applications	2021
33.	Subhasankar Panigrahi	Catalytic action of graphene assisted sodium alginate/PVA nanocomposite magnetic beads	2021
34.	A Amulya Reddy	Nanostructured hybrid materials for glucose sensing	2022
35.	Harapriya Mishra	Catalytic action of nanocomposites in organic synthesis	2022
36.	Rajaram Mishra	Graphene based nanocomposites for sensing of heavy metal ions	2022
37.	Hemsagar Sahu	Dielectric study of GO based metal oxide nanocomposites: a review	2022
38.	Suket Meher	Nanocomposites for the removal of organic dyes from water	2022
39.	Jharana Mahanty	Carbon quantum dots imprinted chitosan-oleic acid nanocomposites for "Switch-off" fluorescence sensing of glucose	2023
40.	Jyotirmayee Pratapsingh	TiO ₂ nanoparticles embodied chitosan/polyvinyl alcohol@N-MWCNT nanocomposites hydrogels as wound dressing materials	2023
41.	Upuluri Manisha	Carbon quantum dots incorporated PAM/Dex nanocomposite hydrogels for drug delivery via host-guest mechanism	2023
42.	Sourav Pandey	ZnO nanoparticles decorated poly(ethylene oxide) & PAM hybrid nanocomposites hydrogels for removal of organic dyes.	2023
43.	Sachin Pandey	h-BN bounded starch/polyacrylamide@Ag nanocomposite thin films for packaging applications.	2023
44.	Debasis Sahoo	<i>Ex-vivo</i> glucose detection in real human blood serums by CQD imprinted CMC nanocomposite	2024
45.	Swikruti Panigrahi	RhB embedded Ag nanogranules for selective sensing of L-Cysteine	2024
46.	Kumar Panchajanya Nayak	CQD imprinted PAA/PNIPAM nanocomposite hydrogel vehicle for controlled release of 5-Flourouracil by host-guest mechanism	2024
47.	Ojaswini Khamari	<i>In vivo</i> wound healing in mouse model using lysozyme and QGD	2024
48.	Bhabani Jena	Nano BN laminated PANI/PVA nanocomposite thin films incorporated with TiO ₂ nanoparticles for packaging applications.	2024

DECLARATION	All the information provided above are true and best of my knowledge and supporting documents can be produced on demand.
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Date: June 01, 2024
Place: VSSUT, Burla

[Sarat Kumar Swain]