Purnendu Parhi
Professor in Chemistry Ravenshaw University, Cuttack, Odisha
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ACADEMIC PROFILE

Ph.D. Biomedical Engineering and Chemistry (2007)
Indian Institute of Technology (IIT), Delhi, India.
Topic: "Studies on Biologically Active Phosphates and related compounds"

M.Sc. Chemistry (1999-2001) 7.14/10 CGPA
Indian Institute of Technology Delhi, India
Topic: "Carbohydrate Based Approach to Polycyclic System"

B.Sc. Chemistry (Honors) (1996-1999) 70%
Delhi University, India

PROFESSIONAL EXPERIENCE:

- **Visiting Scholar:** Project on High temperature Vapour Phase Synthesis of Inorganic Solids.
  August 2016- August 2017 Rutgers State University, New Jersey, USA
- **Postdoctoral fellow:** Project on Biomaterials Surface Science, Physical Chemistry of protein adsorption, Adsorption competition among various proteins for same surface.
  March 2008 – April 2010,
  Pennsylvania State University, PA, USA,
- **Assistant Professor:** **April 2010, Ravenshaw University, Cuttack, Odisha**
- **Postdoctoral fellow:** Project on Inorganic Synthesis Metathesis synthesis of various inorganic materials. Use of microwave, Microwave-hydrothermal technique for synthesis of technologically important materials in economical way.
  March 2007 – February 2008,

Colorado State University, Fortcollins, CO, USA

- **Research fellow: 2002- January 2007, Indian Institute of Technology Delhi, India**

Research Grant/ Sponsored Projects Completed

1. **Title:** "Surface Modified Nanoparticle as Synthetic Analogous of Metalloenzymes for Efficient Redox Processes"
   Sponsoring Agency: DST Fast Track,
   Grant amount: INR 25, 00, 000/–
   Role: Principal Investigator
2. **Title:** "Microwave Mediated Synthesis of Inorganic Solids"
   Sponsoring Agency: UGC
   Grant Amount: INR 8, 60,000/–
   Role: Principal Investigator
3. **Title** "Synthesis of ZnO, TiO_2 CeO_2 Nanoparticle and Their Surface Modification for Free Radical Scavenging and Toxicology Study"
   Sponsoring Agency: BRNS
   Grant Amount: INR 19, 00,000/-
   Role: Principle Investigator
4. **Title "**Optimization of Various Nano Rare Earth Metal Oxides Based System as Electrocatalyst for Oxygen Reduction Reactions"
   Sponsoring Agency: SERB Grant
   Grant Amount: INR 32, 00,000/–
   Role: Principal Investigator
5. **Title "**Evaluation of Oxygen Reduction Reactions Activity of Transition Metal Doped Rare Earth Metal Oxide Supported on Biomass Derived Carbon Frame Work"
   Sponsoring Agency: CSIR
   Grant Amount: INR 22, 00,000/-
   Role: Principal Investigator
6. **Title "**Graphene Enhanced Visible Light Photocatalyst of Rare Earth Oxide for Removal of Organic Dyes and Pollution from Single and Binary System"
   Sponsoring Agency: Science and Technology
   Grant Amount: 8, 00,000/-
   Role: Principal Investigator

Research Grant/ Sponsored Projects Ongoing

1. **Title "**Construction of Rare Earth Based Perovskite Modified Bioderived Carbon Nanosheets for Enhancing Visible Light Photocatalytic Activity Towards Antibiotic Degradation"

   Sponsoring Agency: MRIP

   Grant Amount: 9, 98,000/-

   Role: Principal Investigator

2. **Title "**Optimisation of Various Nano Rare Earth Based ABO_3 Type Perovskite Supported on Naturally Derived Carbon as Electro Catalyst for Oxygen Reduction Reaction"

   Sponsoring Agency: BRNS

   Grant Amount: 23, 00,000/-

   Role: Principal Investigator

Teaching Interest:

- Molecular Spectroscopy
- Quantum Chemistry
- Surface Chemistry
- Catalysis
- Biophysical Chemistry
- Analytical Chemistry

Research Interest:

Surface Chemistry, Inorganic Synthesis

- Kinetics and Thermodynamics of Protein adsorption.
- Cell attachment to different surface.
- Nanoparticle synthesis.
- Polymer synthesis and characterization
- Synthesis of biocomposites
- Synthesis of Hydroxyapatite based biomaterial

Publications and Presentations:

Research Publications in Reviewed Journals

1. Nayak, L., Panda, A., Hota, I., Hati, T., Nayak, B. B., Das, N., & **Parhi, P. (2025)**. From wastewater to clean energy: Microwave-assisted synthesis of Sm_2O_3/N-rGO nanohybrid for ciprofloxacin removal and oxygen reduction reaction. ***Diamond and Related Materials*****, 113187**. **IMPACT FACTOR: 5.1**
2. Parida, P., Nayak, B. B., & **Parhi, P**. **(2025)**. Effective promotion of oxygen reduction reaction activity by 'Co'doping in PrMnO3 at B-site**.** ***Journal of Molecular Structure*****,** ***1337*****, 142111.** **IMPACT FACTOR: 4.7**
3. Hati, T., Soren, S., & **Parhi, P**. **(2025)**. Rare Earth Oxide Mediated Electrocatalytic Synthesis of Hydrogen Peroxide from Molecular Oxygen. ***Materials Chemistry and Physics*****, 131328**. **IMPACT FACTOR: 4.7**

4. Behera, D., Pattnaik, S. S., Nanda, D., **Parhi, P**., & Behera, A. K. **(2025)**. Renewable and sustainable waste coconut spathe fabric biocomposites: fabrication to characterization. ***Biomass Conversion and Biorefinery***, ***15*****(10), 14911-14922**.
   IMPACT FACTOR: 4.1
5. Behera, D., Pattnaik, S. S., Nanda, D., **Parhi, P**., & Behera, A. K. **(2025)**. Renewable and sustainable waste coconut spathe fabric biocomposites: fabrication to characterization. ***Biomass Conversion and Biorefinery***, ***15*****(10), 14911-14922**.
   IMPACT FACTOR: 4.1
6. Panda, A. R., Samanta, S., Banerjee, S., & **Parhi, P**. **(2025)**. Multifunctionality exploration of dysprosium-doped NiFe2O4: An efficient bifunctional electrocatalyst toward ORR/OER. ***Journal of Rare Earths (In Press)***.
   IMPACT FACTOR: 7.2
7. Nayak, B. B., Hota, I., Soren, S., & **Parhi, P**. **(2025)**. Sm1-XSrxMnO3 (X= 0.1, 0.2, 0.3, and 0.4) perovskite (SSM) with a-site doping optimized as oxygen reduction reaction (ORR) electrocatalyst. ***Electrochimica Acta*****,** ***515*****, 145609.**
   IMPACT FACTOR: 5.6
8. Behera, D., Nayak, B. B., Soren, S., & **Parhi, P**. **(2024)**. Facile Synthesis of Perovskite SrSnO3/N-rGO Composite as a Durable Electrocatalyst for Effective Oxygen Reduction Reaction. ***ChemistrySelect*****,** ***9*****(46), e202404668**.
   IMPACT FACTOR: 2
9. Mahalik, R. R., Soren, S., Hota, I., Debnath, A. K., Muthe, K. P., & Parhi, P. **(2024)**. REMnO3 (RE= Pr, Nd, Sm, Eu, Gd) perovskite as efficient catalysts for oxygen reduction reaction. ***Journal of Rare Earths*****,** ***42*****(11), 2078-2087.**
   IMPACT FACTOR: 7.2
10. Behera, T., Sarangi, B., Mishra, D., Pattnaik, S., **Parhi, P**., & Behera, N. **(2024)**. Salophen Anchored Silver Nanoparticle as Nanoprobe Designed for Selective Sensing and Antibacterial Activity. ***ChemistrySelect*****,** ***9*****(10), e202303863**.
    IMPACT FACTOR: 2
11. Behera, T., Sarangi, B., Mishra, D., Pattnaik, S., **Parhi, P**., & Behera, N. **(2024)**. Salophen Anchored Silver Nanoparticle as Nanoprobe Designed for Selective Sensing and Antibacterial Activity. ***ChemistrySelect*****,** ***9*****(10), e202303863**.
    IMPACT FACTOR: 2
12. Nayak, B. B., Soren, S., Hota, I., Debnath, A. K., Muthe, K. P., & **Parhi, P**. **(2023)**. Optimization of praseodymium-based perovskites as electrocatalysts for oxygen reduction reaction. ***ACS Applied Energy Materials*****,** ***6*****(19), 9951-9962.**
    IMPACT FACTOR: 5.6
13. Mahalik, R. R., Hota, I., Soren, S., Debnath, A. K., Muthe, K. P., & **Parhi, P**. **(2023)**. Efficient oxygen reduction reaction of rare earth perovskite SmMnO3. ***Inorganic Chemistry Communications*****,** ***154*****, 110924.**
    IMPACT FACTOR: 5.4
14. Nayak, J., Dalei, G., Jena, S. R., Das, S., Sahoo, R., Dash, D., **Parhi, P** & Samanta, L. **(2023)**. Facile microwave-assisted synthesis of dialdehyde− β− cyclodextrin for evaluation of angiogenesis in wound healing. ***Sustainable Chemistry and Pharmacy*****,** ***33*****, 101074**.
    IMPACT FACTOR: 5.8
15. Mishra, S., Soren, S., Debnath, A. K., Muthe, K., Das, N., & **Parhi, P**. **(2023)**. Microwave-mediated One-step Synthesis of CeVO4-rGO Composites with Enhanced Photocatalytic Activity under Visible Light. ***ChemistrySelect*****,** ***8*****(12), e202203968**.
    IMPACT FACTOR: 2.0
16. Ranjan Mahalik, R., Hota, I., Bhushan Nayak, B., Soren, S., Debnath, A. K., Muthe, K. P., & **Parhi, P**. **(2023)**. Synergistic catalytic effects of CeCuO3@ Vulcan carbon composites on the oxygen reduction reaction. ***ChemistrySelect*****,** ***8*****(11), e202204124**.
    IMPACT FACTOR: 2.0

17. Soren, S., Chakroborty, S., Mahalik, R. R., **Parhi, P**., Pal, K., Behera, D., ... & Krishna, S. B. N. **(2022)**. Evaluation of the antimicrobial potential of cerium-based perovskite (CeCuO 3) synthesized by a hydrothermal method. ***New Journal of Chemistry*****,** ***46*****(40), 19147-19152.**
IMPACT FACTOR: 2.5
18. Soren, S., Chakroborty, S., Pradhan, L., Chandra, P., Sahu, J., & **Parhi, P**. **(2022)**. Hydrothermal synthesis of graphene modified SnO nanocomposite for oxygen reduction reaction. ***Materials Today: Proceedings*****,** ***57*****, 72-76.**
IMPACT FACTOR: 1.7
19. Mohapatra, B. D., Hota, I., Mantry, S. P., Behera, N., **Parhi, P**., & Varadwaj, K. S. **(2021)**. Understanding the oxygen evolution activity trend in Co2Fe LDH-N doped graphene hybrids. ***Electrochemical Science Advances*****,** ***1*****(1), e2000009**.
IMPACT FACTOR: 4.1
20. Mahalik, R. R., & **Parhi, P**. **(2021)**. Electrochemically generation of hydrogen peroxide from molecular oxygen by BaSm2O4/carbon composite. ***Materials Today: Proceedings*****,** ***43*****, 3261-3267.**
IMPACT FACTOR: 1.7
21. Mishra, S., Debnath, A. K., Muthe, K. P., Das, N., & **Parhi, P**. **(2021)**. Rapid synthesis of tetragonal zirconia nanoparticles by microwave-solvothermal route and its photocatalytic activity towards organic dyes and hexavalent chromium in single and binary component systems. ***Colloids and Surfaces A: Physicochemical and Engineering Aspects*****,** ***608*****, 125551**.
IMPACT FACTOR: 5.4
22. Mishra, S., Sahoo, S. S., Debnath, A. K., Muthe, K. P., Das, N., & **Parhi, P**. **(2020)**. Cobalt ferrite nanoparticles prepared by microwave hydrothermal synthesis and adsorption efficiency for organic dyes: Isotherms, thermodynamics and kinetic studies. ***Advanced Powder Technology*****,** ***31*****(11), 4552-4562**.
IMPACT FACTOR: 4.2
23. Hota, I., Debnath, A. K., Muthe, K. P., Varadwaj, K. K., & **Parhi, P**. **(2020)**. Electrocatalytic production of hydrogen-peroxide from molecular oxygen by rare earth (Pr, Nd, Sm or Gd) oxide nanorods. ***Electroanalysis*****,** ***32*****(11), 2521-2527.**
IMPACT FACTOR: 2.3
24. Hota, I., Debnath, A. K., Muthe, K. P., Varadwaj, K. S. K., & **Parhi, P**. **(2020)**. A synergistic approach of Vulcan carbon and CeO2 in their composite as an efficient oxygen reduction reaction catalyst. ***Journal of Applied Electrochemistry*****,** ***50*****(10), 1069-1077**.
IMPACT FACTOR: 3.0
25. Hota, I., Debnath, A. K., Muthe, K. P., Varadwaj, K. S. K., & **Parhi, P**. **(2020)**. Towards synergy of rGO and Ni doped CeO2 in their copmposite as efficient catalyst for oxygen reduction reaction. ***ChemistrySelect*****,** ***5*****(22), 6608-6616.**
IMPACT FACTOR: 2.0
26. Mishra, S., Priyadarshinee, M., Debnath, A. K., Muthe, K. P., Mallick, B. C., Das, N., & **Parhi, P**. **(2020)**. Rapid microwave assisted hydrothermal synthesis cerium vanadate nanoparticle and its photocatalytic and antibacterial studies. ***Journal of Physics and Chemistry of Solids*****,** ***137*****, 109211.**
IMPACT FACTOR: 4.9
27. Sethi, S., Panigrahi, R., Paul, A. K., Mallik, B. S., **Parhi, P**., Das, P. K., & Behera, N. **(2020)**. Detailed characterization of dioxouranium (VI) complexes with a symmetrical tetradentate N 2 O 2-benzil bis (isonicotinoyl hydrazone) ligand. ***Dalton Transactions*****,** ***49*****(30), 10603-10612.**
IMPACT FACTOR: 3.3
28. Mantry, S. P., Mohapatra, B. D., Behera, N., Mishra, P., **Parhi, P**., & Varadwaj, K. S. **(2019)**. Potentiostatic regeneration of oxygen reduction activity in MnOx@ graphene hybrid nanostructures. ***Electrochimica Acta*****,** ***325*****, 134947**.
IMPACT FACTOR: 4.08
29. Hota, I., Soren, S., Mohapatra, B. D., Debnath, A. K., Muthe, K. P., Varadwaj, K. S. K., & **Parhi, P**. **(2019)**. Mn-doped ceria/reduced graphene oxide nanocomposite as an efficient oxygen reduction reaction catalyst. ***Journal of Electroanalytical Chemistry*****,** ***851*****, 113480**.

IMPACT FACTOR: 4.1

30. Soren, S., Hota, I., Debnath, A. K., Aswal, D. K., Varadwaj, K. S. K., & **Parhi, P**. **(2019)**. Oxygen reduction reaction activity of microwave mediated solvothermal synthesized CeO2/g-C3N4 nanocomposite. ***Frontiers in Chemistry*****,** ***7*****, 403**.
IMPACT FACTOR: 4.2
31. Mishra, S., Soren, S., Debnath, A. K., Aswal, D. K., Das, N., & **Parhi, P**. **(2018)**. Rapid microwave–Hydrothermal synthesis of CeO2 nanoparticles for simultaneous adsorption/photodegradation of organic dyes under visible light. ***Optik*****,** ***169*****, 125-136**.
IMPACT FACTOR: 3.1
32. Soren, S., Kumar, S., Mishra, S., Jena, P. K., Verma, S. K., & **Parhi, P**. **(2018)**. Evaluation of antibacterial and antioxidant potential of the zinc oxide nanoparticles synthesized by aqueous and polyol method. ***Microbial pathogenesis*****,** ***119*****, 145-151**.
IMPACT FACTOR: 3.5
33. Barik, A., Patnaik, T., **Parhi, P**., Swain, S. K., & Dey, R. K. **(2017)**. Synthesis and characterization of new shellac–hydroxypropylmethylcellulose composite for pharmaceutical applications. ***Polymer Bulletin*****,** ***74*****(9), 3467-3485.**
IMPACT FACTOR: 4.0
34. **Parhi, P**., Soren, S., Mohapatra, B. D., Mishra, S., Debanath, A. K., Aswal, D. K., & Varadwaj, K. S. K. **(2017, January)**. Nanoceria supported NrGO as highly stable electrocatalyst for oxygen reduction. **in** ***acta crystallographica a-foundation and advances*** **(vol. 73, pp. c1164-c1164). 2 abbey sq, chester, ch1 2hu, england: int union crystallography.**
IMPACT FACTOR: 1.8
35. Nayak, J. K., **Parhi, P**., & Jha, R. **(2016)**. Experimental and theoretical studies on localized surface plasmon resonance based fiber optic sensor using graphene oxide coated silver nanoparticles. ***Journal of Physics D: Applied Physics*****,** ***49*****(28), 285101**.
IMPACT FACTOR: 3.2
36. Mishra, P., Barik, A., **Parhi, P**., & Dey, R. K. **(2016)**. Poly (ethylene glycol)-Poly (lactic acid) Polymeric Micelles as Novel Drug Delivery System in Cancer Therapy: An Overview. ***Trends in Biomaterials & Artificial Organs*****,** ***30*****(2).**
IMPACT FACTOR: 0.9
37. Bessoi, M., Soren, S., & **Parhi, P**. **(2016)**. Rapid microwave mediated hydrothermal synthesis of complex ternary fluorides. ***Ceramics International*****,** ***42*****(2), 3697-3700**.
IMPACT FACTOR: 5.6
38. Soren, S., Mohaptra, B. D., Mishra, S., Debnath, A. K., Aswal, D. K., Varadwaj, K. S. K., & **Parhi, P**. **(2016)**. Nano ceria supported nitrogen doped graphene as a highly stable and methanol tolerant electrocatalyst for oxygen reduction. ***Rsc Advances*****,** ***6*****(80), 77100-77104**.
IMPACT FACTOR: 4.6
39. Nayak, J. K., **Parhi, P**., & Jha, R. **(2015)**. Graphene oxide encapsulated gold nanoparticle based stable fibre optic sucrose sensor. ***Sensors and Actuators B: Chemical*****,** ***221*****, 835-841**.
IMPACT FACTOR: 7.7
40. Soren, S., Jena, S. R., Samanta, L., & **Parhi, P**. **(2015)**. Antioxidant potential and toxicity study of the cerium oxide nanoparticles synthesized by microwave-mediated synthesis. ***Applied biochemistry and biotechnology*****,** ***177*****(1), 148-161.**
IMPACT FACTOR: 3.3
41. Barik, A., **Parhi, P**., & Dey, R. K. **(2015)**. Development of new shellac based pH responsive polymer for biomedical applications. ***Trends in Biomaterials and Artificial Organs*****,** ***29*****(3), 237-245**.
IMPACT FACTOR: 0.9
42. Soren, S., Bessoi, M., & **Parhi, P**. **(2015)**. A rapid microwave initiated polyol synthesis of cerium oxide nanoparticle using different cerium precursors. ***Ceramics International*****,** ***41*****(6), 8114-8118.**
IMPACT FACTOR: 5.6
43. **Parhi, P**., Soren, S., Mohapatra, B. D., Mishra, S., Debanath, A. K., Aswal, D. K., & Varadwaj, K. S. K. **(2017, January)**. Nanoceria supported NrGO as highly stable electrocatalyst for oxygen

reduction. **in *acta crystallographica a-foundation and advances* (vol. 73, pp. c1164-c1164). 2 abbey sq, chester, ch1 2hu, england: int union crystallography**.
IMPACT FACTOR: 1.8

44. Noh, H., Barnthip, N., **Parhi, P**., & Vogler, E. A. **(2013)**. Electrophoretic implementation of the solution-depletion method for measuring protein adsorption, adsorption kinetics, and adsorption competition among multiple proteins in solution. **In *Nanomaterial Interfaces in Biology: Methods and Protocols* (pp. 157-166). Totowa, NJ: Humana Press**.
IMPACT FACTOR: 4.3

45. Yeh, C. H. J., Dimachkie, Z. O., Golas, A., Cheng, A., **Parhi, P**., & Vogler, E. A. **(2012)**. Contact activation of blood plasma and factor XII by ion-exchange resins. ***Biomaterials*, *33*(1), 9-19**.
IMPACT FACTOR: 12.4

46. Kao, P., **Parhi, P**., Krishnan, A., Noh, H., Haider, W., Tadigadapa, S., ... & Vogler, E. A. **(2011)**. Volumetric interpretation of protein adsorption: Interfacial packing of protein adsorbed to hydrophobic surfaces from surface-saturating solution concentrations. ***Biomaterials*, *32*(4), 969-978.**
IMPACT FACTOR: 12.4

47. **Parhi, P**., Golas, A., & Vogler, E. A. **(2010)**. Role of proteins and water in the initial attachment of mammalian cells to biomedical surfaces: a review. ***Journal of Adhesion Science and Technology*, *24*(5), 853-888.**
IMPACT FACTOR: 3.7

48. **Parhi, P.**, Upreti, S., & Ramanan, A. **(2010)**. Crystallization of calcium vanadate solids from solution: a metathetic route. ***Crystal growth & design*, *10*(12), 5078-5084.**
IMPACT FACTOR: 3.4

49. Wei, L., **Parhi, P.**, Vogler, E. A., Ritty, T. M., & Lakhtakia, A. **(2010)**. Thickness-controlled hydrophobicity of fibrous Parylene-C films. ***Materials Letters*, *64*(9), 1063-1065.**
IMPACT FACTOR:2.7

50. Golas, A., **Parhi, P**., Dimachkie, Z. O., Siedlecki, C. A., & Vogler, E. A. **(2010)**. Surface-energy dependent contact activation of blood factor XII. ***Biomaterials*, *31*(6), 1068-1079**.
IMPACT FACTOR: 12.47

51. **Parhi, P**., Golas, A., & Vogler, E. A. **(2010)**. Role of proteins and water in the initial attachment of mammalian cells to biomedical surfaces: a review. ***Journal of Adhesion Science and Technology*, *24*(5), 853-888.**
IMPACT FACTOR: 3.7

52. **Parhi, P**., Golas, A., Barnthip, N., Noh, H., & Vogler, E. A. **(2009)**. Volumetric interpretation of protein adsorption: capacity scaling with adsorbate molecular weight and adsorbent surface energy. ***Biomaterials*, *30*(36), 6814-6824.**
IMPACT FACTOR: 12.47

53. Barnthip, N., **Parhi, P**., Golas, A., & Vogler, E. A. **(2009)**. Volumetric interpretation of protein adsorption: kinetics of protein-adsorption competition from binary solution. ***Biomaterials*, *30*(33), 6495-6513**.
IMPACT FACTOR: 12.47

54. **Parhi, P**., & Manivannan, V. (2009). Novel microwave initiated synthesis of Zn {sub 2} SiO {sub 4} and MCrO {sub 4}(M= Ca, Sr, Ba, Pb). ***Journal of Alloys and Compounds*, *469*.**
IMPACT FACTOR: 6.3

55. **Parhi, P**., & Manivannan, V. **(2009)**. Novel microwave initiated synthesis of Zn2SiO4 and MCrO4 (M= Ca, Sr, Ba, Pb). ***Journal of alloys and compounds*, *469*(1-2), 558-564**.
IMPACT FACTOR:6.3

56. Manivannan, V., **Parhi, P**., & Kramer, J. W. **(2008)**. Metathesis synthesis and characterization of complex metal fluoride, KMF3 (M= Mg, Zn, Mn, Ni, Cu and Co) using mechanochemical activation. ***Bulletin of Materials Science*, *31*(7), 987-993**.
IMPACT FACTOR: 2.1

57. **Parhi, P**., & Manivannan, V. **(2008)**. Novel solution phase metathetic pathway for the synthesis of MnV2O6· H2O. ***Materials Research Bulletin*, *43*(11), 2966-2973**.

IMPACT FACTOR: 5.7

58. **Parhi, P**., Manivannan, V., Kohli, S., & Mccurdy, P. **(2008)**. Synthesis and characterization of M3V2O8 (M= Ca, Sr and Ba) by a solid-state metathesis approach. ***Bulletin of Materials Science*****,** ***31*****(6), 885-890**.
IMPACT FACTOR:2.1
59. **Parhi, P**., Karthik, T. N., & Manivannan, V. **(2008)**. Synthesis and characterization of metal tungstates by novel solid-state metathetic approach. ***Journal of Alloys and Compounds*****,** ***465*****(1-2), 380-386.**
IMPACT FACTOR: 6.3
60. **Parhi, P**., Kramer, J. W., & Manivannan, V. **(2008)**. Synthesis and characterization of zirconium diphosphate by microwave assisted metathesis approach. ***Materials Science and Engineering: B*****,** ***153*****(1-3), 53-56.**
IMPACT FACTOR: 7.0
61. **Parhi, P**., Kramer, J., & Manivannan, V. **(2008**). Microwave initiated hydrothermal synthesis of nano-sized complex fluorides, KMF3 (K= Zn, Mn, Co, and Fe). ***Journal of materials science*****,** ***43*****(16), 5540-5545.**
IMPACT FACTOR: 3.9
62. **Parhi, P**., & Manivannan, V. **(2008)**. Novel microwave initiated solid-state metathesis synthesis and characterization of lanthanide phosphates and vanadates, LMO4 (L= Y, La and M= V, P). ***Solid State Sciences*****,** ***10*****(8), 1012-1019.**
IMPACT FACTOR: 3.3
63. **Parhi, P**., & Manivannan, V. **(2008)**. Novel microwave assisted solid state metathesis synthesis of KMF3 (MZn, Mn, Mg, and Co). ***Materials Letters*****,** ***62*****(19), 3468-3470**.
IMPACT FACTOR: 2.7
64. **Parhi, P**., Kohli, S., & McCurdy, P. **(2008)**. Room temperature metathetic synthesis and characterization of {alpha}-hopeite, Zn {sub 3}(PO {sub 4}){sub 2}. 4H {sub 2} O. ***Materials Research Bulletin*****,** ***43*****(7)**.
IMPACT FACTOR: 5.7
65. **Parhi, P**., Manivannan, V., Kohli, S., & McCurdy, P. **(2008)**. Room temperature metathetic synthesis and characterization of α-hopeite, Zn3 (PO4) 2· 4H2O. ***Materials Research Bulletin*****,** ***43*****(7), 1836-1841.**
IMPACT FACTOR: 5.7
66. Manivannan, V., **Parhi, P**., & Howard, J. **(2008)**. Mechanochemical metathesis synthesis and characterization of nano-structured MnV2O6· xH2O (x= 2, 4). ***Journal of Crystal Growth*****,** ***310*****(11), 2793-2799.**
IMPACT FACTOR: 2.0
67. **Parhi, P**., & Manivannan, V. **(2008)**. Microwave metathetic approach for the synthesis and characterization of ZnCr2O4. ***Journal of the European Ceramic Society*****,** ***28*****(8), 1665-1670.**
IMPACT FACTOR: 6.2
68. **Parhi, P**., Ray, A. R., & Ramanan, A. **(2007)**. Metathetic Reaction in Reverse Micelles: Synthesis of Nanostructured Alkaline-Earth Metal Phosphates. ***Journal of the American Ceramic Society*****,** ***90*****(4), 1237-1242.**
IMPACT FACTOR: 3.8
69. **Parhi, P**., Ramanan, A., & Ray, A. R. **(2006)**. Preparation and characterization of alginate and hydroxyapatite-based biocomposite. ***Journal of applied polymer science*****,** ***102*****(6), 5162-5165.**
IMPACT FACTOR: 3.0
70. **Parhi, P**., Singh, S. S., Ray, A. R., & Ramanan, A. **(2006)**. Mechanochemically assisted room temperature solid state metathesis reaction for the synthesis of MMoO4 (M= Ca, Sr and Ba). ***Bulletin of Materials Science*****,** ***29*****(2), 115-118**.
IMPACT FACTOR: 2.1

Papers presented in Conferences (National and International)

1. **Title:** Synthesis of Inorganic Materials by Novel Metathesis Approach.
Organized by: 43rd Midwest Regional Meeting of the American Chemical

Society.
Place: Kearney, NE, United States,
Date: October 8-11 (2008).

2. **Title:** *Room temperature solid state metathesis synthesis of hopeite phase.*
Organized by: Rocky Mountain Regional Meeting (20th) - American Chemical Society,
Place: Denver, CO, United States, August 29-September 1 (2007).
3. **Title:** *Hydroxyapatite polycaprolactone based Nanocomposite*
Oganized by: International Conference on Materials for Advance Technology (ICMAT-2005)
Place: Singapore,
Date: July 3rd July to 8th (2005).
4. **Tiltle:** *A solid state metathetic pathway to inorganic materials*.
Organized by: Modern Trends in Inorganic Chemistry (MTIC-2005)
Place: IIT Delhi,
Date: December 8th to December 10th (2005).
5. **Title:** *Microwave synthesis of Molybdates and Vanadates*
Organized by: ICSCA-2005
Place: University of Goa
Date: December 1st to December 3rd (2005).
6. **Title:** *Hydrothermal Synthesis of Hydroxyapatite based Biocomposites*,
Organized by: IIT Kanpur
Place: IIT Kharagpur, December 4th to December 6th (2004).
7. **Title:** *Hydrothermal Synthesis of Hydroxyapatite based Biocomposites*, 6th International Conference on Solvothermal Reactions
Organized by: University of Mysore
Place: Mysore, August 24th to August 28th (2004).
8. **Title:** *Hydroxyapatite based nanocomposites*,
Organized by: International conference on Nanoscience and Technology (ICNT)
Place: Calcutta
Date: December 17th to December 20th (2003).
9. **Title:** *Microwave mediated metathesis synthesis of hydroxyapatite*,
Organized by: National Symposium and Conference on solid-state chemistry & Allied Areas (3rd)
Place: I.I.T. Delhi
Date: December 4th to December 6th (2003).

Invited Lectures

1. **Title: A new perspective to an old problem in biomaterials surface science**.
Organized by : 19th asian bioceramic symposium and 2019 international symposium of materials for biomedical application, Taiwan
Presentation type: Oral
Conference Types: International-Abroad
2. **Title: G-C_3N_4 Coordinated CeO_2 synthesized by microwave mediated hydrothermal method as electro catalyst for oxygen reduction reaction.**
Organized by: 6th international solvothermal and hydrothermal association conference, Japan
Presentation type: Oral
Conference Types: International-Abroad

3. **Title: optimization of oxygen reduction reaction (ORR) of CeO_2 based system**.
   Organized by: NIT Rourkela, National conference on Advance Material for Energy and Environmental Application.
   Presentation type: Oral
   Conference Types: National

Scholarships and Awards

1. Awarded of **Raman Fellowship** for doing postdoctoral research in USA - **2016-2017** by UGC, India.
2. Awarded of **Prof R.C. Tripathy Young Scientist - 2015** by Orissa Chemical Society.
3. Qualified **Junior Research Fellowship** examination and National Eligibility Test for **lectureship** - **June 2002** held by Council of Scientific and Industrial Research-University Grants Commission, India.
4. Qualified **Graduate Aptitude Test in Engineering (GATE) - 2001**, in Chemistry.

CONFERENCE ORGANIZED

- **Organized (as Organising Secretary)** National Conference on "New Perspective to Advance Functional Materials (NPAFM-2017)" at Ravenshaw University, on 15-17th December, 2017.

RESEARCH STUDENT GUIDANCE

Sl. No.	**Name of Students**	**Degree**	**Year**	**Title of the Dissertation**	**Status**
1	**Arundhati Barik**	**Ph. D**	**2016**	**Synthesis, characterization and evaluation of new stimuli responsive carrier materials for controlled release of therapeutic agents.**	**Awarded**

2	**Siba Soren**	**Ph. D**	**2019**	**Synthesis of Metal Oxide Nanoparticles and Their Surface Modifications for Electrochemical and Biological Studies**	**Awarded**
3	**Swarnaprava Mantry**	**Ph. D**	**2020**	**Understanding the Electrocatalytic behaviour of Nanostructured Manganese Oxide Graphene based hybrid materials towards oxygen reduction reaction**	**Awarded**
4	**Sanjibani Mishra**	**Ph. D**	**2020**	**UV-Visible light responsive metal oxide nanocomposite as photo catalyst**	**Awarded**
5	**Rakesh Ranjan Mahalik**	**Ph.D**	**2021**	**Electrocatalytic oxygen reduction of rare earth spinel and perovskites**	**Awarded**
6	**Ipsha Hota**	**Ph.D**	**2023**	**Optimization of electrocatalytic activity of rare earth based system**	**Awarded**
7	**Debendra Behera**	**Ph.D**	**2025**	**Synthesis characterization, electrochemical and biological application of perovskite oxide**	**Submitted**
8	**Bibhuti Bhusan Nayak**	**Ph.D**	**2025**	**Optimization of rare earth based perovskite oxide catalysts towards ORR**	**Submitted**