

Purnendu Parhi
Lecturer in Chemistry
Ravenshaw University
Cuttack, Orissa
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ACADEMIC PROFILE

Ph.D. Chemistry and Biomedical Engineering (2008)
Indian Institute of Technology (IIT), Delhi, India.

Topic: "Studies on Biologically Active Phosphates and related compounds"

M.Sc. Chemistry (1999-2001) 7.2/10 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:

03/08 – 04/10: Postdoctoral fellow, Pennsylvania State University, PA, USA

Project: Surface Science

- Physical chemistry of protein adsorption
- Self assembly monolayer
- Adsorption competition among various proteins for same surface

03/07 – 02/08: Postdoctoral fellow at Colorado State University, Fortcollins, CO, USA

Project: Inorganic Synthesis

- Metathesis synthesis of various inorganic materials.
- Use of microwave, microwave-hydrothermal technique for synthesis of technologically important materials in economical way.

01/02-01/07: Research fellow at Indian Institute of Technology Delhi, India

Project: Studies on Biologically Active Phosphates and related compounds

- Synthesis of biologically active calcium phosphate: Specially Hydroxyapatite
- In situ crystal growth
- Synthesis of hydroxyapatite based composite with natural polymer and synthetic polymer
- Systematic studies of the synthesized composite and study of their relation to natural bone

Research Interest:

Surface Chemistry, Materials Synthesis, Protein Adsorption

- Kinetics and Thermodynamics of Protein adsorption.
- Nanoparticle synthesis.
- Solid state synthesis
- Polymer synthesis and characterization
- Synthesis of biocomposites

Publications and Presentations:

Research Publications in Reviewed Journals

1. **P. Parhi**, A. Golas and E. A. Vogler, *Proteins, Water, and the Initial Attachment of Mammalian Cells to Biomedical Surfaces: A Review*, **J Adh. Sci. Tech.** (In Press).
2. L. Wei, **P. Parhi**, E. A. Vogler, T. M. Ritty and A. Lakhtakia *Thickness-controlled hydrophobicity of fibrous Parylene-C films*, **Mater. Lett.** (In Press). (**Impact Factor 1.748**)
3. A.Golas, **P. Parhi**, Z.O. Dimachkie, C.A. Siedlecki and E. A. Vogler, *Surface Energy Dependence Contact Activation of Blood Factor XII*, **Biomaterials 2010**, 31, 1038. (**Impact Factor 6.646**)
4. **P. Parhi**, A. Golas, N. Barnthip, H. Noh and E. A. Vogler *Volumetric Interpretation of Protein Adsorption: Capacity Scaling with Adsorbate Molecular Weight and Adsorbent Surface Energy*, **Biomaterials 2009**, 30, 6814. (**Impact Factor 6.646**)
5. Naris Barnthip, **P. Parhi**, A.Golas and E. A. Vogler, *Volumetric Interpretation of Protein Adsorption: Kinetics of Protein-Adsorption Competition from Binary Solution*, **Biomaterials 2009**, 30, 6495. (**Impact Factor 6.646**)
6. **P. Parhi** and V. Manivannan *Novel Microwave Mediated Synthesis of Zn_2SiO_4 and $MCrO_4$ ($M = Ca, Sr, Ba, Pb$)* **J. Alloys and Compounds 2009**, 469, 558. (**Impact Factor 1.510**)
7. **P. Parhi**, V. Manivannan, Sandeep Kohli and Patrick McCurdy *Synthesis and Characterization of $M_3V_2O_8$ ($M = Ca, Sr, Ba$) by solid state metathesis approach* **Bulletin Mater. Sci. 2008**, 31, 885. (**Impact Factor 0.858**)
8. **P. Parhi**, Jon Kramer and V. Manivannan *Synthesis and Characterization of zirconium diphosphate by Microwave mediated Metathesis Approach* **Mater. Sci. Eng B 2008**, 153, 53. (**Impact Factor 1.577**)
9. **P. Parhi** and V. Manivannan, *Novel Solution Phase Metathetic Pathway for the Synthesis of $MnV_2O_6 \cdot H_2O$* **Mater Res. Bull. 2008**, 43, 2966. (**Impact Factor 1.812**)
10. **P. Parhi** and V. Manivannan *Novel Microwave Mediated Solid-State Metathesis Synthesis and Characterization of Lanthanide Phosphates and Vanadates, LMO_4 ($L = Y, La$ and $M = V, P$)* **Solid State Science 2008**, 10, 1012. (**Impact Factor 1.742**)
11. **P. Parhi**, Jon Kramer and V. Manivannan *Microwave Initiated Hydrothermal Synthesis of Nano-sized complex metal fluorides KMF_3 ($M = Zn, Mn, Co$ and Fe)* **J. Mater. Sci. 2008**, 43, 5540. (**Impact Factor 1.185**)
12. **P. Parhi**, T.N. Karthik, V. Manivannan, *Synthesis and Characterization of Metal Tungstates by Novel Solid State Metathetic Approach* **J. Alloys. And Compounds 2008**, 465, 380. (**Impact Factor 1.510**)
13. **P. Parhi** and V. Manivannan *Novel Microwave Mediated Solid-State Metathesis Synthesis of KMF_3 ($M = Zn, Mn, Mg, Co$)* **Mater. Lett. 2008**, 62, 3468. (**Impact Factor 1.748**)
14. V. Manivannan, **P. Parhi** and John Howard *Novel Mechanochemical Metathetic Synthesis and Characterization of Nano Structure $MnV_2O_6 \cdot XH_2O$ ($X = 2, 4$)* **J. Cryst. Growth 2008**, 310, 2793. (**Impact Factor 1.757**)
15. **P. Parhi**, V. Manivannan, *Microwave Mediated Metathesis Synthesis of Zinc Chromate* **J. European Ceram. Soc. 2008**, 28, 1665. (**Impact Factor 1.580**)

16. **P. Parhi**, V. Manivannan, Sandeep Kohli and Patrick McCurdy *Room temperature metathetic synthesis and characterization of α -hopeite, $Zn_3(PO_4)_2 \cdot 4H_2O$* **Mater. Res. Bull.** **2008**, 43, 1836. (**Impact Factor 1.812**)
17. **P. Parhi**, A. Ramanan and A.R. Ray, *Metathetic Reaction in Reverse Micelles: Synthesis of Alkaline Earth Metal Phosphate Nanorods.* **J. Amer. Ceram. Soc.** **2007**, 90, 1237. (**Impact Factor 2.101**)
18. **P. Parhi**, A. Ramanan and A.R. Ray, *Nanocrystalline powders of alkaline –earth phosphate as precursors for bioceramics,* **Amer. J. Biochem.& Biotech.** **2006**, 2(2), 61.
19. **P. Parhi**, A. Ramanan and A.R. Ray, *Synthesis of hydroxyapatite-alginate based biocomposites,* **J. Appl. Poly. Sci.** **2006**, 102, 5162. (**Impact Factor 1.187**)
20. **P. Parhi**, S.S. Singh, A. Ramanan and A.R. Ray, *Mechanochemically assisted room temperature solid state metathesis reaction for the synthesis of $MMoO_4$ ($M = Ca, Sr, Ba$),* **Bull. Mater. Sci.** **2006**, 29(2), 115. (**Impact Factor 0.858**)
21. **P. Parhi**, A. Ramanan and A.R. Ray, *Hydrothermal Synthesis of Nanocrystalline powder of Alkaline-earth hydroxyapatite $A_{10}(PO_4)_6(OH)_2$ ($A = Ca, Sr, Ba$),* **J. Mate. Sci.** **2006**, 41(5), 1455. (**Impact Factor 1.185**)
22. **P. Parhi**, A. Ramanan and A.R. Ray, *Synthesis of Nano-size Alkaline-earth hydroxyapatite through microwave assisted metathesis reactions,* **Mater. Lett.** **2006**, 60, 218. (**Impact Factor 1.748**)
23. **P. Parhi**, A. Ramanan and A.R. Ray, *A convenient route for the synthesis of hydroxyapatite through microwave- mediated metathesis reaction,* **Mater. Lett.** **2004**, 58, 3610. (**Impact Factor 1.748**)

Papers presented in Conferences (National and International)

1. V. Manivannan, **P. Parhi**, Jon Kramer *Synthesis of Inorganic Materials by Novel Metathesis Approach.* Abstracts, 43rd Midwest Regional Meeting of the American Chemical Society, Kearney, NE, United States, October 8-11 (2008)
2. **P. Parhi** and V. Manivannan *Room temperature solid state metathesis synthesis of hopeite phase.* Abstracts, 20th Rocky Mountain Regional Meeting of the American Chemical Society, Denver, CO, United States, August 29-September 1 (2007).
3. **P. Parhi**, A.R. Ray and A. Ramanan *Hydroxyapatite polycaprolactone based Nanocomposite* at ICMAT-2005 held at from 3rd to 8th July at Singapore (2005).
4. **P. Parhi**, A.R. Ray and A. Ramanan, *A solid state metathetic pathway to inorganic materials* at MTIC-2005 held from 8th to 10th Dec at IIT Delhi (2005).
5. **P. Parhi**, A.R. Ray and A. Ramanan *Microwave synthesis of Molybdates and Vanadates* at ICSCA-2005 held from 1st to 3rd Dec at University of Goa, Goa (2005).
6. **P. Parhi**, A. R. Ray and A. Ramanan, *Hydrothermal Synthesis of Hydroxyapatite based Biocomposites*, 4th to 6th December at IIT Kharagpur (2004).
7. **P. Parhi**, A.R. Ray and A. Ramanan, *Hydrothermal Synthesis of Hydroxyapatite based Biocomposites*, 6th International Conference on Solvothermal Reactions held on 24th to 28th August at University of Mysore, Mysore (2004).
8. **P. Parhi**, A. Ramanan and Alok. R. Ray, *Hydroxyapatite based nanocomposites*, International conference on Nanoscience and Technology held on 17th to 20th December at Calcutta (2003).
9. **P. Parhi**, A. Ramanan and Alok. R. Ray, *Microwave mediated metathesis synthesis of hydroxyapatite*, 3rd National Symposium and Conference on solid-state chemistry & Allied Areas held on 4th to 6th December at I.I.T. Delhi (2003).