Dr. Saroj L. Samal

Assistant Professor
Office: MC 316 (Chemistry Department)
E-mail: samalsaroj@nitrkl.ac.in; saroj2005@gmail.com
Phone: (+91) 9668320163 (cell)

Academic Profile

- M. Sc. (Chemistry) Utkal University, Bhubaneswar, Odisha, India
- M. Tech. (Methods in Chemical Analysis) IIT Delhi, Delhi, India
- Ph. D. (Materials Chemistry) IIT Delhi, Delhi, India

Research and Professional Experience

- Assistant Professor, Department of Chemistry, NIT Rourkela, Odisha, INDIA. June 2014-Present.
- Postdoctoral Fellow, Ames Laboratory, Iowa State University. July 2009 –May 2014.

Current Research Interests:

Solid State and Materials Chemistry

- Mn/Fe based intermetallics for energy related applications.
- Multicomponent Chalcogenides.
- Nano Chalcogenides
- Exploration of novel intermetallic compounds and understanding their structure and chemical bonding using theoretical (LMTO-ASA and EHTB) studies.
- Superconductors.

Research Group

Ph. D Students (Position available)

Looking for strongly motivated and enthusiastic students who are interested in a multi-disciplinary research group.

Publications

1. Aniket Kumar, Lipeeka Rout, Rajendra S. Dhaka, **Saroj L. Samal**, Priyabrat Dash, *RSC Advance*, **5**, 39193 (2015).

2. Gohil S. Thakur, Ganesan K. Selvan, Zeba Haque, Laxmi C. Gupta, **Saroj L. Samal**, Sonachalam Arumugam, Ashok K. Ganguli, *Inorg. Chem*., **54**, 1076 (2015).

3. Masood A. Nath, **Saroj L. Samal**, Rama K. Obulesu, K. C. James Raju, Ashok K. Ganguli, *J. Alloys. Compd*., **615**, 18 (2014).

4. **Saroj L. Samal**, Abhishek Pandey, David C. Johnston, John D. Corbett, "Taking Advantage of Gold's Electronegativity in $R_4Mn_{3-x}Au_{10+x}$ (R = Gd, Y; $0.2 < x < 1$)", *Chem. Mater.* **26**, 3209, 2014.

5. Fakhili Gulo, **Saroj L. Samal**, and John D. Corbett, "*Substantial Cd–Cd bonding in $Ca_6Cd_{11}Pt$: A Condensed Intermetallic Phase Built of Pentagonal Cd_7 and Rectangular $Cd_{4/2}Pt$ Pyramids*", *Inorg. Chem.* **52**, 10112, 2013.

6. **Saroj L. Samal**, Fakhili Gulo, and John D. Corbett, "*Cluster Chemistry in Electro-Poor Ae–Pt–Cd Systems (Ae = Ca, Sr, Ba). (Sr,Ba)Pt_2Cd_4, $Ca_6Pt_8Cd_{16}$, and its Known Antitype $Er_6Pd_{16}Sb_8$*", *Inorg. Chem.* **52**, 2697 (2013).

7. **Saroj L. Samal**, Abhishek Pandey, David C. Johnston, John D. Corbett, "*Y_3MnAu_5: Three Distinctive d-Metal Functions in an Intergrown Cluster Phase*", *J. Am. Chem. Soc.* **135**, 910 (2013).

8. **Saroj L. Samal**, Qisheng Lin and John D. Corbett, "*Two Homologous Intermetallic Phases in the Na−Au−Zn System with Sodium Bound in Unusual Paired Sites within 1D Tunnels*", Inorg. Chem., **51**, 9395 (2012).

9. **Saroj L. Samal** and John D. Corbett, "*Synthesis, Structure, and Bonding Analysis of the Polar Intermetallic Phase Ca_2Pt_2Cd*" Z. Anorg. Allg. Chem, **638**, 1963 (2012).

10. **Saroj L. Samal** and John D. Corbett, "*Relativistic Effects and Gold Site Distributions: Synthesis, Structure and Bonding in a New Polar Intermetallic $Na_6Cd_{16}Au_7$*" Inorg. Chem., **50**, 7033 (2011).

11. Menaka, **S. L. Samal**, K. V. Ramanujachary, S. E. Lofland, Govind and A. K. Ganguli, "*Stabilization of Mn(IV) in nanostructured zinc manganese oxide and their facile transformation from nanospheres to nanorods*", J. Mater. Chem., **21**, 8566 (2011).

12. **S. L. Samal**, T. Magdaleno, K. V. Ramanujachary, S. E. Lofland, A. K. Ganguli, "*New double perovskites, $LaBaTaNi_{1-x}Co_xO_6$: Structural, dielectric and magnetic studies*", Solid State Sciences, **12**, 1382 (2010).

13. **S. L. Samal**, T. Magdaleno, K. V. Ramanujachary, S. E. Lofland and A. K. Ganguli, "*Enhancement of Magnetic Ordering Temperature in Multiferroic $YbMn_{1-x}Fe_xO_3$ ($0.0 \leq x \leq 0.3$)*", J Solid State Chem., **183**, 643 (2010).

14. **S. L. Samal**, G. L. N. Rao, K. C. James Raju and A. K. Ganguli, "*Microwave dielectric properties of new complex perovskites: $(Ba_{1/3}Ln_{2/3})(Zn_{1/3}Ti_{2/3})O_3$ (Ln = La, Pr, and Nd) and $(Ba_{(1+x)/3}La_{(2-x)/3})(Zn_{1/3}Ti_{(2-x)/3}Nb_{x/3})O_3$*" Jpn. J Appl. Phys., **48**, 0614011 (2009).

15. V. Shanker, **S. L. Samal**, G. K. Pradhan, C. Narayana and A. K. Ganguli, "*Nanocrystalline $NaNbO_3$ and $NaTaO_3$: Rietveld studies, Raman spectroscopy and dielectric properties*", Solid State Sciences, **11**, 562 (2009).

16. **S. L. Samal**, S. E. Lofland, K. V. Ramanujachary, N. Sarkar, S. Ghosh and A.K. Ganguli, "*Effect of disorder on the electrical and superconducting properties in $Ln_{1.2}Ba_{1.2}Ca_{0.6}Cu_3O_{7+\delta}$ (Ln = La, Nd, Sm) and $La_{1.2-x}Nd_xBa_{1.2}Ca_{0.6}Cu_3O_{7+\delta}$*", Supercond. Sci. Technol., **21**, 085007 (2008).

17. **S. L. Samal**, S. E. Lofland, K. V. Ramanujachary, D. Das and A. K. Ganguli, "*Study on the solid solution of $YMn_{1-x}Fe_xO_3$: Structural, magnetic and dielectric properties*", J Solid State Chem. **181**, 61 (2008).

18. J. Prakash, S. J. Singh, **S. L. Samal**, S. Patnaik and A. K. Ganguli, "*Potassium fluoride doped LaOFeAs multi-band superconductor: evidence of extremely high upper critical field*", Euro. Phys. Letts., **84**, 570031 (2008).

19. P. Jha, **S. L Samal**, K. V. Ramanujachary, S. E. Lofland and A. K. Ganguli, *"$(La_{2/5}Ba_{2/5}Ca_{1/5})(Mn_{2/5-x}Ni_xTi_{3/5})O_3$. Rietveld studies, dielectric and magnetic properties of new perovskite-related oxides*", Bulletin of Materials Science, **28**, 571 (2005).

Awards and Fellowships

Dec. 2003- CSIR-JRF from Council of Scientific and Industrial Research New Delhi, India.

2002- Qualified Graduate Aptitude Test in Engineering in Chemical sciences