

CURRICULUM **VITAE**

AKSHAYA KUMAR SAMAL

Associate Professor

Centre for Nano and Materials Sciences (CNMS), Jain

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RESEARCH INTEREST

- Design and fabrication of shape dependent nanostructures for the diverse applications such as catalysis, energy, and environmental remediation.
- A detailed study on shape dependent chemistry and reactivity at different surface planes, edges, and corners at nanoscale.
- Selectivity, sensitivity and specificity of harmful contaminants such as pesticides and PFAS at trace level in the environment using anisotropic nanostructures as substrate through SERS.
- Shape dependent nanostructures such as cubes, nanorods, octahedra, decahedra and nanowires for the various catalytic application such as Suzuki-Miyura and Heck reaction and energy storage applications.

EDUCATION

Ph. D., Chemistry, Indian Institute of Technology Madras, India, 2010

Thesis title: Synthesis, Characterization and Properties of One-Dimensional Nanostructures

Research Advisor: Professor T. Pradeep

M. Sc., Chemistry, Sambalpur University, Orissa, India,

2001 Major: Physical Chemistry, Remarks: 1st Class

B. Sc., Utkal University, Orissa, India, 1999

Subjects: Chemistry (Major). Remarks: 1st Class with distinction

PROFESSIONAL EXPERIENCE

- Associate Professor: May 2021- till now
- Assistant Professor: July 2017- April 2021
Centre for Nano and Materials Sciences (CNMS), Jain University,
Bangalore
- Postdoctoral Fellow: April 2013- June 2017
Research Advisor: Prof. Jean-Marie Basset
King Abdullah University of Science and Technology, Thuwal, Saudi
Arabia
- Postdoctoral Fellow: September 2011- September 2012
Research Advisor: Prof. Luis M. Liz Marzan, University of Vigo, Spain
- Research Associate: August 2010-August 2011
Research Advisor: Prof. T. Pradeep, IIT Madras, India
- Research Scholar: August 2005-July 2010
Research Advisor: Prof. T. Pradeep, IIT Madras, India
- Project Assistant: January 2005-July 2005
Project Coordinator: Prof. T. Pradeep, IIT Madras, India
- Project Assistant: August 2003-March 2004
Project Coordinator: Prof. B. K. Patel, IIT Guwahati, India

TEACHING EXPERIENCE

- Teaching M.Sc. students (Physical Chemistry) at Centre for Nano and Material Sciences(CNMS), Jain University from July 2017 to till now.
- Laboratory classes for undergraduate students, physical chemistry practical-I in the Dept.of Chemistry at IIT Madras for four semesters.

AWARDS

- Research Peace Award 2019-2020, RULA Award powered by World Research Council.
- Secured 94.77 *percentile* in the prestigious national level examination,

Graduate Aptitude Test in Engineering (GATE) 2004 with all India rank 170.

- Junior and Senior Research Fellowship from IIT Madras to pursue Ph.D.

RESEARCH

Independent Research

- Design and fabrication of anisotropic nanoscale materials for catalysis, energy and environmental remediation.
- Synthesis of wide varieties of shape dependent nanostructures, core-shell and alloys for the diverse applications.
- A detailed study on shape dependent chemistry and reactivity at different surface planes, edges and corners at nanoscale.

Postdoctoral Research:

- Utilization of greenhouse gases (CH_4 & CO_2) for the production of hydrogen (H_2) /syngas and CO_2 for the value-added products such as methanol and dimethyl ether.
- One-pot and surfactant free synthesis of bimetallic nanoparticles of M-Sn (M = Ru, Rh or Ir) for hydrogenolysis of esters.
- Tomographic investigation of alloy and core-shell of Pd-Au-Pd & Pd-Ag-Pd nanocubes.
- Shape controlled synthesis Pd/Au & Pd/Ag catalysts for hydrogen production.
- Synthesis of Au@Ag core-shell spherical, decahedral and star-shaped nanoparticles for efficient surface enhanced Raman scattering (SERS) substrate.
- TEM-Characterization of NPs using CTEM-EDS, HRTEM, STEM and EFTEM

Doctoral Research:

- Synthesis of tellurium nanowires, gold nanoparticles and nanorods by wet-chemical method.

- Synthesis of metal tellurides such as silver telluride, lanthanum, and platinum tellurides using tellurium nanowires as the template.
- Reactivity of metal ions such as Hg^{2+} , Pb^{2+} , Cd^{2+} , and Zn^{2+} with silver telluride nanowires and formation of hybrid nanowires through cation exchange.
- Resistivity and Seebeck coefficient measurements of silver telluride.
- Properties such as SERS of tellurides using crystal violet as the analyte.
- Catalytic properties of platinum telluride.
- One-pot synthesis of gold nanorods with and without seed particles and the role of NaBH_4 in the seedless synthesis.
- Studies involved different techniques such as TEM, SEM, EDAX, Raman, XRD, DSC, XPS, ICP-OES, UV-vis. spectroscopy, and fluorescence spectroscopy.

RESEARCH OUTPUT

Total articles published: 55, Submitted: 3, Preparation: 4

Book Chapter: 6, Patent: 1 (US)

h-index: 21, Citation: 2158

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[=enORCID: https://orcid.org/0000-0002-7623-3711](https://orcid.org/0000-0002-7623-3711)

LIST OF PUBLICATIONS

1. Fate of surface enhances Raman spectroscopy (sers) technique for PFAS detection, S. Yadav, S. R. Jena, A. Altaee, **A. K. Samal**, *Environ. Res.*, 2022. (Submitted)
2. Functionalized silver nanocubes for the detection of hazardous analytes through SERS, Bhavya M. B., Ramya P. B, S. Yadav, N. S. John, A Altaee, R. G. Balakrishna, M. Saxena, **A.H. Jadhav, A. K. Samal**, 2022 (Submitted)
3. A Comprehensive study on Heterogeneous Single Atom Catalysis: Current

- Progress, and Challenges, S. Swain, M. Saxena, A. Altaee, **A. K. Samal**, *Coord. Chem. Rev.*, 2022. (Revision Submitted)
4. A unique bridging facets assembly of gold nanorods for the detection of thiram through SERS, Bhavya M. B., Ramya P. B, S. Yadav, N. S. John, A. Altaee, M. Saxena, **A. K. Samal**, *ACS Sustain. Chem. Eng.*, 2022. (Revision Submitted)
 5. Updated review on emerging technologies for PFAS contaminated water treatment, T. Tazwin, S. Yadav, I. Ibrar, R. A. AlJuboori, L. Singh, N. Ganbat, E. Karbassiyazdi, A. Malekizadeh, **A. K. Samal**, S. Subbiah, A. Altaee, *Chem. Eng. Res. Des.*, 2022. (RevisionSubmitted)
 6. Cobalt-Iron Decorated Tellurium Nanotubes for High Energy Density Supercapacitor, P. Bhol, S. Swain, A. Altaee, M. Saxena, **A. K. Samal**, *Mater. Today Chem.*, 2022. (Press)
 7. Identification of starch with assorted shapes derived from the fleshy root tuber of Phoenix sylvestris: extraction, morphological and techno-functional characterization, A. K. Biswal, S. Mishra, M. B. Bhavya, **A. K. Samal**, R. Merugu, M. K. Singh, P. K. Misra, *J. Food Meas. Charact.* 2022, 16, 1688–1701.
 8. Recent developments in state-of-the-art silica-modified catalysts for the fixation of CO₂ in epoxides to form organic carbonates, N. A. Raju, D. Prasad, P. M. Srinivasappa, A. V. Biradar, S. S. Gholap, A. K. Samal, B. M. Nagaraja, A. H. Jadhav, *Sustain. Energy Fuels* 2022, 6, 1198-1248.
 9. Evaluation of Machine Learning Algorithms to Predict Internal Concentration Polarization in Forward Osmosis, I. Ibrar, S. Yadav, A. Braytee, A. Altaee, A. H. Zadeh, **A. K. Samal**, J. L. Zhou, J. A. Khan, P. Bartocci, F. Fantozzi, *J. Membr. Sci.* 2022, 646, 120257.
 10. High-Performance Mild Annealed CNT/GO-PVA Composite Membrane for Brackish Water Treatment, S. Yadav, I. Ibrar, A Altaee, **A. K Samal**, E.

- Karbassiyazdi, J. Zhou, P. Bartocci, *Sep. Purif. Technol.* 2022, 285, 120361.
11. Preparation of Fouling Resistant and Highly Perm-Selective Novel PSf/GO-Vanillin Nanofiltration Membrane for Efficient Water Purification, S. Yadav, I. Ibrar, **A. K. Samal**,
A. Altaee, S. Déon, J. Zhou, N. Ghaffour, *J. Hazard. Mater.*, 2022, 421, 126744-126756.
 12. Co-Decorated Tellurium Nanotubes for Energy Storage Applications, P. Bhol, S. Swain, S. Jena, K. Bhatte, C. S. Rout, M. Saxena, A. H. Jadhav, **A. K. Samal**, *ACS Appl. Nano Mater.* 2021, 4, 9008-9021.
 13. Facet Dependent Catalytic Activity of Pd Nanocrystals for the Remedy of Organic Pollutant: A Mechanistic Study, S. Swain, B. M. Shenoy, P. Bhol, S. Yadav, S. R. Jena, G. Hegde, A. Altaee, M. Saxena, **A. K. Samal**, *Appl. Surf. Sci.*, 2021, 570, 150775-150784.
 14. Feasibility of H₂O₂ cleaning of forward osmosis membrane treating landfill leachate, I Ibrar, S. Yadav, N. Ganbat, **A. K Samal**, A. Altaee, J. L Zhou, T. V. Nguyen, *J. Environ. Manage.*, 2021, 294, 113024-113031.
 15. Heterostructures of 2D materials-quantum dots (QDs) for optoelectronic devices: Challenges and opportunities, S. Yadav, S. R. Jena, Bhavya M. B., A. Altaee, M. Saxena,
A. K. Samal, *Emergent Materials* 2021, 4, 901–922.
 16. Graphene-Based Membranes for Water and Wastewater Treatment: A Review, P. Bhol, S. Yadav, A. Altaee, M. Saxena, P. K. Misra, **A. K Samal**, *ACS Appl. Nano Mater.* 2021, 4, 4, 3274–3293.
 17. Catalytic activity of Au@Cu₂O core-shell nanostructure for the organic pollutant remediation, S. R. Jena, M. B. Bhavya, M. Sai Rashmi, P. Bhol, S. Swain, M. Saxena, P. K. Misra, **A. K. Samal**, *J. Phy. Chem. Solids*, 2021, 152, 109935-109944.
 18. Femtomolar detection of thiram via SERS using silver nanocubes as an efficient substrate,

- M. B. Bhavya, R. Prabhu, B. M. Shenoy, P. Bhol, S. Swain, M. Saxena, N. S. John, G. Hegde and **A. K. Samal**, *Environ. Sci.: Nano*, 2020, 7, 3999-4009.
19. Feasibility of brackish water and landfill leachate treatment by GO/MoS₂-PVA composite membranes, S. Yadav, I. Ibrar, A. Altaee, **A. K. Samal**, R. Ghobadi, J. Zhou, *Sci. Total Environ.*, 2020, 745, 141088.
 20. Treatment of biologically treated landfill leachate with forward osmosis: Investigating membrane performance and cleaning protocols, I. Ibrar, S. Yadav, A. Altaee, **A. K. Samal**, J. L Zhou, T. V. Nguyen, N. Ghanbat, *Sci. Total Environ.*, 2020, 744, 140901.
 21. Gold Nanorods as an Efficient Substrate for the Detection and Degradation of Pesticides, M. B. Bhavya, S. Rashmi, M. Saxena, Ramya Prabhu B, Neena S. John, R. GeethaBalakrishna, **A. K. Samal**, *Langmuir*, 2020, 36, 7332-7344.
 22. Organic Fouling in Forward Osmosis: A Comprehensive Review, S. Yadav, I. Ibrar, S. Bakly, D. Khanafer, A. Altaee, V. C. Padmanaban, **A. K. Samal**, A. H. Hawari, *Water*, 2020, 12, 1505-1540.
 23. Controlled Synthesis of Palladium Nanocubes as an Efficient Nanocatalyst for Suzuki- Miyaura Cross-Coupling and Reduction of p-Nitrophenol, S. Swain, M. B. Bhavya, K. Vishal, P. Bhol, **A. K. Samal**, S. A. Patil, *Langmuir*, 2020, 36, 5208-5218.
 24. Modern Chemical Routes for the Controlled Synthesis of Anisotropic Bimetallic Nanostructures and their Application in Catalysis, P. Bhol, Bhavya M. B., S. Swain, M. Saxena, **A. K. Samal**, *Front. Chem.*, 2020, 8, 357-383.
 25. Partially Graphitized Iron-carbon Hybrid Composite as Electrochemical Supercapacitor Material, M. S. Rashmi, A. Singh, C. S. Rout, **A. K. Samal**, M. Saxena, *Chem. Electro. Chem.*, 2020, 7, 1928-1934.
 26. Iron-Carbon Hybrid Magnetic Nanosheets for Adsorption-Removal of

- Organic Dyes and 4-Nitrophenol from Aqueous Solution, M. S. Rashmi, A. Singh, M. B. Bhavya, **A. K. Samal**, S. Srivastava, M. Saxena, *ACS Appl. Nano Mater.*, 2020, 3, 1571–1582.
27. Competency of Chlorination Roasting Coupled Water Leaching Process for Potash Recovery from K-feldspar: Mechanism and Kinetics Aspects, S. K. Jena, N. Dash, **A. K. Samal**; P. K. Misra, *Korean J. Chem. Eng.*, **2019**, 36, 2060-2073.
28. Highly Efficient Hydrogen Production by Hydrolysis of NaBH₄ Using Eminently Competent Recyclable Fe₂O₃ Decorated Oxidized MWCNTs Robust Catalyst, D. Prasad, K. N. Patil, N. Sandhya, C. R. Chaitra, J. T. Bhanushali, **A. K. Samal**, R. S. Keri, B. M. Nagaraja, A. H. Jadhav, *Appl Surf Sci.*, **2019**, 489, 538-551.
29. Acacia Concinna: A Natural Dispersant for Stabilization and Transportation of Fly Ash- Water Slurry, S. Patnaik, **A. K. Samal**, P. Parhi, D. Das, *J. Taiwan Inst. Chem. E* **2019**, 99, 193-200.
30. Understanding the Organization of Polyoxyethylated Alkyl Ethers of Variable Hydrocarbon and Oxyethylene Chain Length in Solution and at Air-Water Interface, A. K. Naik, J. Meher, P. Khandagiri, **A. K. Samal**, P. K. Misra, *Mater. Today Proc.* **2019**, 9, 535-541.
31. Role of Maceral Composition on the Formulation of Concentrated Coal-Water Slurry Using a Natural Surfactant, J. Meher, D. Das, **A. K. Samal**, P. K. Misra, *Mater. Today Proc.* **2019**, 9, 542-550.
32. Identification of the Secondary Structure of Protein Isolated from Deoiled Cake Flour of Mahua (*Madhuca latifolia*), A. K. Biswal, **A. K. Samal**, M. Tripathy, P. K. Misra, *Mater. Today Proc.* **2019**, 9, 605-614.
33. Ni-Sn Supported ZrO₂ Catalysts Modified by Indium for the Selective CO₂ Hydrogenation to Methanol, A. M. Hengne,[†] **A. K. Samal**,[†] L. R. Enakonda, M. Harb, L. Gevers, D. H. Anjum, M. Hedhili, Y. Saih, K. -W. Huang, J. -M. Basset, *ACS Omega*, **2018**, 3, 3688- 3701. ([†] *Equally contributed*)

34. A General Approach for the Synthesis of Bimetallic M-Sn (M= Ru, Rh and Ir) Catalysts for Efficient Hydrogenolysis of Ester, **A. K. Samal**, H. Zhu, M. Harb, S. S. Sangaru, D. H. Anjum, M. N. Hedhili, Y. Saih, J. -M. Basset, *Catal. Sci. Technol.*, **2017**, 7, 581-586.
35. Organosilane with Gemini-type Structure as the Mesoporegen for Synthesis of Hierarchical Porous ZSM-5 Zeolite, H. Zhu, E. A. Hamad, Y. Chen, Y. Saih, W. Liu, **A. K. Samal**, J.-M. Basset, *Langmuir*, **2016**, 32, 2085-2092.
36. Correction to Surface Composition of Silver Nanocubes and Their Influence on Morphological Stabilization and Catalytic Performance in Ethylene Epoxidation, S. S. Sangaru, H. Zhu, D. C. Rosenfeld, A. K. Samal, D. H. Anjum, J. -M. Basset, *ACS Appl. Mater. Interfaces* **2016**, 8, 5052-5052.
37. Surface Composition of Silver Nanocubes and their Influence on Morphological Stabilization and Catalytic Performance in Ethylene Epoxidation, S. S. Sangaru, H. Zhu, D. C. Rosenfeld, **A. K. Samal**, D. H. Anjum, J.-M. Basset, *ACS Appl. Mater. Interfaces*, **2015**, 7, 28576-28584.
38. Characterization of Core/Shell Bi-metallic Cube-shaped Nanoparticles with Scanning Transmission Electron Microscopy, D. H. Anjum, **A. K. Samal**, M. A. Roldan-Gutierrez, *Microsc. Microanal.* **2015**, 21, 1069-1070.
39. Sn Surface Enriched Pt-Sn Bimetallic Nanoparticles as a Selective and Stable Catalyst for Propane Dehydrogenation, H. Zhu, D. H. Anjum, Q. Wang, E. Abou-Hamad, L. Emsley, H. Dong, P. Laveille, L. Li, **A. K. Samal**, J. M. Basset, *J. Catal.* **2014**, 320, 52-62.
40. Manifestation of the Difference in Reactivity of Silver Clusters in Contrast to Its Ions and Nanoparticles: The Growth of Metal Tipped Te Nanowires, A. Som,[†] **A. K. Samal**,[†] T. U. B. Rao, M. S. Bootharaju, and T. Pradeep, *Chem. Mater.* **2014**, 26, 3049-3056. ([†] Equally contributed)

41. Size Tunable Au@Ag Core-Shell Nanoparticles: Synthesis and Surface-Enhanced Raman Spectroscopy Properties. **A. K. Samal**, L. Polavarapu, S. Rodal-Cedeira, L. M. Liz-Marzán, J. Pérez-Juste, and I. Pastoriza-Santos, *Langmuir*, **2013**, *12*, 15076-15082.
42. Hybrid A-B-A Type Nanowires through Cation Exchange, **A. K. Samal**, and T. Pradeep, *Nanoscale*, **2011**, *11*, 4840-4847.
43. Anisotropic Nanomaterials: Structure, Growth, Assembly, and Functions, P. R. Sajanlal, T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *Nano Rev.* **2011**, *2*, 5883. IF = 3.5
44. Pt₃Te₄ Nanoparticles from Tellurium Nanowires, **A. K. Samal**, and T. Pradeep, *Langmuir* **2010**, *26*, 19136-19141.
45. Lanthanum Telluride Nanowires: Formation, Doping, and Raman Studies, **A. K. Samal**, and T. Pradeep, *J. Phys. Chem. C* **2010**, *114*, 5871-5878.
46. Investigation the Role of NaBH₄ in the Chemical Synthesis of Gold Nanorods, **A. K. Samal**, T. S. Sreeprasad and T. Pradeep, *J. Nanopart. Res.* **2010**, *12*, 1777-1786. IF = 2.009
47. Optical Limiting Properties of Te and Ag₂Te Nanowires, C. S. S. Sandeep, **A. K. Samal**, T. Pradeep and R. Philip, *Chem. Phys. Lett.* **2010**, *485*, 326-330.
48. Room-Temperature Chemical Synthesis of Silver Telluride Nanowires, **A. K. Samal**, and T. Pradeep, *J. Phys. Chem. C* **2009**, *113*, 13539-13544.
49. Tellurium Nanowire-Induced Room Temperature Conversion of Graphite Oxide to Leaf-like Graphenic Structures, T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *J. Phys. Chem. C* **2009**, *113*, 1727-1737.
50. Bending and Shell Formation of Tellurium Nanowires Induced by Thiols, T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *Chem. Mater.* **2009**, *21*, 4527-4540.
51. One-, Two-, and Three-Dimensional Superstructures of Gold Nanorods

- Induced by Dimercaptosuccinic Acid, T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *Langmuir* **2008**, *24*, 4589-4599.
52. Reactivity and Resizing of Gold Nanorods in Presence of Cu^{2+} , T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *Bull. Mater. Sci.* **2008**, *31*, 219-224.
53. Hemoprotein Bioconjugates of Gold and Silver Nanoparticles and Gold Nanorods: Structure-Function Correlations, R. T. Tom, **A. K. Samal**, T. S. Sreeprasad, and T. Pradeep, *Langmuir* **2007**, *23*, 1320-1325.
54. Gold Nanorods Grown on Microgels Leading to Hexagonal Nanostructures, V. R. Rajeev Kumar, **A. K. Samal**, T. S. Sreeprasad, and T. Pradeep, *Langmuir* **2007**, *23*, 8667-8669.
55. Body or Tip Controlled Reactivity of Gold Nanorods and Their Conversion to Particles through other Anisotropic Structures, T. S. Sreeprasad, **A. K. Samal**, and T. Pradeep, *Langmuir* **2007**, *23*, 9463-9471.
56. Aqueous-Mediated N-Alkylation of Amines. C. B. Singh, V. Kavala, **A. K. Samal**, and B. K. Patel, *Eur. J. Org. Chem.* **2007**, *32*, 5441.
57. Aqueous-Mediated N-Alkylation of Amines. C. B. Singh, V. Kavala, **A. K. Samal**, and B.K. Patel, *Eur. J. Org. Chem.* **2007**, *8*, 1369-1377.
58. Water as catalyst and solvent: Tetrahydropyranylation of alcohols in an aqueous medium, V. Kavala, **A. K. Samal**, and B. K. Patel, *Arkivoc* **2005** (*i*), 20-29.

BOOK CHAPTERS

59. A chapter “*One-Dimensional Nanostructures: Nanorods and Nanowires*” in the book “**A Textbook of Nanoscience and Nanotechnology**”. McGraw Hill Education India Private Limited, 2012, ISBN-10: 1259007324.
60. A chapter “*Role of surfactants in facet dependent synthesis of anisotropic nanostructures*” in the book “**Chemical Modifications of Solid Surfaces by the Use of Additives**” Bentham Science Publishers Pte. Ltd. Singapore

068898. 2021.

61. A chapter “*Synthesis of Functionalized Nanomaterial (FNM)–Based Catalytic Materials*” in the book “**Functionalized Nanomaterials for Catalytic Application: Trends & Developments**” Wiley-Scrivener Publishers, 2021. ISBN: 9781119809036
62. A chapter “*Functionalized Nanomaterials (FNMs) for Environmental Applications*” in the book “**Functionalized Nanomaterials for Catalytic Application: Trends & Developments**” Wiley-Scrivener Publishers, 2021. ISBN: 9781119809036
63. A chapter “Miniaturization/Lab on chip Nano Energy application” in the book “**Handbook on Modern Miniaturization Technologies**” CRC Press, a Taylor and Francis Group publishers, 2021.
64. A chapter “Advanced Functional Materials for the Detection of Perfluorinated Compounds in Water” in the book “**Advanced Polymeric Functional Materials for Energy and Environment**” Springer, 2021, ISBN: 978-981-16-8757-0.

PATENTS

65. Boron-containing catalysts for dry reforming of methane to synthesis gas (*US Patent*), K. Takanabe, J. -M. Basset, J. -H. Park, A. K. Samal, B. Al-Sabban. International Application Number: PCT/IB2017/053784, International Publication Number: WO 2018/002802 A1
66. Ultra-low detection of thiram through a unique bridging facet assembly of gold nanorods via SERS, **A. K. Samal**, M. B. Bhavya, M. Saxena, Submitted.
67. Sacrificial template role of Tellurium (Te) nanotubes and synthesis of bimetallic cobalt- iron-decorated Te nanotubes for supercapacitor, **A. K. Samal**, P. Bhol, M. Saxena, Submitted.

COFERENCES

1. *Controllable synthesis of anisotropic nanoparticles for ultra-low-level detection of pesticides*, M. B. Bhavya, Sai Rashmi, Manav Saxena, **A. K. Samal**. "International Conference on Chemical Sciences and Nanomaterials", March 7-9, 2019, VIT, Vellore.
2. *Controllable synthesis of anisotropic nanoparticles for pesticide detection*, M. B. Bhavya, **A. K. Samal**. 11th Annual Conference-KSTA on "New vistas in science and technology for common good", Feb. 1-3, 2019, NMKRV College, Bangalore.
3. *Detection of pesticides on fruits using gold nanorods*, M. B. Bhavya, **A. K. Samal**. International conference on "Green Methods for Separation, Purification and Nanomaterials Synthesis", April 24-25, 2018, CNMS, Jain University, Bangalore.
4. *Control Synthesis of Bimetallic Catalyst for Hydrogenolysis of Esters*, **A. K. Samal**, H. Zhu, S. S. Sangaru, Y. Saih and J.-M Basset, Applied Functional Material Chemistry, KAUST, Organized by ACS KAUST, Oct' 26-28, 2014, Kingdom of Saudi Arabia
5. *Control Synthesis of Bimetallic Catalysts for Selective Hydrogenolysis of Esters*, **A. K. Samal**, H. Zhu, S. S. Sangaru, D. H. Anjum, Y. Saih and J. - M. Basset, Catalytic Carbon and Hydrogen Management Symposium, KAUST, Organized by KCC, KAUST, Feb' 1-4, 2015, Kingdom of Saudi Arabia.
6. *Redispersible and Functionlized Gold Nanorod Powders*, **A. K. Samal**, and T. Pradeep, 9th CRSI National Symposium in Chemistry, University of Delhi, Feb' 1-4, 2007, India.

EDITORIAL BOARD MEMBER

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- Lifetime member: Indian Association of Nanoscience and Nanotechnology
- Lifetime member: Catalysis Society of India
- Patron Member: Orissa Chemical Society

LIST OF SPONSORED PROJECTS AS PRINCIPAL INVESTIGATOR (PI)

Sl. No	Title of the Project	Sponsoring Agency	Year	Value (Lakhs)	Status
1	Size Controlled Bimetallic Nanoparticles for CO ₂ to Methanol and Dimethyl ether	Jain University, Bangalore	2017-2020	3.00	Completed
2	Design and Controlled Fabrication of Anisotropic Nanoparticles for Catalysis and Sensing Applications	Science and Engineering Research Board (DST-SERB)	2019-2022	60.61	Ongoing

3	Controlled Synthesis of Anisotropic Nanomaterials for Detection of Pesticides	Vision Group on Science and Technology (VGST)	2019-2020	5.00	Completed
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THESIS (MASTERS/Ph.D.) SUPERVISION

Ph.D. Student: 1 (submitted thesis), 3 (on going)

Name	Tentative thesis title
Bhavya M. B. (Thesis submitted)	Controllable synthesis of anisotropic nanomaterials for sensing applications
Prangya Bhol	Design and fabrication of metal chalcogenide nanostructures for energy storage
Swarnalata Swain	Design and fabrication of palladium based anisotropic nanostructures for catalysis
Novuhulu Rhakho	Low-cost anisotropic nanostructures for pollutant remediation and simultaneous value addition

M.Sc. Student: 3 (completed), 1 (on going)

Name	Thesis title
Abhinav Nair (completed)	Synthesis, characterization, and properties of one-dimensional metal telluride
Satya Ranjan Jena (completed)	Controlled synthesis of core-shell nanostructures for the organic pollutant remediation
Tanmay K. Parida (completed)	Controlled synthesis of Fe ₃ O ₄ nanostructures for organic pollutant remediation

Ramya Priya G (On going)	Cost effective anisotropic nanostructures for PFAS degradation
Subham K Subudhi (On going)	Bimetallic nanostructures for sensing applications

M.Sc. Interns: 4 (May 2018- July 2018, 3 months)

Name	Institute	Thesis title
Swarnalata Swain	Sambalpur University, Orissa	Synthesis of palladium nanocubes and its application for Suzuki coupling reaction
Prangya Bhol	Sambalpur University, Orissa	Synthesis of tellurium nanowires and metal tellurides for supercapacitors
Divyajyoti Sahu	Sambalpur University, Orissa	Facile synthesis of silver nanocubes for pesticide removal
Manbit S. Panda	Sambalpur University, Orissa	Synthesis of gold nanostructures for catalytic degradation of methylene blue

M.Sc. Interns: 2 (April 2019- June 2019)

Name	Institute	Thesis title
Meenakshi N	Christ University, Bangalore	Synthesis of bimetallic alloys nanostructures for catalytic conversion
Karthika G Nair	M. G. University, Kerala	Synthesis of core-shell nanostructures for sensing application