




## Detail Bio-data: Dr. Sasanka Deka

Title	Dr.	First Name	Sasanka	Last Name	Deka	Photograph
Designation	Assistant Professor					
Address	Department of Chemistry, University of Delhi, North Campus, Delhi-110007. Faculty M.Tech. Nanoscience and Nanotechnology course (NSNT) Office: #203, 2 <sup>nd</sup> floor, Old USIC building, DU.					
Phone No Office	27666646					
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Email	<a href="mailto:ssdeka@gmail.com">ssdeka@gmail.com</a> , <a href="mailto:sdeka@chemistry.du.ac.in">sdeka@chemistry.du.ac.in</a> , <a href="http://people.du.ac.in/~sdeka/">http://people.du.ac.in/~sdeka/</a> (click here)					
Web-Page						
Educational Qualifications						
Degree	Institution				Year, Division, (% PC)	
<b>Ph.D.</b>	Ph.D. (Chemistry), National Chemical Laboratory (NCL), Pune				2007	
<b>PG</b>	M.Sc. (Chemistry), Gauhati University, Guwahati				2001, 1 <sup>st</sup> Div.	
Career Profile						
<p>1<sup>st</sup> June, 2010 – till date: Assistant Professor, Department of Chemistry, University of Delhi.</p> <p>2009 - 2010: Senior Post Doctoral Researcher, Italian Institute of Technology (IIT), Genova, Italy.</p> <p>2007 - 2009: Post Doctoral Researcher, National Nanotechnology Laboratory, Lecce, Italy.</p> <p>2001 - 2002: Project Research Fellow, Institute of Advance Study in Science and Technology (IASST), Guwahati, India.</p>						
Administrative Assignments						
<p>Superintendent of Examination-NSNT-May/June-2012; Time table fixation Committee; Member Seminar Committee Chemistry; Member departmental instrument committee; Convener of NSNT conference; Organizing committee member; Deputy convener centralized evaluation centre. Departmental Nodal officer for NorthEast Students. Convener Inorganic section.</p>						
Areas of Interest / Specialization						
<p>Nanochemistry, Novel nanomaterials for energy research &amp; applications, Nanomaterials for catalyst; Multifunctional materials, Hybrid nanocrystals, Inorganic chemistry.</p>						

Subjects Taught
<p><u>M.Tech. (Nanoscience and Nanotechnology)</u></p> <p>NSNT-103: Photochemistry, Surface phenomena and catalysis, Phase transformation  NSNT-204: Synthesis and Characterization of Nano Materials, Physical methods, Chemical methods.  NSNT-301: Material Science  NSNT-402: Properties of Nanomaterials  NSNT-205: Chemistry Practical</p> <p><u>M. Sc. Final (Theory Course A, paper 301)</u></p> <p>Inorganic Reaction Mechanisms; Molecular rearrangement processes</p> <p><u>M. Sc. Final (Practical course)</u></p> <p>Instrumental techniques in Inorganic chemistry</p> <p><u>M. Sc. Previous:</u> Inorganic chemistry paper 201 course B: Chemistry of 'd' &amp; 'f' block elements</p> <p><u>M. Sc. Previous:</u> Practical: Inorganic chemistry</p> <p><u>Ph.D. Course work ( Unit 23):</u> Inorganic reaction mechanisms</p> <p><u>Ph.D. Course work:</u> Nanochemistry</p>
Research Guidance
<p><b>Ph.D. degree awarded: 02</b></p> <p><b>Ph.D. thesis submitted: 02</b></p> <p><b>Supervision of Doctoral Thesis, under progress: 04</b></p> <p><b>Postdoctoral researcher/Research associate: 01</b></p> <p><b>Supervision of M.Tech/M.Sc. dissertation (5/6 months): 15</b></p>
Publications Profile
<p><b>Patent</b></p> <ol style="list-style-type: none"> <li>1. "A process for producing aromatic carboxylic acids by oxidation of methyl arenes" <b>Indian Patent application No.</b> 1346/DEL/2013 dated 7<sup>th</sup> May 2013, Saha, B.; <b>Deka, S.</b>; Gupta, D.; Deori, K.</li> <li>2. "Octapod shaped nanocrystals and use thereof", <b>U.S. Patent Application no.</b> 13/196123. Case No: 4161-65. (02-08-2011) L. Manna, D. Dorfs, Miszta, K.; <b>Deka, S.</b>; Genovese, A. G. Bertoni, R. Brescia, S. Marras, Y. Zhang, R. Krahn, R. Cingolani.</li> </ol> <p><b>Books/Monographs (Authored)</b></p> <ol style="list-style-type: none"> <li>1. Krahn, R., Manna, L., Morello, G., Figuerola, A., George, C., <b>Deka, S.</b> 2013. Physical Properties of Nanorods. Springer publications, NanoScience and Technology series, <b>ISBN 978-3-642-36430-3</b></li> <li>2. <b>Deka, S.</b> 2011. Doped Transition Metal Oxide and Ferrite Nanocrystals. Lap Lambert Academic Publishing GmbH &amp; Co. KG, Germany, <b>ISBN 978-3-8443-2306-1.</b> (authored)</li> </ol> <p><b>Research papers published in Refereed/Peer Reviewed Journals</b></p>

1. H. Chauhan, M.K. Singh, P. Kumar, S. A. Hashmi and **Sasanka Deka\*** "Development of SnS<sub>2</sub>/RGO nanosheets composite for cost-effective aqueous hybrid supercapacitors" *Nanotechnology*, 2017, 28, 025401.
2. T. Das, H. Chauhan, **Sasanka Deka\***, S. Chaudhary, R. Boruah, B. K. Saikia\* "Promising carbon nanosheet-based supercapacitor electrode materials from low-grade coals" *Microporous and Mesoporous Materials*, 2017, DOI: <https://doi.org/10.1016/j.micromeso.2017.06.030>
3. B. Deka, T. Sarkar, S. Banerjee,\* A. Kumar, S. Mukherjee, **Sasanka Deka,\*** K. K. Saikia\* and A. Hussain\* "Novel mitochondria targeted copper(II) complexes of ferrocenyl terpyridine and anticancer active 8-hydroxyquinolines showing remarkable Q1 cytotoxicity, DNA and protein binding affinity" *Dalton Trans.*, 2017, 46, 396.
4. H. Chauhan, Y. Kumar, J. Dana, B. Satpati, H. N. Ghosh\* and **Sasanka Deka\*** "Photoinduced ultrafast charge separation in colloidal 2-dimensional CdSe/CdS-Au hybrid nanoplatelets and corresponding application in photocatalysis" *Nanoscale*, 2016, 8, 15802–15812.
5. M. Kumar, K. Soni, B. Satpati, G. S Chinnakonda and **Sasanka Deka\*** "Exploration of magnetically separable Ag@AgxNiy core/graded-alloy-shell nanostructures" *Chem. Commun.*, 2016, 52, 8737-8740.
6. M. Kumar, K. Soni, G. D. Yadav, S. Singh, **Sasanka Deka\***, "Surfactant directed Ag<sub>1-x</sub>Ni alloy nanoparticle catalysed synthesis of aromatic azo derivatives from aromatic amines" *Appl. Cat. A: General*, 2016, 525, 50–58.
7. H. Chauhan, K. Soni, M. Kumar, **Sasanka Deka\***, "Tandem Photocatalysis of Graphene-Stacked SnS<sub>2</sub> Nanodiscs and Nanosheets with Efficient Carrier Separation" *ACS Omega* 2016, 1, 127–137.
8. S Das, B Satpati, H Chauhan, **S Deka**, MK Ghosalya, CS Gopinath, T Bala, "Seeding of Au on CdSe/CdS nanoplates using Langmuir–Blodgett technique" *RSC Advances* 2016, 6 (18), 14658-14665
9. Priya Kush, kalyanjyoti Deori, Anup Kumar and **Sasanka Deka\***, "Efficient Hydrogen/Oxygen Evolution and Photocatalytic Dye Degradation and Reduction of Aqueous Cr(VI) by Surfactant Free Hydrophilic Cu<sub>2</sub>ZnSnS<sub>4</sub> Nanoparticles", *J. Mater. Chem. A*, 2015, 3, 8098-8106.
10. Kalyanjyoti Deori, Chinmoy Kalita, **Deka Sasanka\***, "(100) surface exposed CeO<sub>2</sub> Nanocube as Efficient Heterogeneous Catalyst in Tandem Oxidation of Benzyl Alcohol, para-Chlorobenzyl Alcohol and Toluene to Corresponding Aldehydes Selectively", *J. Mater. Chem. A*, 2015, 3, 6909-6920.
11. Priya Kush, **Deka Sasanka\***, "Anisotropic kesterite Cu<sub>2</sub>ZnSnSe<sub>4</sub> colloidal nanoparticles: Photoelectrical and photocatalytic properties" *Mater. Chem. Phys.*, 2015, 162, 608-616.
12. Himani Chauhan, Manoj K Singh, S.A. Hashmi and **Sasanka Deka\***, "Synthesis of surfactant free SnS nanorods by solvothermal route with better electrochemical properties towards supercapacitor application", *RSC Advances*, 2015, 5, 17228-17235.
13. Kumar, M. **Deka, Sasanka\*** "Multiply twinned AgNi alloy nanoparticles as highly active catalyst for multiple reduction and degradation reactions". *ACS Appl. Mater. Interfaces*, 2014, 6, p 16071–16081.
14. Das, S. Satpati, B. Himani Chauhan, **Deka, Sasanka**. Chinnakonda S. Gopinath and Tanushree Bala, "Preferential growth of Au on CdSe quantum dots using Langmuir–Blodgett technique" *RSC Advances*, 2014, 4, 64535-64541.
15. Deori, K. Gupta, D. Saha, B. **Deka, Sasanka\***. 2014 "Design of 3-Dimensionally Self-Assembled CeO<sub>2</sub> Nanocube as a Breakthrough Catalyst for Efficient Alkylarene Oxidation in Water" *ACS Catal.*, 4, p

3169-3179

16. Chauhan, H. Kumar, Y. **Deka, Sasanka\***. 2014 "New synthesis of two-dimensional CdSe/CdS core@shell dot-in-hexagonal platelet nanoheterostructures with interesting optical properties" *Nanoscale*, 6, p 10347-10354
17. Kush, P. **Deka, Sasanka\***. 2014 "Photoelectrical properties of surfactant free kesterite Cu<sub>2</sub>ZnSnSe<sub>4</sub> hydrophilic nanocrystal ink and the stability in polar solvents" *Journal of Nanoparticle Research*. 16:2600
18. Deori, K. Ujjain, S.K. Sharma, R. K. **Deka, Sasanka\***. 2013 "Morphology Controlled Synthesis of Nanoporous Co<sub>3</sub>O<sub>4</sub> Nanostructures and Their Charge Storage Characteristics in Supercapacitors" *ACS Appl. Mater. Interfaces*, 5 (21), 10665–10672.
19. Deori, K. S. **Deka, Sasanka\***. 2013 "Morphology oriented surfactant dependent CoO and reaction time dependent Co<sub>3</sub>O<sub>4</sub> nanocrystals from single synthesis method and their optical and magnetic properties" *CrysEngComm*, 15, 8465-8474.
20. Kush, P. Ujjain, S.K. Mehra, N. C. Jha, P. Sharma, R. K. **Deka, Sasanka\***. 2013 Development and Properties of Surfactant-Free Water-Dispersible Cu<sub>2</sub>ZnSnS<sub>4</sub> Nanocrystals: A Material for Low-Cost Photovoltaics *ChemPhysChem* 14, 2793 – 2799.
21. Deori, K. Gupta, D. Saha, B. Awasthi, S. **Deka, Sasanka\***. 2013. Introducing Nanocrystalline CeO<sub>2</sub> as Heterogeneous Environmental Friendly Catalyst for the Aerobic Oxidation of Para-xylene to Terephthalic Acid in Water" *J. Mater. Chem. A* 1, p7091-7099.
22. Kush, P. Mehra, N.C. **Deka, Sasanka\***. 2013. Synthesis, characterization and optical properties of novel hierarchical flower like pyrite FeS<sub>2</sub> particles for low cost photovoltaics. *Sci. Adv. Mater.* 5(7) 588-595.
23. Vilvamani, N. **Deka, S.** Gupta, T. 2013 Transition metal ion-induced anisotropic architectures using 4,4'-dicarboxy-2,2'-bipyridyl-silver nanopetals. *Adv. Mater. Lett.*, 4(4), 252-260.
24. Shankar, S. S., **Deka, S\***. 2011. Metal nanocrystals and their applications in biomedical systems. *Science of Advanced Materials* 3(2): 169-195.
25. Krahne, R., Morello, G., Figuerola, A., George, C., **Deka, S.**, Manna, L. 2011. Physical properties of elongated inorganic nanoparticles. *Physics Reports* 501(3-5): 75-221
26. **Deka, S**, K Miszta, D Dorfs, A Genovese, G Bertoni and L Manna. 2010. Octapod-shaped colloidal nanocrystals of cadmium chalcogenides via "one-pot" cation exchange and seeded growth. *Nano Lett.* 10 (9): 3770–3776.
27. **Deka, S**, A, Genovese, Y Zhang, K Miszta, G Bertoni, R Krahne, C Giannini and L Manna. 2010. Phosphine-Free Synthesis of p-Type Copper(I) Selenide Nanocrystals in Hot Coordinating Solvents. *Journal of the American Chemical Society*. 132(26): 8912-8914.
28. **Deka, S\***, A Falqui, G Bertoni, C Sangregorio, G Morello, M De Giorgi, C Giannini, R Cingolani, L Manna and P D Cozzoli. 2009. Fluorescent Asymmetrically Cobalt-Tipped CdSe@CdS Core@Shell Nanorod Heterostructures Exhibiting Room-Temperature Ferromagnetic Behavior. *Journal of the American Chemical Society*. 131(35): 12817-12828.
29. Quarta, A, A Ragusa, **S Deka**, C Tortiglione, A Tino, R Cingolani and T Pellegrino. 2009. Bio-conjugation of rod-shaped fluorescent nanocrystals for efficient targeted cell labeling. *Langmuir*. 25(21): 12614-12622.

30. **Deka, S**, A Quarta, M G Lupo, A Falqui, S Boninelli, G Lanzani, G Morello, M De Giorgi, C Giannini, R Cingolani, T Pellegrino and L Manna. 2009. CdSe/CdS/ZnS Double Shell Nanorods with High Photoluminescence Efficiency and Their Exploitation As Biolabeling Probes. *Journal of the American Chemical Society*. 131(8): 2948-2958.
31. **Deka, S\*** and P A Joy. 2009. Single step synthesis and properties of M/MFe<sub>2</sub>O<sub>4</sub> and PVDF/M/MFe<sub>2</sub>O<sub>4</sub> (M = Co, Ni) magnetic nanocomposites. *Science of Advanced Materials*. 1 (3): 262-268.
32. **Deka, S** and P A Joy. 2008. Superparamagnetic Nanocrystalline ZnFe<sub>2</sub>O<sub>4</sub> with a Very High Curie Temperature. *Journal of Nanoscience and Nanotechnology*. 8 (8): 3955-3958.
33. Sreeja, V, S Vijayanand, **S Deka** and P A Joy. 2008. Magnetic and Mössbauer spectroscopic studies of NiZn ferrite nanoparticles synthesized by a combustion method. *Hyperfine Interact.* 189 (1-3): 99-107.
34. **Deka, S** and P A Joy. 2007. Enhancement of the phase transformation temperature of  $\gamma$ -Fe<sub>2</sub>O<sub>3</sub> by Zn<sup>2+</sup> doping. *Journal of Materials Chemistry*. 17(5): 453-456.
35. **Deka, S** and P A Joy. 2007. Enhanced permeability and dielectric constant of NiZn ferrite synthesized in nanocrystalline form by a combustion method. *Journal of the American Ceramic Society*. 90 (5): 1494-1499.
36. **Deka, S** and P A Joy. 2007. Synthesis and magnetic properties of Mn doped ZnO nanowires. *Solid State Communications*. 142 (4): 190-194.
37. **Deka, S** and P A Joy. 2006. Ferromagnetism induced by hydrogen in polycrystalline nonmagnetic Zn<sub>0.95</sub>Co<sub>0.05</sub>O. *Applied Physics Letter*. 89(3): 032508.
38. **Deka, S**, R Pasricha and P A Joy. 2006. Experimental comparison of the structural, magnetic, electronic, and optical properties of ferromagnetic and paramagnetic polycrystalline Zn<sub>1-x</sub>Co<sub>x</sub>O (x = 0, 0.05, 0.1). *Physical Review B*. 74(3): 033201.
39. **Deka, S** and P A Joy. 2006. Characterization of nanosized NiZn ferrite synthesized by an auto-combustion method. *Materials Chemistry & Physics*. 100 (1): 98-101.
40. Rajendran, M, **S Deka**, P A Joy and A K Bhattacharya. 2006. Size-dependent magnetic properties of nanocrystalline yttrium iron garnet powders. *Journal of Magnetism & Magnetic Materials*. 301(1): 212-219.
41. **Deka, S** and P A Joy. 2006. Electronic structure and ferromagnetism of polycrystalline Zn<sub>1-x</sub>Co<sub>x</sub>O (0 < x < 0.15). *Solid State Communications*. 134 (10): 665-669. (TOP 25 Hottest and most downloaded article within the journal).
42. **Deka, S** and P A Joy. 2005. Direct observation of Ni metal impurities in lightly doped ferromagnetic polycrystalline (ZnNi)O. *Chemistry of Materials*. 17(26): 6507-6510.
43. **Deka, S** and P A Joy. 2004. Nanocrystalline Zinc ferrite with high magnetization at room temperature. *MSI Bulletin*. 27: 23-25.
44. **Deka, S**, R Pasricha and P A Joy. 2004. Synthesis and ferromagnetic properties of lightly doped nanocrystalline Zn<sub>1-x</sub>Co<sub>x</sub>O. *Chemistry of Materials*. 16(7): 1168-1169.

**Research papers published in Refereed/Peer Reviewed Conferences**

1. **Deka, S** and P A Joy. 2008. Studies on ZnO based diluted magnetic semiconductors. In proceedings TMS Annual Meeting 3, March 9-13, 2008, New Orleans, USA, 373-378. Warrendale, USA: TMS.

2. **Deka, S**, A Falqui, C Sangregorio, C Giannini, R Cingolani, L Manna and P Davide Cozzoli. Synthesis structural and magnetic properties of magnetic metal/semiconductor nanocrystals heterostructures. In proceedings *EMRS, Fall Meeting*, September 15-19, 2008, Warsaw, Poland, Warsaw: EMRS.
3. **Deka, S**, S K Date and P A Joy. 2004. High magnetic aspects of nanosized NiZn ferrite powders synthesized by an auto combustion method. In proceedings *9th International Conference on Ferrites (ICF-9)*, August 23-27, 2004, San Francisco, USA, 149-154: Wiley-Blackwell.
4. **Deka, S**, S K Date and P A Joy. 2004. Synthesis and magnetic properties of polycrystalline Co doped ZnO. In proceedings *9th International Conference on Ferrites (ICF-9)*, August 23-27, San Francisco, USA, 913-918: Wiley-Blackwell.

#### Conference Organization/ Presentations

##### ***Participation as Paper/Oral/Poster Presenter***

Deka, S, 2015. Synthesis, characterization and applications of CeO<sub>2</sub> nanocube and Cu<sub>2</sub>ZnSnS<sub>4</sub> nanoparticles in green chemistry, *RSC workshop on Chemistry for tomorrow's world*, December 2-3, 2015 at New Delhi by Royal Society of Chemistry, London.

Deka, S. 2014. Nanoporous CoO and Co<sub>3</sub>O<sub>4</sub> Nanostructures and Their Charge Storage Characteristics in Supercapacitors. Paper presented at 2014 MRS Spring Meeting, April 21-25, Moscone West Convention Center, San Francisco California, USA.

Deka, S. 2014. Development, characterization and studies of metal chalcogenide (Cu<sub>2</sub>ZnSnS<sub>4</sub>) and metal oxide (Co<sub>3</sub>O<sub>4</sub>) nanomaterials for energy applications. Paper presented at *6th International Conference On Nano Science And Technology (ICONSAT-2014)*, March 2-5, 2014, INST, Mohali, Chandigarh.

Deka, S. 2013. Nanocrystalline CeO<sub>2</sub> as Heterogeneous Environmental Friendly Catalyst for the Aerobic Oxidation of Para-xylene to Terephthalic Acid in Water. Paper presented at *3rd International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013)*, Dec 1-3, 2013, IIT-Guwahati.

Deka, S. 2012. Environment friendly hierarchical flower like pyrite FeS<sub>2</sub> ink for low cost photovoltaics. Paper presented at the *INDO-GERMAN Workshop on Advanced Materials for Future Energy Requirements*, November 29-30, 2012, Conference Centre, University of Delhi, Delhi.

Deka, S. 2012. Synthesis and characterization of two phases of cobalt oxide nano- and micro-particles and their applications. Paper presented at the *International Conference and Workshop On Nanostructured Ceramics and other Nanomaterials (ICWNCCN) 2012*, March 13-16, 2012, Conference Centre, University of Delhi, Delhi.

Deka, S. 2011. Synthesis of Hierarchical Pyrite FeS<sub>2</sub> flower like particles for low cost photovoltaics. Paper presented at the *2nd Indo-Italian Workshop on Electrochemistry for Future Energy Solutions IIWEc 2011*, Nov. 30th-Dec 3rd, 2011, Department of Chemistry, University of Delhi, Delhi.



Deka, S. 2011. Multifunctional Hybrid Nanocrystals: Synthesis, Characterization and Applications. Paper presented at the *INDO-US Meeting on New Functional Materials: Synthesis, Properties and Methods (IUSSTF)*, June 2-7, 2011, Hotel Manu Allaya, Manali, Himachal Pradesh.

Deka, S. 2011. Multifunctional Hybrid Nanocrystals: Synthesis, Characterization and Applications. Paper presented at the *National Seminar on Recent Advances on Synthesis and Catalysis 2011 (RASC-11)*, February 10-12, 2011, Dibrugarh University, Dibrugarh, India

Deka, S. 2010. Synthesis of cuboctahedron shaped  $\text{Cu}_{2-x}\text{Se}$  nanocrystals and transforming them to Cadmium Chalcogenide multipods via quantitative cation exchange reaction. Paper presented at the *International Interdisciplinary Science Conference-2010*, December 2-4, 2010, Jamia Millia Islamia, New Delhi, India

Deka, S. 2008. Synthesis, structural and magnetic properties of magnetic metal/semiconductor nanocrystals heterostructures. Paper presented at the *E-MRS 2008 Fall Meeting*, September 15-19, 2008, Warsaw, Poland.

Deka, S. 2008. CdSe/CdS/ZnS core-shell-shell nanorods with high quantum efficiency. Paper presented at the *2<sup>nd</sup> International Conference on Advanced Nanomaterials (ANM 2008)* June 22-25, 2008, Aveiro, Portugal.

Deka, S. 2008. Bifunctional magnetic metal/ semiconductor nanocrystal heterostructures. Paper presented at the *NANAX3*, May 21-23, 2008, Lecce, Italy.

#### Awards and Distinctions

**Best speaker (oral)** in RSC workshop on Chemistry for tomorrow's world, December 2-3, 2015 at New Delhi by Royal Society of Chemistry, London.

**DAE-BRNS Young Scientist Award-2011** by Department of Atomic Energy, Board of Research in Nuclear Sciences, Govt. of INDIA.

**Invited** as 'Young Scientist' in 'National Seminar on Recent advances in synthesis and catalysis' (RASC-11) during 10-12th Feb 2011, Dibrugarh University, Dibrugarh, Assam.

**TMS Foundation SHRI RAM ARORA AWARD**, The Minerals, Metals & Materials Society (TMS), Warrendale, PA 15086-7514, USA, 2008.

Award of Junior/Senior Research Fellowship (**JRF/SRF-NET**) by UGC-CSIR, Govt. of India, New Delhi, 2002-2004-2007.

**Best Poster Award**, National Science day poster presentation, NCL Research Foundation, National Chemical Laboratory, Pune, India, 2006.

Award of **National Level merit Scholarship** by AICTE, Govt. of India, 1993-1995.

#### Projects undertaken

Extramural research projects from

SERB (2)

DBT (1)

DAE (1)

CSIR (1)

DST-DAAD (1)

#### Association With Professional Bodies

##### **Reviewing**

Reviewer of ACS, RSC, Elsevier, Wiley, etc. journals.

##### **Memberships**

Life member: Chemical Research Society of India (CRSI). LM 1917

Life member: Materials Research Society of India (MRSI). LMB2254

Honorary Member, American Chemical Society (2015-2018).

Life Member: Electron Microscope Society of India. LM 893

#### Other Activities

##### **Invited talk/Resource person:**

Invited talk "Exploration of multiply twinned AgNi alloy nanoparticles as highly active catalyst for multiple transformation reactions" at International Conference on Catalysis and Chemical Engineering" (CCE-2017), February 22-24, 2017 Baltimore, USA. organized by the: United Scientific Group, 2088 B2 Walsh Avenue Santa Clara, CA 95050, USA

Invited talk "Exploration of unique two dimensional CdSe/CdS core@shell hexagonal nanoheteroplateles and CdSe/CdS-Au hybrid nanocrystals" at The International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) 11-15, December 2016, Bangalore, INDIA. (14-12-2016).

Invited talk "Exploration of AgxNiy alloy and Ag@AgxNiy core/graded-alloy-shell nanostructures in catalytic applications" at International Conference on Technologically Advanced Materials and Asian Meeting on Ferroelectricity, ICTAM-AMF10, November 7-11, 2016. University of Delhi. (9-11-2016)

Invited talk "Inorganic Nanoparticles: Synthesis, Characterization and Multifunctional applications" at the FUB-DU Joint Research Workshop on Supramolecular Chemistry and Nanoscale Systems, Freie Universität Berlin, Berlin, Germany. June 8-10, 2016

Invited talk (emphasis on academics and research for undergraduate students) "NanoScience: Big Word of small Things" Kirori Mal College (KMC), University of Delhi, January 23, 2016.

Invited talk "Multifunctional applications of few nanostructured inorganic materials" International Conference on Advanced materials-- Energy, Environment and Health (ICAM- 2016) March 04-07, 2016, Department of Chemistry, Indian Institute of Technology-Roorkee (IIT-Roorkee).

Invited talk "Development of CeO<sub>2</sub> nanocube and Cu<sub>2</sub>ZnSnS<sub>4</sub> nanoparticles for multifunctional



applications” International Conference on Materials Science & Technology (ICMTECH)-2016, Conference Centre, University of Delhi, India, 01st - 04th March, 2016 (by IAAM, VBRI press and DU)

Invited talk “Synthesis, characterization of multifunctional applications of inorganic nanomaterials”  
Leibniz Universität Hannover, Hannover, Germany. December 10, 2015.

Resource person: “Application of Nanotechnology in Environmental Remediation”, 18<sup>th</sup> June 201,  
Refresher course in Disaster Management & Environmental Studies ID (I), UGC-Human Resource  
Development Centre, Gauhati University, Guwahati-14.

Invited talk “Morphology oriented nanocrystals for catalytic and energy applications” at 2<sup>nd</sup> Indo-German  
Workshop on Supramolecular Chemistry, March 30<sup>th</sup>, 2015, University of Delhi.

Plenary Talk “Multifunctional Inorganic Nanocrystals: Synthesis, characterization and applications”  
Seminar on nanochemistry, Sam Higginbottom Institute of Agriculture, technology and sciences,  
Allahabad, UP. 11-12 Nov, 2014.

Invited talk “Synthesis, characterization and applications of multifunctional inorganic nanoparticles”  
NanoSci-2014, IASST, Guwahati, Assam. 20-21 December 2014.

Invited talk “Nanomaterials as highly active catalyst for multiple significant reactions” at Italian Institute  
of Technology, Genova, Italy on 21-29 June, 2014.

1st International Conference on Emerging Trends of Nanotechnology in Drug Discovery, 26-27 May 2014,  
Sri Venkateswara College, University of Delhi and Department of Biochemistry, University of Delhi South  
Campus.

Resource person: Nanomaterials by solution based chemical synthesis procedures, 20th May 2014,  
Refresher course in Basic Sciences (Interdisciplinary), UGC-Academic Staff College, Jamia Millia Islamia,  
New Delhi.

Science Academies Lecture-Workshop Nanotechnology and its application, 18-20 January 2013 in MMME  
college, Gorakhpur, U.P. Organized by NASI Allahabad, INSA Delhi, IAS Bangalore

Indo-German workshop on “New Perspectives for Nano-carriers in Biomedical Applications” 14th January  
2013, Department of Chemistry, University of Delhi.

Invited expert talk: Vigyan Prasar EduSAT network, DST, Govt. of India on “Nano Technology an  
Introduction” on 24th January 2013 during 10.30 AM to 1.00 PM at C-24 Qutub Institutional Area New  
Delhi-110016, for the students of class XI and XII.

Career and Higher Education, 4<sup>th</sup> June 2012, Seminar: Career Prospect in Higher Education, Career  
guidance cell, Pub-Kamrup College, Baihata Chariali, Kamrup, Assam.

NanoScience and its applications in Biotechnology, 5<sup>th</sup> May 2012, Refresher course in Basic Sciences (Interdisciplinary), UGC-Academic Staff College, Jamia Millia Islamia, New Delhi.

Nanoscience and Nanotoxicology, 22<sup>nd</sup> February 2012, Solid State Physics Laboratory (SSPL)-DRDO, Delhi.

NanoScience and its applications in Biotechnology, 16<sup>th</sup> June & 19<sup>th</sup> June 2011, Refresher course in Basic Sciences (Interdisciplinary), UGC-Academic Staff College, Jamia Millia Islamia, New Delhi.

Invited talk “Multifunctional Hybrid Nanocrystals: Synthesis, Characterization and Applications” at National Seminar on Recent advances in synthesis and catalysis (RASC-11) during 10-12th Feb 2011, Dibrugarh University, Dibrugarh, Assam. (10<sup>th</sup> Feb)

NanoScience: Big Word of small Things, 10<sup>th</sup> September 2010, Department of Chemistry, University of Delhi, Delhi.

Nanochemistry: Basic Understanding and Applications, 28<sup>th</sup> June 2010, B. Borooah College, Guwahati