

Swadeshmukul Santra

A. CONTACT INFORMATION

NanoScience Technology Center
University of Central Florida
12424 Research Parkway, Suite 400
Orlando, FL 32826
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B. PROFESSIONAL INTEREST

Nanobioimaging and Sensing, Nanomedicine, Nanotoxicology, Cancer Nanotechnology, Molecular and Nanoparticle Probes Engineering, Multimodal/multifunctional contrast agents

C. HIGHER EDUCATION

1993 – 1998	Indian Institute of Technology (IIT) Kanpur, Kanpur, India PhD in Chemistry
1990 – 1992	University of Kalyani, West Bengal, India M. Sc. in Physical Chemistry
1987 – 1990	Vidyasagar University (Tamluk College), West Bengal, India B. Sc. in Chemistry

D. AWARDS & PROFESSIONAL ACTIVITIES

- Research Fellowship, Indian Institute of Technology Kanpur, India
- Research Fellowship, Council of Scientific and Industrial Research, India

- Member- American Chemical Society (ACS)
- Member-American Vacuum Society (AVS)
- Member- American Association for the Advancement of Science (AAAS)

E. EMPLOYMENT HISTORY

University of Central Florida Nanoscience Technology Center, Department of Chemistry and Biomolecular Science Center.

Assistant Professor: August, 2005-present.

University of Florida Department of Neurological Surgery and Particle Engineering Research Center (PERC)

Research Assistant Professor: September, 2002- August, 2005.

University of Florida Department of Chemistry and Department of Materials Science and Engineering

Post Doctoral Research Associate in Bioanalytical Chemistry/Biotechnology/Materials Science: November 1998 – September 2002.

F. SERVICE TO THE SCIENTIFIC COMMUNITY

- Symposium Chair, NanoFlorida 2008, September 26-27, 2008.
- Session Chair of the symposium “International Symposium on the Role of Adsorbed Films and Particulate Systems in Nano and Biotechnologies” August 24-26, 2005, Gainesville, FL.
- Session Chair of the Florida Chapter of the AVS Science and Technology Society (FLAVS), March 13-16, 2005, Orlando, FL.
- Served as a Session Chair for the session “Nano-biosensing and imaging” in 2006 Annual Joint Symposium, Florida Chapter of the AVS Science and Technology Society (FLAVS) and Florida Society for Microscopy (FSM); March 12-16, 2006.
- Reviewed proposals from Louisiana State Board of Regents, NSF, NIH, US-Israel Binational Science Foundation (BSF), Netherlands Organisation for Scientific Research (NWO) and US Army.
- Journal reviewer of Nature Nanotechnology, Nano Letters, Advanced Materials, Journal of the American Chemical Society, Biomaterials, Small, Journal of Biomedical Optics, Journal of Physical Chemistry, Langmuir, Chemical Communications, Physical Chemistry Chemical Physics, Journal of Materials Chemistry, Materials Letters, Journal of Nanoscience and Nanotechnology, Lab-on-a-chip, European Journal of Pharmaceutics and Biopharmaceutics, Recent Patents in Nanotechnology, New Journal of Chemistry, Nanotechnology and others.

G. TEACHING ASSIGNMENT

<u>Semester/Term</u>	<u>Course</u>	<u>Enrollment</u>	<u>Lecture-Credit Hrs</u>
Spring 2006	CHM 1020	294	3
Fall 2006	CHM 1020	287	3
Spring 2007	CHM 4130C	23	0
Fall 2007	BSC 3424	17	3
Spring 2008	CHM 1020	300	3
Fall 2008	BSC 3424	19	3
Spring 2009	CHM 2046H	20	4

Concepts of Chemistry (CHM 1020)
Advanced Analytical Laboratory Techniques (CHM 4130C)
Nanobiotechnology (BSC 3424)
Honors Chemistry Fundamentals II (CHM 2046H)

H. PUBLICATION

1. Banerjee S, **Santra S***, “Remarkable catalytic activity of silica nanoparticle in the bis-Michael addition of active methylene compounds to conjugated alkenes”, *Tetrahedron Letters*, 2009, 50(18), 2037-2040.
2. Banerjee S, Kar S*, Perez, J. M., **Santra S***, “Quantum dot based OFF/ON probe for detection of glutathione”, *Journal of Physical Chemistry C*, 2009, 113 (22), 9659-9663.
3. Kar S, Patel C, **Santra S***, “Direct Room Temperature Synthesis of Valence State Engineered Ultra-Small Ceria Nanoparticles: Investigation on the Role of Ethylenediamine as a Capping Agent”, *Journal of Physical Chemistry C*, 2009, 113 (12), 4862-4867.
4. Biswas S, Kar S, **Santra S***, Jompol Y, Arif M, Khondaker SI, “Solvothermal synthesis of high-aspect ratio alloy semiconductor nanowires: $Cd_{1-x}Zn_xS$, a case study, *Journal of Physical Chemistry C*, 2009, 113(9), 3617-3624.
5. Tallury P, Kar S, Bamrungsap S, Huang YF, Tan WH, **Santra S***, “Ultra-small water-dispersible fluorescent chitosan nanoparticles: synthesis, characterization and specific targeting”, *Chemical Communications*, 2009, (17), 2347-2349.
6. Banerjee S, Das J, **Santra S***, “Native silica nanoparticle catalyzed anti-Markovnikov addition of thiols to inactivated alkenes and alkynes: a new route to linear and vinyl thioethers”, *Tetrahedron Letters*, 50(1), 124-127, 2009.
7. Banerjee S, Kar S, **Santra S***, “A simple strategy for quantum dot assisted selective detection of cadmium ions” *Chemical Communications*, (26), 3037-3039, 2008.
8. Sharma P, Brown SC, Bengtsson N, Zhang QZ, Walter GA, Grobmyer SR, **Santra S**, Jiang HB, Scott EW, Moudgil BM, “Gold-Speckled Multimodal Nanoparticles for Noninvasive Bioimaging”, *Chemistry of Materials*, 20(19), 6087-6094, 2008.
9. Tallury P, Payton K and **Santra S***, “Silica-based multimodal/multifunctional nanoparticles for bioimaging and biosensing applications” *Nanomedicine*, 3(4), 579-592, 2008.
10. Kar S, **Santra S***, Chaudhuri S, “Direct Synthesis of Indium Nanotubes from Indium Metal Source” *Crystal Growth and Design*, 8(1), 344-346, 2008.

11. Kar S, **Santra S***, Chaudhuri S, “ZnO nanotube arrays and nanotube-based paint-brush structures: A simple methodology of fabricating hierarchical nanostructures with self-assembled junctions and branches” *Journal of Physical Chemistry C*, **112**(22), 8144-8146, 2008.
12. Kar, S., **S. Santra***, and H. Heinrich, “Fabrication of high aspect ratio core-shell CdS-Mn/ZnS nanowires by a two step solvothermal process”, *Journal of Physical Chemistry C*, **112**(11), 4036-4041, 2008.
13. Kar S, **Santra S***, Chaudhuri S, “Direct Synthesis of ZnS Nanoribbons, Micro-sheets and Tetrapods”, *Journal of Nanoscience and Nanotechnology*, **8**(6), 3222-3227, 2008.
14. Bera D, Qian L, Sabui S, **Santra S**, Holloway P. H., “Photoluminescence of ZnO quantum dots produced by a sol-gel process”, *Optical Materials*, **30**(8), 1233-1239, 2008.
15. Sharma P, Brown S. C., Walter G, **Santra S**, Scott E, Ichikawa H, Fukumori Y, Moudgil B. M., “Gd nanoparticulates: from magnetic resonance imaging to neutron capture therapy”, *Advanced Powder Technology*, **18** (6), 663-698, 2007.
16. Yang H, **Santra S***, Walter G. A. and Holloway P. H., “GdIII-functionalized fluorescent quantum dots for multimodal imaging probes”, *Advanced Materials*, **18**, 2890-2894, 2006.
17. Wang L. Wang K. **Santra S.**, Zhao X., Hilliard L. R., Smith J., Tan W. “Watching Silica Nanoparticles Glow in the Biological World”, *Analytical Chemistry*, **78**(3), 646-654, 2006 (featured article).
18. Mericle RA, Richter EO, Eskioglu E, Watkins C, Prokai L, Batich CD and **Santra S**, “Preoperative endovascular brain mapping for intraoperative volumetric image guidance: preliminary concept and feasibility in animal models”, *Journal of Neurosurgery*, **104**, 566-573, 2006.
19. Mericle RA, Reig AS, Burry MV, Eskioglu E, Firment CS, **Santra S**, “Endovascular surgery for proximal PICA aneurysms combined with early and aggressive treatment of hydrocephalus: Many patients with poor Hunt-Hess grades can have good outcomes”, *Neurosurgery*, **58**(4), 619-625, 2006.
20. Sharma P, Brown S, Walter GA, **Santra S**. Moudgil BM, “Nanoparticles for bioimaging”, *Advanced Colloid and Interface Sciences*, **123-126**, 471-485, 2006.
21. **Santra S***, Liesenfeld B, Bertolino C, Dutta, D, Cao Z, Tan W, Moudgil BM and Mericle RA: Fluorescence lifetime measurements to determine the core-shell nanostructure of FITC doped silica nanoparticles: An optical approach to evaluate nanoparticle photostability, *Journal of Luminescence*, **117** (1): 75-82, 2006.
22. **Santra S***, Bagwe RP, Dutta D, Stanley JT, Walter GA, Tan W, Moudgil BM and Mericle RA: Synthesis and characterization of fluorescent, radio-opaque and paramagnetic silica nanoparticles for multimodal bioimaging applications. *Advanced Materials*, **17**(18), 2165-2169, 2005.

23. **Santra S***, Dutta D, Walter GA, Moudgil BM. Fluorescent Nanoparticle Probes for Cancer Imaging. *Technology in Cancer Research and Treatment*, 4(6): 593-602, 2005.
24. **Santra S***, Dutta D and Moudgil BM: Functional Dye-doped Silica Nanoparticles for Bioimaging, Diagnostics and Therapeutics. *Trans IchemE-Part C, Food and Bioproducts Processing*, 83 (C2): 136-140, 2005.
25. **Santra S***, Yang H, Stanley JT, Holloway PH, Moudgil BM, Walter G and Mericle RA: Rapid and effective labeling of brain tissue using TAT-conjugated CdS:Mn/ZnS quantum dots. *Chemical Communications* (25): 3144-3146, 2005.
26. **Santra S***, Liesenfeld B, Dutta D, Batich CD, Tan W, Moudgil BM and Mericle RA. Folate conjugated fluorescent silica nanoparticles for labeling neoplastic cells *Journal of Nanoscience and Nanotechnology*, 5(6), 899-904, 2005.
27. **Santra S***, Yang H, Holloway PH, Stanley JT, Mericle RA: Synthesis of Water-Dispersible, Fluorescent, Radio-opaque and Paramagnetic CdS:Mn/ZnS Quantum Dots: A Multifunctional Probe for Bioimaging. *J AMER. CHEM. SOC.*, 127(6): 1656-1657, 2005.
28. Yang H, **Santra S** and Holloway PH: Synthesis and Applications of Mn-Doped II-IV Semiconductor Nanocrystals. *J NANOSCI NANOTECHNO*, 5(9), 1364-1375, 2005.
29. Gu L, **Santra S**, Mericle RA and Kumar AV: Finite element analysis of covered microstents *J BIOMECH* 38, 1221-1227, 2005.
30. **Santra S***, Yang H, Dutta D, Stanley JT, Holloway PH, Tan W, Moudgil BM and Mericle RA: TAT conjugated FITC doped silica nanoparticles for bioimaging applications. *CHEM COMMUN* (24) 2810-2811 DEC 21 2004.
31. **Santra S**, Xu J, Wang KM and Tan WH, "Luminescent Nanoparticle Probes for Bioimaging", *J NANOSCI NANOTECHNO*, 4(6): 590-599, 2004.
32. Yang H, Holloway PH, **Santra S**, "Water-soluble silica-overcoated CdS:Mn/ZnS Semiconductor Quantum Dots" *J. Chem Phys*, 121(15): 7421-7426, 2004.
33. **Santra S**, Eskioglu E, Burry MV, Watkins CS, Stanley JT and Mericle RA, "Development of TAT (a Cell-Penetrating Peptide) conjugated Fluorescent Nanoparticles for Preoperative Intra-arterial Brain Mapping, *J Neurosurg*, 10: 790, 2004 (abstract).
34. **Santra S**, Holloway P, Batich CD, "Fabrication and testing of a magnetically actuated micropump", *SENSORS AND ACTUATORS B: CHEM*, 87 (2): 358-364, 2002.
35. **Santra S**, Zhang P, Wang KM, Tapeç R, Tan WH, "Conjugation of biomolecules with luminophore-doped silica nanoparticles for photostable biomarkers" *ANAL CHEM* 73 (20): 4988-4993 OCT 15 2001.

36. Monde Q, **Santra S**, Zhang P, Tan WH, "Biochemically functionalized silica nanoparticles", ANALYST 126 (8): 1274-1278 AUG 2001.
37. **Santra S**, Tapeç R, Theodoropoulou N, Dobson J, Hebard A, Tan WH, "Synthesis and characterization of silica-coated iron oxide nanoparticles in microemulsion: The effect of nonionic surfactants" LANGMUIR 17 (10): 2900-2906 MAY 15 2001.
38. **Santra S**, Wang KM. Tapeç, R. U., Tan WH, "Development of novel dye-doped silica nanoparticles for biomarker application" J BIOMED OPT 6 (2): 160-166 APR 2001.
39. **Santra S**, Krishnamoorthy G, Dogra SK, "Spectral characteristics of the methylated derivatives of 2-(2'-aminophenyl) benzimidazole: effects of solvents", J MOL STRUCT 559 (1-3): 25-39 JAN 7 2001.
40. Fang X, Schuster S, Liu X, Correll T, Zhang P, Tapeç R, **Santra S**, Qhobosheanne M, Lou JH and Tan WH, Molecular beacon biosensors for DNA /RNA analysis in "Advances in Nucleic Acid and Protein Analyses, Manipulation and Sequencing", SPIE, (Patrick Limbach, John Owicki, Ramesh Raghavachari and Weihong Tan, Editors), 2000, 3926, 2-8.
41. **Santra S**, Zhang, P, Tan WH, "Novel interaction between glutamate and the Cu²⁺/DMABN/b-CD complex" J PHYS CHEM A 104 (51): 12021-12028 DEC 28 2000.
42. **Santra S**, Dogra SK, "Excited state intramolecular proton transfer in the anionic species of 2-(2'-acetamidophenyl)benzimidazole in the aqueous medium" CHEM PHYS LETT 327: (3-4) 230-237 SEP 8 2000.
43. **Santra S**, Dogra SK, "Effect of micelles on the spectral characteristics of the prototropic species of 2-(2'-aminophenyl)benzimidazole", SPECTROCHIM ACTA A 56: (5) 915-925 APR 2000.
44. **Santra S**, Krishnamoorthy G, Dogra SK, "Excited state intramolecular proton transfer in 2-(2'-acetamidophenyl) benzimidazole" J PHYS CHEM A 104: (3) 476-482 JAN 27 2000.
45. **Santra S**, Zhang P, Tan WH, "The restoration of pyrene fluorescence of a Cu-II-beta-cyclodextrin-pyrene complex", CHEM COMMUN (14) 1301-1302 JUL 21 1999.
46. **Santra S**, Krishnamoorthy G, Dogra SK, "Excited state intramolecular proton transfer in 2-(2'-benzamidophenyl) benzimidazole: effect of solvents", CHEM PHYS LETT 311: (1-2) 55-61, 1999.
47. **Santra S**, Dogra SK, "Prototropism of the methylated derivatives of 2-(2'-aminophenyl) benzimidazole", J LUMIN 81: (4) 249-262, 1999.
48. **Santra S**, Dogra SK, "Spectral characteristics of the monocations of 2-(2'-aminophenyl)benzimidazole in different solvents", J MOL STRUCT 478: (1-3) 169-183, 1999.

49. Saha SK, **Santra S**, Dogra SK, "Prototropic equilibrium of 2-aminofluorene in non-ionic micelles: Tweens", J MOL STRUCT 478: (1-3) 199-210, 1999.
50. **Santra S**, Dogra SK, "Excited state intramolecular proton transfer in 2-(2'-N-palmitoyl-aminophenyl)benzimidazole: effect of carbonyl group", J MOL STRUCT 476: (1-3) 223-233, 1999.
51. **Santra S**, Dogra SK, "Excited state intramolecular proton transfer in 2-(2'-aminophenyl)benzimidazole in micelles", J PHOTOCHEM PHOTOBIOLOG A 115: (3) 249-256, 1998.
52. **Santra S**, Dogra SK, "Excited-state intramolecular proton transfer in 2-(2'-aminophenyl)benzimidazole", CHEM PHYS 226: (3) 285-296, 1998.
53. **Santra S**, Dogra SK, "Solvatochromism and prototropic reactions of 2-quinoxalinone (vol 207, pg 103, 1996)", CHEM PHYS 226: (1-2) 229-229, 1998.
54. **Santra S**, Dogra SK, "Spectral characteristics of 2-(2'-aminophenyl)benzimidazole in beta-cyclodextrin", J PHOTOCHEM PHOTOBIOLOG A 101: (2-3) 221-227, 1996.
55. **Santra S**, Dogra SK, "Solvatochromism and prototropic reactions of 2-quinoxalinone", CHEM PHYS 207: (1) 103-113, 1996.

I. BOOK CHAPTER

1. Kenniff K, Payton, K and **Santra S**, "Fluorescent quantum dots for biomedical applications", in Materials for Nanomedicine (book title), Biomedical Nanotechnology (series title); editors: Mansoor M. Amiji and Vladimir P. Tochilin; Pan Stanford Publishing, 2008 (in press).
2. **Santra S**, "Fluorescent silica nanoparticles for cancer imaging", in "Cancer Nanotechnology", Editors: Moudgil BM and Stephen Randolph Grobmyer, Humana Press, 2008 (in press).
3. Sharma P, Singh A, Brown SC, Walter GA, **Santra S**, Grobmyer SR, Scott EW, "The Emergence of "Magnetic and Fluorescence" Multimodal Nanoparticles as Contrast Agents in Bioimaging", Particulate Systems in Nano- and Biotechnologies; Editors: Sigmund W, El-Shall H., Shah, DO, Moudgil, BM; CRC Press, ISBN: 978-0-8493-7436-4 (Print), 2008 (published).
4. **Santra S** and Dutta D, "Quantum Dots for Cancer Imaging", Nanoparticles in Biomedical Imaging: Emerging Technologies and Applications, Springer serial, Fundamental Biomedical Technologies, 2007 (published); ISBN: 978-0-387-72026-5 (Print) 978-0-387-72027-2 (Online)
5. Walter GA, **Santra S**, Thattaliyath B and Grant SC, "(Super)paramagnetic nanoparticles: Applications in Noninvasive MR Imaging of Stem Cell Transfer", Nanoparticles in Biomedical Imaging: Emerging Technologies and Applications, Springer serial, Fundamental Biomedical Technologies, 2007 (published). ISBN: 978-0-387-72026-5 (Print), 978-0-387-72027-2 (Online)

6. **Santra S** and Dutta D, “Nanoparticles for optical imaging of cancer”, Vol 6 (Nanomaterials for Cancer Diagnosis), Challa Kumar (Editor) of the Wiley-VCH series on Nanotechnologies for life sciences, 2006 (published). ISBN: 978-3-527-31387-7 (Print)

J. PATENTS

1. Tan W, **Santra S**, Peng Z, Tapeç R, Dobson J, “Method for making nanoparticles”, US Patent # 7,332,351.
2. Tan W, **Santra S**, Peng Z, Tapeç R, Dobson J, “Method for identifying cells”, US Patent # 6,924,116.
3. Tan W, **Santra S**, Peng Z, Tapeç R, Dobson J, “Coated nanoparticles”, US Patent # 6,548,264.

17 utility patents are pending.

K. PRESENTATION

Contributed Talks

1. Byrne L., Tallury P., and **Santra S.**; “Synthesis and characterization of fluorescent chitosan nanoparticles” 2009 Annual Joint Symposium and Exhibition, Florida Chapter of the AVS Science and Technology Society (FLAVS) and Florida Society for Microscopy (FSM), Orlando, FL, March 8-12, 2009.
2. Tallury P., Kar S., Byrne I. M., and **Santra S.**; “Ultra-small fluorescent chitosan nanoparticles: synthesis and characterization”, 85th Annual ACS FAME Meeting, Kissimmee, FL, May 14-16, 2009.
3. Kar S., and **Santra, S.**, “Band gap tunable core-shell alloy semiconductor quantum dots” Florida Annual Meeting and Exposition (FAME), ACS Florida Section, Orlando, FL, May 14-16, 2009.
4. Das J., Banerjee S., **Santra S.**, “Native Silica Nanoparticle in Organic Transformations”, Florida Annual Meeting and Exposition (FAME), ACS Florida Section, Orlando, FL, May 14-16, 2009.
5. Banerjee S., Das J., and **Santra S.**, “Remarkable catalytic activity of native silica NP in the Michael Addition of active methylene compounds to conjugated alkenes”. Florida Annual Meeting and Exposition (FAME), ACS Florida Section, Orlando, FL, May 14-16, 2009.
6. Sharma, P., Brown, S., Moudgil, B., Bengtsson, N., Zhang, Q., Walter, G., Grobmyer, S., Jiang, H., Scott, E., **Santra, S.**, Multimodal Nanoparticles for Noninvasive Bio-Imaging. 13th IACIS International Conference on Surface and Colloid Science and the 83rd ACS Colloid & Surface Science Symposium, Columbia University: New York, June 14 – 19, 2009.

7. Dutta S, Moudgil B. M., **Santra S**, “Silica based fluorescent nanoparticles as biological taggants and their preliminary biocompatibility studies”, International Conference on Nanomaterial Toxicology 2008 (ICONTOX 2008), Lucknow (UP), India, February 5-7, 2008.
8. Singh, A.K.; Sharma, S.; Brown, S.C.; Bengtsson, N.; Zhang, Q.; Walter, G.A.; Grobmyer, S.R.; **Santra, S.**; Jiang, H.; Scott, E.; Moudgil, B.M. “Gold Speckled Multimodal Nanoparticles for Noninvasive Bioimaging.” NanoFlorida 2008: First Annual Nanoscience Technology Symposium, Orlando, FL, September 27, 2008.
9. Payton K., Kenniff K, Kaittanis C, Parsons T, Tallury P, **Santra S**; “Synthesis and characterization of multifunctional silica nanoparticles loaded with copper ions and fluorescent dyes”. NanoFlorida 2008, First Annual NanoScience Technology Symposium, Orlando, FL, September 26-27, 2008.
10. Walter GW, Liu M, Germain S, Cornell H, Erger K, Bengtsson N, Moudgil BM, Scott E, **Santra S**, “Nanomaterials for tracking live cells and gene expression in vivo” 37th Southeastern Magnetic Resonance Conference, Tallahassee, FL, October 17-19, 2008.
11. **Santra S**, Yang H, Kar S, Sabui SK, Sharma P, Holloway PH, Walter GA, Moudgil BM, Scott E, “Quantum Dots for Multimodal Bioimaging and Sensing Applications”, Nanotech 2007, NSTI, Santa Clara, CA, May 22-24, 2007.
12. Kar S, **Santra S**, Chaudhuri, S, “Engineering the morphology of 1-D ZnO nanostructures from nanorods to nanotubes to nanotube based paintbrush by a solvothermal approach”, ACS National Meeting, Chicago, IL, March 25-29, 2007.
13. Sabui S, Kar S, **Santra S**, “Tuning of luminescence intensity of manganese doped cadmium sulfide quantum dots by controlling surface passivation” ACS National Meeting, Chicago, IL, March 25-29, 2007.
14. Gu L, **Santra S**, Kumar AV, “Biomechanics of Stent Grafts for Intracranial Aneurysm Repair”, 2nd Frontiers in Biomedical Devices Conference/ASME, Irvine, CA, June 7-8, 2007.
15. Kar S, **Santra S**, “Luminescence Spectroscopy of Dye-doped Silica Nanoparticles and Quantum Dots”, 34th Federation of Analytical Chemistry and Spectroscopy Societies (FACSS), Memphis, TN, October 14-18, 2007.
16. Kar S, **Santra S**, “Cd_xZn_(1-x)S:Mn/ZnS alloy semiconductor core-shell multimodal Qdots”, Materials Research Society (MRS), Boston, MA, November 26 - 30, 2007.
17. **Santra S**, “Transitional metal doped quantum dots for multimodal bioimaging and sensing applications”, The International Conference on Magnetic Materials (ICMM-2007), Kolkata, West Bengal, India, December 11-16, 2007.
18. Mylavarapu P, Tallury P and **Santra S**, “Synthesis and characterization of dye-doped silica nanoparticles of various sizes in AOT/NP-5 based water-in-oil microemulsion system”,

University of Florida-Particle Engineering Research Center IAB Meeting, Gainesville, FL, April 4, 2007.

19. Mylavarapu P, Tallury P and **Santra S**, “Control of size and surface charge of core-shell dye-doped silica nanoparticles using water-in-oil microemulsion system”, Florida Annual Meeting and Exposition (FAME)-American Chemical Society, Orlando, FL, May 10-12, 2007.
20. Patel C, Kar S and **Santra S**, “Morphology tuned synthesis of ceria (CeO₂) nanostructures”, Florida Annual Meeting and Exposition (FAME)-American Chemical Society, Orlando, FL, May 10-12, 2007.
21. Mylavarapu P, Tallury P, Patel J and **Santra S**, “Dye-doped silica nanoparticles with controlled particle size and surface charge”, University of Florida-Particle Engineering Research Center IAB Meeting, Gainesville, FL, October 4, 2007.
22. Patel C, Kar S, Patel J and **Santra S**, “Morphology tuned synthesis of ceria (CeO₂) nanostructures”, University of Florida-Particle Engineering Research Center IAB Meeting, Gainesville, FL, October 4, 2007.
23. Dutta D, *Santra S.*, Roberts S., Moudgil B.M., Assessing the in vitro toxicity of functionalized amorphous silica nanoparticles, Society of Toxicology, San Diego, CA, March 5-9, 2006.
24. Dutta D, Moudgil B.M., Tan W., **Santra S.**, Labeling of A549 Cells with Fluorescent Silica Nanoparticles Using Folate Mediated Delivery, Pittsburg Conference, Orlando, FL, March 12-17, 2006.
25. Dutta D, **Santra S.**, Moudgil B.M., Folate-mediated delivery of dye-doped silica nanoparticles for biolabelling, AIChE-World Congress on Particle Technology, Orlando, FL, April 23-27, 2006.
26. Sharma P., Dutta D., Tan W., Moudgil B.M., **Santra S.**, Multimodal Silica Nanoparticles for Bio Imaging’, Pittsburg Conference, Orlando, FL, March 12-17, 2006.
27. Sharma P., Dutta D, Grant S.C., Tan W., Walter G.A., **Santra S.**, Moudgil B.M., ‘Fluorescence and Magnetic Resonance Enabled Silica Nanoparticles for Bio Imaging Applications, AIChE-World Congress on Particle Technology, Orlando, FL, April 23-27, 2006.
28. S. K. Sabui and S. Santra, Tuning of Luminescence Intensity of Manganese doped Cadmium Sulfide Quantum Dots by Controlling Surface Passivation, Particles 2006 (Nanoparticles.org), Orlando, FL, May 13-16, 2006
29. D. Bera, H. Yang, S. Santra, G. Walter, P. Holloway, Multifunctional GdIII-functionalized quantum dots for bioimaging, The Electrochemical Society, Cancun, Mexico, October 29 - November 03, 2006.

30. P. Sharma, G. A. Walter, E. W. Scott, S Santra and B. M. Moudgil, Multimodal Nanoparticles for Bioimaging Applications, “Young Researcher’s Forum” jointly organized by the Japan Society for the Promotion of Science and the University of Florida-Particle Engineering Research Center, Kyoto, Japan, December 3-5, 2006.
31. B. M. Moudgil, G. A. Walter, E. W. Scott and S Santra, Multimodal Qdot based nanoprobe for real time noninvasive bioimaging, NSF Nanoscale Science and Engineering Grantees Conference, Arlington, VA, December 4-6, 2006.
32. P. H. Holloway, H. Yang, H. Lee, S. Seo, S. Santra, L. Qian and D. Bera, Nanophosphors: PL, EL, and Biological Markers, Proc. of 13th Intl. Display Workshop, Otsu, Japan, December 6-8, 2006.
33. P. H. Holloway, H. Yang, H. Lee, S. Seo, S. Santra, L. Qian and D. Bera, Nanophosphors: PL, EL, and Biological Markers, Proc. of 3rd Intl. Symposium on Display & Lighting Phosphor Materials, ISDLPMW’06, Yokohama, Japan, December 9, 2006.
34. S. C. Grant, T. Zheng, G. P. Marshall II, H. Yang, P. Sharma, H. Cornell, **S. Santra**, P. A. Holloway, B. M. Moudgil, E. W. Scott, E. D. Laywell, G. A. Walter, A. S. Edison, D. A. Steindler, M. D. Weiss, ‘MR Microscopy of Multipotent Astrocytic Stem Cells Labeled with Multimodal Qdots Applied to a Neonatal Murine Model of Hypoxic Ischemic Encephalopathy’ International Society for Magnetic Resonance in Medicine Meeting, Seattle, WA, May 6-12, 2006.
35. H. Yang, **S. Santra**, G. A. Walter, P. H. Holloway, Gd(III)-functionalized fluorescent quantum dots for multimodal imaging probes, American Chemical Society, Atlanta, GA, March 26-30, 2006.
36. **Santra S**. “Multifunctional CdS:Mn/ZnS Quantum Dots for Labeling of Brain Tissue”, International Symposium on the Role of Adsorbed Films and Particulate Systems in Nano and Biotechnologies, August 24-26, 2005, Gainesville, FL.
37. **Santra S**, Eskioglu E, Burry MV, Watkins CS, Stanley JT, Mericle RA, “Development of TAT (a cell penetrating peptide) conjugated fluorescent nanoparticles for preoperative intra-arterial brain mapping” 2004 AANS (American Association of Neurological Surgeons) annual meeting, May 1-6, Orlando, FL.
38. **Santra S**, Bagwe RP, Tan WH, Watkins CS, Stanley JT, Mericle RA, “A novel synthesis of fluorescent, radio-opaque, paramagnetic silica nanoparticles for multifaceted bioimaging applications” PITTCON 2004, March 7-12, Chicago, IL.
39. Liesenfeld B, Chatel D, Rau-Zink C, **Santra S**, Batich CD, Mericle RA, “Folate conjugated FITC-doped silica nanoparticles for cancer detection” PITTCON 2004, March 7-12, Chicago, IL.

40. **Santra S**, Dutta D, Bagwe RP, Mericle RA, Tan WH, Powers K, Moudgil BM, “Nanoparticles for Bioimaging” UF-PERC (University of Florida - Particle Engineering Research Center) Industrial Advisory Board Meeting, March 23-24, 2004, Gainesville, FL.
41. **Santra S**, Dutta D, Tan WH, Moudgil BM, “Intracellular Nanoparticle Toxicity” UF-PERC (University of Florida - Particle Engineering Research Center) Industrial Advisory Board Meeting, September 22-23, 2004, Gainesville, FL.
42. Eskioglu E, Burry MV, Stanley JT, Watkins CS, **Santra S** and Mericle RA, “New Zealand White Rabbit Kidney Stroke Model for Mechanical Thrombolysis” AANS Annual Meeting, San Diego, CA, March 17-20, 2004.
43. Eskioglu E, Burry MV, Stanley JT, Watkins CS, **Santra S**, Mericle RA, “New Zealand White Rabbit Kidney Stroke Model for Mechanical Thrombolysis. Poster Presentation at the 7th Joint Annual Meeting of AANS/CNS Cerebrovascular Section and the American Society of Interventional and therapeutic Neuroradiology, San Diego, California, February 3, 2004.
44. Gu L, **Santra S**, Mericle RA, Kumar AV, “Covered microstent for the treatment of intracranial wide-necked and fusiform aneurysms: A finite element analysis for the design of stent coverings”, 2003 Summer Bioengineering Conference, Key Biscayne, Florida, June 25-29, 2003.
45. Bagwe RP, **Santra S**, Tan WH, “Effect of particle size and reaction conditions on optical properties of TMR-dextran doped silica nanoparticles”, PITTCON 2003, Orlando, FL.
46. Bradman N, **Santra S**, Davidson M, Holloway PH, “Modes of failure in an artificial eyelid”, Joint Symposium Florida AVS Science and Technology Society Florida Society for Microscopy, 2002, Orlando, FL.
47. **Santra S**, Zhang P, Qhobosheane, M, Tapeç, R. U., Tan WH, “Silica based nanoparticles”, Oral presentation in First Georgia Tech Conference in Nanoscience and Nanotechnology, 2000, Atlanta, GA.
48. **Santra S**, Tan WH, “Development of dye-doped silica nanoparticles for cancer imaging”, 13th International Symposium on Surfactants in Solution (SIS-2000), presentation in SIS-2000 (Surfactants in solutions) Symposium, Gainesville, FL, June 11-16, 2000.
49. **Santra S**, Tan WH, “The restoration of pyrene fluorescence of a Cu-II-beta-cyclodextrin-pyrene complex”, Florida Annual Meeting and Exposition (FAME)-ACS, Orlando, FL, May 7-8, 1999.

Invited Talks

1. **Santra S**, “CdS:Mn/ZnS quantum dots for sensing applications”, 2009 Annual Joint Symposium and Exhibition, Florida Chapter of the AVS Science and Technology Society (FLAVS) and Florida Society for Microscopy (FSM), March 8-12, 2009, Orlando, FL.

2. **Santra S**, “Multifunctional/multimodal nanoparticles for bioimaging and sensing applications” NanoRomania 2009, June 2-5, Iasi, Romania.
3. **Santra S**, “Multimodal/Multifunctional Nanoparticles for Biomedical Applications” Particles 2008, Orlando, FL, May 10-13, 2008.
4. **Santra S**, “Engineered core-shell nanomaterials for multifunctional/multimodal applications”, University of Florida – Materials Science and Engineering Department, Gainesville, FL, February 26, 2008.
5. **Santra S**, “Engineered Nanostructured Materials for multifunctional/multimodal applications”, Indian Institute of Technology Roorkee, Roorkee (Uttarakhand), India, March 03, 2008.
6. **Santra S**, “Biologically Friendly Nanoparticles”, Cell and Molecular Imaging Workshop, Gainesville, FL, November 6, 2008.
7. **Santra S**, Moudgil BM, Walter GW, Scott E, “Multimodal Qdot Based Nanoprobe for Real-Time Noninvasive Bioimaging”, 2008 NSF Grantee Conference, Arlington, VA, December 3-5, 2008.
8. **Santra S**, “Design and synthesis of multimodal (fluorescent and paramagnetic) nanoparticles for biomedical applications” 10th Annual Force Health Protection Conference, Louisville, KY, August 7-10, 2007.
9. **Santra S**, Patel C, Kar S, Dubey B, Townsend T, “Preliminary studies to evaluate fate and transport of manufactured nanoparticles (MNPs) in different soil matrix”, Florida Annual Meeting and Exposition (FAME)-American Chemical Society, Orlando, FL, May 10-12, 2007.
10. **Santra S**, “Nanoparticle Technology Enabled Drug Delivery” The College of Pharmacy and Pharmaceutical Sciences, FAMU, Tallahassee, FL, April 6, 2007.
11. **Santra S**, “Quantum dots for multimodal bioimaging” 2007 Annual Joint Symposium & Exhibition Florida Chapter of the AVS Science and Technology Society (FLAVS) and Florida Society for Microscopy (FSM)-Student Mixer Session, Orlando, FL, March 11-13, 2007.
12. **Santra S**, “Research Collaboration – Tips for Young Researchers” University of Florida-Particle Engineering Research Center IAB Meeting and 2nd Annual Young Researcher’s Forum, Gainesville, FL, October 4, 2007.
13. **Santra S**, “Engineered Nanostructured Materials for Biomedical, Environmental and Energy Applications” UCF-ORC Monthly Luncheon Meeting, UCF, August 28, 2007.
14. **Santra S**, “Multimodal Nanoparticle Contrast Agent” Vanderbilt University Medical Center – Department of Neurological Surgery (Cerebrovascular and Endovascular Neurosurgery unit), Nashville, TN, November 8, 2007.

15. **Santra S**, “Engineered Nanostructured Materials”, Indian Association for the Cultivation of Science (IACS) – Department of Materials Science, Kolkata, India, December 12, 2007.
16. **Santra S**, “Engineered Nanostructured Materials”, University of Calcutta – Department of Biochemistry, Kolkata, India, December 13, 2007.
17. **Santra S**, “Multimodal Nanoparticles for Biomedical Imaging and Sensing Applications”, University of Kalyani, Kalyani (West Bengal), India, December 14, 2007.
18. **Santra S**, “Nanomaterials for biomedical, energy and environmental research”, S N Bose National Centre for Basic Sciences, Kolkata, India, December 17, 2007.
19. **Santra S**, “Functional nanomaterials for biomedical, energy and environmental research”, Visva-bharati (Santiniketan) University – Department of Chemistry, Santiniketan (West Bengal), India, December 18, 2007.
20. **Santra S**, “Nanoscale science and technology for biomedical, energy and environmental research” University of Burdwan – Department of Chemistry, Burdwan (West Bengal), India, December 19, 2007.
21. **Santra S**, “Engineered nanomaterials for biomedical, energy and environmental research”, Indian Institute of Technology (IIT) Kharagpur – Department of Chemistry, Kharagpur (West Bengal), India, December 20, 2007.
22. **Santra S**, “Novel Applications of Magnetic Nanomaterials”, Saha Institute of Nuclear Physics (SINP)– Surface Physics Division, Kolkata, India, December 31, 2007.
23. **S. Santra**, Quantum Dots for Multimodal Bioimaging (Symposium: Nanoparticles in Molecular Diagnostics), 2006 International Conference on Bio and Pharmaceutical Science and Technology and Bio and Pharmaceutical Technology Exhibition (The Fine Particle Society), San Diego, CA, December 18-20, 2006.
24. **Santra S**, Engineered Nanoparticles for Bioimaging Applications, FLAVS-FSM Symposium, Orlando, FL, March 12-14, 2006.
25. **Santra S**, “Multimodal quantum dots for non invasive diagnosis and real time gross visualization of brain tumors”, The Second Annual Florida Tech Transfer Conference-Biotech-Nanotech-IT (Florida Research Consortium), Orlando, FL, May 18-19, 2005.
26. **Santra S**, “Integrated Fluorescent, Radio-Opaque and Magnetic Nanoparticles for Intra-Arterial Pre-Operative Brain Mapping and Broad Based Diagnostic Imaging”, The First Annual Florida Tech Transfer Conference-Biotech-Nanotech-IT (Florida Research Consortium), St. Petersburg, FL, May 17-18, 2004.

27. **Santra S**, “Development and Application of Materials for Biomarkers, Actuators and Vascular surgery”, Indian Institute of Technology (IIT) Kanpur, Kanpur (Uttar Pradesh, India), India, December 23, 2002.

L. ONGOING RESEARCH GRANTS

1) **Title:** Develop Multimodal Imaging Tags to Track AAV Delivery In Vivo

Principal Investigators: S. Santra

Sponsoring Agency: UF (Sub-awarded from the NIH Grant # 2P01HL059412-11A1)

Beginning/End Dates: 07/01/2008 - 06/30/2011

2) **Title:** NSF-NIRT: Multimodal Qdot based nanoprobe for real time noninvasive bioimaging

Principal Investigators: S. Santra (PI)

Sponsoring Agency: UF (Sub-awarded from the NSF Grant # 0506560)

Beginning/End Dates: 09/01/2005 - 08/31/2010

3) **Title: Development of nanoparticle/nanogel formulation for the prevention of citrus canker disease**

Principal Investigators: S. Santra (PI)

Sponsoring Agency: Florida Citrus Production Research Advisory Council

Beginning/End Dates: 03/05/2009 - 03/04/2010

4) **Title: I.H. Nanoformulation for long-term treatment of mold**

Principal Investigators: S. Santra (PI)

Sponsoring Agency: UCF – Office of Research and Commercialization

Beginning/End Dates: 05/01/2009 - 04/30/2010

M. PAST RESEARCH GRANTS

1) **Title:** In vitro imaging of cerium oxide nanoparticles

Principal Investigators: S. Santra (PI) and S. Seal (co-PI)

Sponsoring Agency: UCF
Beginning/End Dates: 05/01/2006 - 04/30/2007

2) **Title:** InnoSense LLC and UCF research collaboration

Principal Investigator: S. Santra (PI)
Sponsoring Agency: InnoSense LLC (Torrance, CA)
Beginning/End Dates: 04/01/2007 - 09/30/2007

3) **Title:** Selective detection of toxic heavy metal ions using highly sensitive quantum dot probes

Principal Investigator: S. Santra (PI)
Sponsoring Agency: NSF
Beginning/End Dates: 06/15/2007 - 12/31/2008