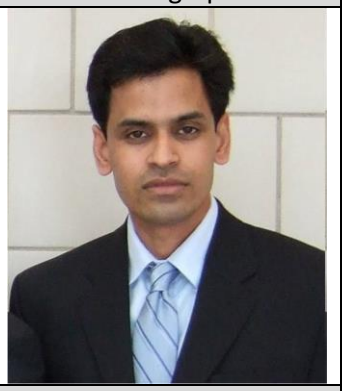
Faculty Details proforma for DU Web-site

Title	Dr.	First Name	Indrajit	Last Name	Roy	Photograph
Designation		Associate Professor				
Address		Department of Chemistry, University of Delhi, Delhi-110007.				
Mobile		9560721851				
Email		indrajitroy11@gmail.com				

Educational Qualifications		
Degree	Institution	Year
Ph.D.	Department of Chemistry, University of Delhi	2002
PG	Physical Chemistry, Hindu College, University of Delhi	1997
UG	Chemistry (Hons), Hindu College, University of Delhi	1995

Career Profile

30/12/2009 onwards: Associate Professor, Department of Chemistry, University of Delhi, Delhi.

July, 2005-Dec, 2009: Research Assistant Professor, Institute for Lasers, Photonics and Biophotonics, Department of Chemistry, State University of New York, Buffalo, New York.

July 2003-June 2005: Post Doctoral Fellow, Department of Pathology, Johns Hopkins University: Medicine, Baltimore, MD.

July 2001-June 2003: Post Doctoral Research Assistant, Department of Chemistry, State University of New York, Buffalo, New York.

Administrative Assignments

July, 2008-Dec, 2009: Deputy Director (Biophotonics), Institute for Lasers, Photonics and Biophotonics, State University of New York, Buffalo, New York, USA.

Areas of Interest / Specialization

Nanomedicine: Diagnostic imaging, drug and gene delivery, Multimodal nanoparticles, In vitro diagnostics.

Subjects Taught

'Biophotonics': Taught as a guest lecturer (in 2007, 2008) to graduate students in SUNY Buffalo, NY, USA.

'Statistical Thermodynamics': Taught M.Sc. students (in 2010, 2011, 2012, 2014 and 2015) at the Department of Chemistry, University of Delhi.

'Advanced Nanobiotechnology': Taught M.Tech. (NSNT) students (in 2010 and 2011) at the University of Delhi.

'Spectroscopy and diffraction methods': Taught M.Sc. students (in 2013) at the Department of Chemistry, University of Delhi.

Research Guidance

One student (Dr. Pramod Kumar) has completed his PhD
Two students (Ms. Anuradha and Ms. Ridhima Juneja) have submitted their thesis, awaiting PhD defense
Six students (Ms. Komal Sethi, Mr. Shrish Agnihotri, Mr. Balram Singh, Ms. Parul Singh, Ms. Shalini Sharma, Mr. Tarun Mohan) presently undergoing PhD work

Publications Profile

Research papers published in Refereed/Peer Reviewed Journals
Selected Recent Publications (in last 3 years):

Wang Y, Hu R, Lin G, Roy I, Yong KT. Functionalized quantum dots for biosensing and bioimaging and concerns on toxicity. *ACS Appl Mater Interfaces*. 2013 Apr 24;5(8):2786-99.

Liu L, Hu R, Roy I, Lin G, Ye L, Reynolds JL, Liu J, Liu J, Schwartz SA, Zhang X, Yong KT. Synthesis of luminescent near-infrared AgInS2 nanocrystals as optical probes for in vivo applications. *Theranostics.* 2013;3(2):109-15.

Juneja R, Roy I. In vitro techniques to investigate the oxidative effects of quantum dots. *Methods Mol. Biol.* 2013;1028:265.

Liu L, Hu R, Law WC, Roy I, Zhu J, Ye L, Hu S, Zhang X, Yong KT. Optimizing the synthesis of red- and near-infrared CuInS2 and AgInS2 semiconductor nanocrystals for bioimaging. *Analyst*. Aug 2, 2013 (Advanced online publication; DOI: 10.1039/c3an01030a).

Kumar P, Anuradha, Roy I. Optically and magnetically doped ormosil nanoparticles for bioimaging: synthesis, characterization, and in vitro studies. *RSC Adv*., 2014, 4 (31): 16181-87.

Anuradha, Joshi JC, Gulati K, Ray A, Roy I. Fluorophore-doped calcium phosphate nanoparticles for non-toxic biomedical applications. *RSC Adv*. 2014, 4 (76): 40449–55.

Juneja R, Roy I. Surface modified PMMA nanoparticles with tunable drug release and cellular uptake. *RSC Adv*. 2014, 4 (84), 44472 – 44479.

Roy I, Kumar P, Kumar R, Ohulchanskyy TY, Yong KT, Prasad PN. Ormosil nanoparticles as a sustained release drug delivery vehicle. *RSC Adv*. 2014, 4 (96), 53498-53504.

Zhang B, Wang Y, Hu R, Roy I, Yong KT. Cadmium-Free Quantum Dots for Biophotonic Imaging and Sensing. *Handbook of Photonics for Biomedical Engineering* (Springer) 2014, pp 1-27.

Agnihotri S, Pathak R, Jha D, Roy I, Gautam HK, Sharma AK, Kumar P. Synthesis and antimicrobial activity of aminoglycoside-conjugated silica nanoparticles against clinical and resistant bacteria. *New J. Chem.* Online publication, April 10, 2015 (DOI: 10.1039/c5nj00007f)

Sethi K, Roy I. Organically modified titania nanoparticles for sustained drug release applications. *J. Coll. Interface sci*., 2015, 456, 59-65.

Selected Older Publications:

Bonoiu, A C, S D Mahajan, H Ding, I Roy, K T Yong, R Kumar, R Hu, E J Bergey, S A Schwartz and P N Prasad. 2009. Nanotechnology approach for drug addiction therapy: Gene silencing using delivery of gold nanorod-siRNA nanoplex in dopaminergic neurons. *Proceedings of the National Academy of Sciences*. 106(14): 5546- 5550.

Stachowiak, E K, I Roy, E Lee, M Cappacchietti, J M Aletta, P N Prasad and M K Stachowiak. 2009. Targeting novel integrative nuclear FGFR1 signaling by nanoparticle-mediated gene transfer stimulates neurogenesis in the adult brain. *Integrative Biology*. 1(5-6): 394 - 403.

Yong, K T, I Roy, M T Swihart and P N Prasad. 2009. Multifunctional Nanoparticles as Biocompatible Targeted Probes for Human Cancer Diagnosis and Therapy. *Journal of Materials Chemistry*. 19(27): 4655 - 4672.

Roy, I and N Vij. 2009. Nano-delivery in Airway Diseases: Challenges and Therapeutic Applications. *Nanomedicine*. (July 16, online publication).

Roy, I, M K Stachowiak and E J Bergey. 2008. Non viral gene transfection nanoparticles: Functions and applications in CNS. *Nanomedicine*. 4(2): 89-97.

Erogbogbo, F, K T Yong, I Roy, G Xu, P N Prasad and M T Swihart. 2008. Biompatible Luminescent Silicon Quantum Dots for Imaging of Cancer Cells. *ACS Nano*. 2(5): 873-876.

Karikari, C A, I Roy, E Tryggestad, G Feldmann, C Pinilla, K Welsh, J C Reed, E P Armour, J Wong, J Herman, D Rakheja and A Maitra. 2007. Targeting the apoptotic machinery in pancreatic cancers using small-molecule antagonists of the X-linked inhibitor of apoptosis protein. *Molecular Cancer Therapeutics*. 6(3): 957-966.

Yong, K T, J Qian, I Roy, H H Lee, E J Bergey, K M Tramposch, S He, M T Swihart, A Maitra, and P N Prasad. 2007. Quantum dot bioconjugates as targeted probes for confocal and two-photon fluorescence imaging of cancer cells. *Nano Letters*. 7(3): 761 - 765.

Qian, J, K T Yong, I Roy, T Y Ohulchanskyy, E J Bergey, H H Lee, K M Tramposch, S He, A Maitra and P N Prasad. 2007. Imaging Pancreatic Cancer using Surface-functionalized Quantum Dots. *The Journal of Physical Chemistry B*. 111(25): 6969-6972.

Ohulchanskyy, T Y, I Roy, L N Goswami, Y Chen, E J Bergey, R K Pandey, A R Oseroff and P N Prasad.

2007. Organically modified silica nanoparticles with covalently incorporated photosensitizer for photodynamic therapy of cancer. *Nano Letters*. 7(9): 2835 - 2842.

Roy, I, T Y Ohulchansky, D J Bharali, H E Pudavar, R A Mistretta, N Kaur and P N Prasad. 2005. Optical tracking of organically modified silica nanoparticles as DNA carriers: A nonviral, nanomedicine approach for gene delivery. *Proceedings of the National Academy of Sciences*. 102(2): 279-284.

Bharali, D J, I Kleibor, E Stachowiak, P Dutta, I Roy, N Kaur, E J Bergey, P N Prasad and M K Stachowiak. 2005. Amino functionalized ORMOSIL nanoparticles as a non-viral vector for gene delivery in brain. *Proceedings of the National Academy of Sciences*. 102(32): 11539-11544.

Roy, I, S Mitra, A N Maitra and S Mozumdar. 2003. Calcium phosphate nanoparticles as novel non-viral vectors for targeted gene delivery. *International Journal of* Pharmaceutics. 250(1): 25 - 33.

Roy, I, T Ohulchansky, H E Pudavar, E J Bergey, J Morgan, A R Oseroff, T J Dougherty and P N Prasad. 2003. Ceramic-based nanoparticles entrapping water-insoluble photosensitizing anticancer drugs: A novel drug-carrier system for Photodynamic Therapy (PDT). *Journal of the American Chemical Society. Soc.* 125(26): 7860-7865.

Jain, T K, I Roy, T K De and A N Maitra. 1998. Nanometer silica particles encapsulating active compounds: a novel ceramic drug carrier. *Journal of the American Chemical Society*. 120(43): 11092 - 11095.

Conference Organization/ Presentations (in the last three years)

"Inorganic-based nanomaterials for controlled drug delivery and drug action" at the International Conference on Translational Nanomedicine, organized by Institute for Life Sciences, Ahmedabad, on December 15-17th, 2014

Invited oral presentation entitled "Impact of Nanomedicine on Translational Research" at the International conference "Nanomedicine", organized by Select Biosciences, Delhi, India , on May 30, 31, 2013

Research Projects (Major Grants/Research Collaboration)

Title: "Calcium phosphate nanoparticles encapsulating ….neurodegenerative disorders".

Funding agency: DBT (RGYI). Amount: 24.28 Lakhs (June 2011 to May 2014).

Awards and Distinctions

Visionary Innovator Award, presented by the Office of Science, Technology Transfer and Economic Outreach (STOR) at the State University of New York, Buffalo, 2004.

Western New York (WNY) Inventor of the Year Award, presented by The Niagara Frontier Intellectual Property Law Association (NFIPLA), 2009.

Association With Professional Bodies

Reviewing

Reviewer, Nano Letters.

Reviewer, Current Molecular Medicine.

Reviewer, Molecular Cancer Therapeutics.

Reviewer, PLoS ONE.

Reviewer, ACS Applied materials and Interfaces.

Reviewer, Biotechnology and Bioengineering.

Reviewer, Wiley Interdisciplinary Reviews: Nanomedicine.

Other Activities

Maitra, A N, S Mitra, S Mozumdar and I Roy. 2003. *Process for entrapping genetic materials in ultra-low size nanoparticles of inorganic compounds to form non-viral carriers*. Department of Chemistry, University of Delhi, Delhi, India. United States Patent Number: 6,555,376 (Awarded on April 29, 2003). Licensed to Abraxis BioSciences, Inc. (USA).

Prasad, P N, I Roy, T Y Ohulchanskyy, H E Pudavar and E J Bergey. 2008. *Ceramic based nanoparticles for entrapping therapeutic agents for photodynamic therapy and method of using same*. Department of Chemistry, State University of New York, Buffalo, New York, USA. United States Patent Number: 7,364,754 (Awarded on April 29, 2008). Licensed to Nanobiotix, Inc. (France).

Roy, I, A V Kachynski, A N Kuzmin, M Nyk and P N Prasad. 2007. ZnO nanoparticles as non-linear optical probes for targeted imaging of cancer cells. Poster abstracts in *Investigator's meeting, NCI Alliance for Nanotechnology in Cancer*, October 16-18, 2007. Chapel Hill, NC. United States.

Roy, I. 2009. Biophotonics and Nanotechnology Applications for Optical Imaging in Cancer. Invited Oral Presentation in *First Indo–US symposium on Cancer Nanotechnology* , Feb 4 – 6, 2009. New Delhi, India.

Recognized by the journal 'ACS Applied materials and Interfaces' as a top 5% reviewer in 2009.