




Faculty Details proforma for DU Web-site

Title	Dr	First Name	PANDIAN	Last Name	SENTHIL KUMAR	Photograph
Designation		ASSISTANT PROFESSOR				
Address		DEPARTMENT OF PHYSICS & ASTROPHYSICS, UNIVERSITY OF DELHI, NORTH CAMPUS, DELHI 110007				
Phone No		Office				
		Residence				
		A-6, TEACHERS' RESIDENTIAL COMPLEX, TYPE II, MUKHERJEE NAGAR, DELHI 110009				
		Mobile				
Email		pskumardu@gmail.com; pskumar@physics.du.ac.in				
Web-Page		physics.du.ac.in				
Educational Qualifications						
Degree						Year
PhD		Thesis topic: IONIC AND MESOSCOPIC ASPECTS OF CATION DOPED SILVER IODIDE				2003
Career Profile						
University of Delhi, INDIA						
Assistant Professor					2008 - Present	
Universidade de Vigo, Spain						
Post doctoral Research in Nanotechnology					2006 - 2007	
Chung Yuan Christian University, Taiwan						
Post doctoral Research in NanoBioengineering					2005	
National Chemical Laboratory, Pune, INDIA						
Post doctoral Research in the field of Nanotechnology					2003 - 2005	
University of Hyderabad, Hyderabad, INDIA						
Ph.D. Thesis in Experimental Condensed Matter Physics					February 2003	
Administrative Assignments						
Member - Examination Committee (2017 onwards)						
Member - Anti Ragging Committee (2017 onwards)						
Member - Renovation Committee (2018)						
Areas of Interest / Specialization						
NANOTECHNOLOGY - METAL AND SEMICONDUCTOR NANOCRYSTALS,						

MICROSCOPIC AND SPECTROSCOPIC ASPECTS OF ADVANCED FUNCTIONAL MATERIALS				
Subjects Taught				
2016-17	<i>Advanced Solid State Theory II</i>			
2016-17	<i>Nanoscience Laboratory (Final)</i>			
2015-16	<i>Advanced Solid State Theory II</i>			
2015-16	<i>Solid State Physics Laboratory (Previous)</i>			
2014-15	<i>Laser & Spectroscopy II (Theory)</i>			
2014-15	<i>Solid State Physics Laboratory (Previous)</i>			
2013-14	<i>Laser & Spectroscopy II (Theory)</i>			
2013-14	<i>Solid State Physics Laboratory (Previous)</i>			
2013-14	<i>Quantum Mechanics I</i>			
2012-13	<i>Quantum Mechanics I</i>			
2012-13	<i>Solid State Physics Laboratory (Previous)</i>			
2011-12	<i>Quantum Mechanics I</i>			
2011-12	<i>Solid State Physics Laboratory (Previous)</i>			
2010-11	<i>Quantum Mechanics I</i>			
2010-11	Waves & Optics Laboratory (Previous)			
Time table of the subjects taught during the current semester				
S.No.	Subject	Days	Time	Classroom
1	Nanoscience Laboratory	Thursday and Friday	1.30pm to 5.30pm	Final Nanoscience Laboratory
2	Advanced Solid State Theory II	Tuesday, Thursday to Saturday	11am to 12noon	Lecture Hall L, Department of Physics & Astrophysics
3	Laser & Spectroscopy Laboratory	Tuesday and Wednesday	1.30pm to 5.30pm	Final Laser & Spectroscopy Laboratory
Research Guidance				
<i>Currently, supervising 4 PhD students and one post doctoral fellow</i>				
Publications Profile				
<u>Books / Monographs</u>				
<u>Year of Publication</u>	<u>Title</u>		<u>Publisher</u>	
2016	Ionic and Mesoscopic Aspects of Cation Stabilized Silver Iodide		LAP Lambert Academic Publishing Germany	

In Indexed/ Peer Reviewed Journals			
Year of Publication	Title	Journal	Co-Authors
2016	<i>Differential role of PVP on the synthesis of plasmonic gold nanostructures and their Catalytic and SERS properties</i>	<i>RSC Adv. 6 (2016)</i> 80342-80353	Manoj Verma, Abhitosh Kedia, M. Boazbou Newmai
2015	<i>Tweaking Anisotropic Gold Nanostars: Covariant control of Polymer-solvent mixture complex</i>	<i>RSC Adv. 5 (2015)</i> 5205-5212	Abhitosh Kedia, Harsh Kumar
2014	<i>A simple one pot synthesis of cubic Cu₅FeS₄</i>	<i>RSC Adv. 4 (2014)</i> 52633-52636	Prashant Kumar, Meenakshi Gusain, Sitaraman Uma and Rajamani Nagarajan
2014	<i>Halide ion induced Tuning and Self-organization of Gold Nanostars</i>	<i>RSC Adv. 4 (2014)</i> 4784-4790	Abhitosh Kedia
2013	<i>Local Electron Beam Excitation and Substrate Effect on the Plasmonic Response of Single Gold Nanostars</i>	<i>Nanotech. 24 (2013)</i> 405704 (9 pp.)	Pabitra Das, Abhitosh Kedia, Nicolas Large and Tapas Kumar Chini
2012	<i>Controlled Reshaping and Plasmon Tuning Mechanism of Gold Nanostars</i>	<i>J. Mat. Chem. C 1 (2013)</i> 4540-4549	Abhitosh Kedia
2012	<i>Solvent-Adaptable poly(vinylpyrrolidone) Binding Induced Anisotropic Shape Control of Gold Nanostructures</i>	<i>J. Phys. Chem. C 116 (2012)</i> 23721-23728	Abhitosh Kedia
2012	<i>Precursor-Driven Nucleation and Growth of Gold Nanostars</i>	<i>J. Phys. Chem. C 116 (2012)</i> 1679-1686	Abhitosh Kedia
2010	<i>Room temperature optical absorption and intrinsic photoluminescence in KZnF₃</i>	<i>Chemical Physics Letters, 494 (2010)</i> 284-286	Neetu Tyagi and R. Nagarajan
2008	<i>High yield synthesis and optical response of gold nanostars</i>	<i>Nanotechnology, 19 (2008)</i> 015606 (6pp)	Isabel Pastoriza Santos, Benito Rodríguez González, F. Javier García de Abajo and Luis M. Liz Marzán
2006	<i>High temperature XRD studies of nanoscale AgI-CuI solid</i>	<i>Journal of Physics</i>	A.K. Tyagi and C.S.

	<i>solutions</i>	<i>and Chemistry of Solids</i> , 67 (2006) 1809 - 1816	Sunandana
2006	<i>Search for a novel zero thermal expansion material: dilatometry of the AgI-CuI system</i>	<i>Journal of Materials Science</i> , 41 (2006) 3861 - 3865	N.S. Kini, A.M. Umarji and C.S. Sunandana
2005	<i>Synthesis of CdS and alloyed CdMnS nanocrystals using aqueous foams</i>	<i>Journal of Nanoscience and Nanotechnology</i> , 5 (2005) 2144 - 2154	Manasi Kasture, Usha Raghavan, Renu Pasricha and Murali Sastry
2004	<i>Free standing gold nanoparticle membrane by the spontaneous reduction of aqueous chloroaurate ions by oxyethylene linkage bearing diamine at a liquid liquid interface</i>	<i>Advanced Materials</i> , 16 (2004) 966 - 971	PR. Selvakannan, Arvind S. More, Rahul D. Shingte, Prakash P. Wadgaonkar and Murali Sastry
2004	<i>Highly versatile free standing nanogold membranes as scaffolds for the growth of calcium carbonate crystals</i>	<i>Chemistry of Materials</i> , 16 (2004) 988 - 993	Debabrata Rautaray, Prakash P. Wadgaonkar and Murali Sastry
2004	<i>One pot, spontaneous and simultaneous synthesis of gold nanoparticles in aqueous and nonpolar organic solvents using a diamine containing oxyethylene linkage</i>	<i>Langmuir</i> , 20 (2004) 295 - 298	PR. Selvakannan, Arvind S. More, Rahul D. Shingte, Prakash P. Wadgaonkar and Murali Sastry
2004	<i>Theoretical approaches to superionic conductivity</i>	<i>Bulletin of Materials Science</i> , 27 (2004) 1 - 17	C.S. Sunandana

Conference Proceedings

Kamalesh Nehra and **P. Senthil Kumar**, *Chloride Ion Induced formation of size/shape tunable hollow gold nanostructures*, **Adv. Sci. Lett.** 2018, **xx**, xxx-xxx. (ISSN: 1936-6612)

Manoj Verma, Kamalesh Nehra, **P. Senthil Kumar**, *Plasmonic Oligomers: The Role of polymer-solvent interactions*, **Adv. Sci. Lett.** 2016, 22, 3860-3862. (ISSN: 1936-6612)

Manoj Verma, Abhitosh Kedia, **P. Senthil Kumar**, *Gold-Copper alloy "nano-dumplings" with tunable compositions and plasmonic properties*, **AIP Conf. Proc.** 2016, 1728, 020325.

(ISSN: 0094-243X)

Kamalesh Nehra, Manoj Verma & P. Senthil Kumar, *Gold Nucleation engineered growth/formation of core-shell and hollow metal nanostructures*, **AIP Conf. Proc.** 2016, 1728, 020328. (ISSN: 0094-243X)

Manoj Verma, Abhitosh Kedia, P. Senthil Kumar, *Bromide Ion Induced Formation of PVP-Capped Anisotropic Gold Nanoplates/Nanotriangles*, **AIP Conf. Proc.** 2014, 1591, 549-551. (ISSN: 0094-243X)

M. Boazbou Newmai, Abhitosh Kedia, P. Senthil Kumar, *NVP Encapsulated Gold Nanoclusters by In Situ Polymerization of Monomer*, **AIP Conf. Proc.** 2014, 1591, 600-602. (ISSN: 0094-243X)

Abhitosh Kedia, P. Senthil Kumar, *Gold Nanostars Reshaping and Plasmon Tuning Mechanism*, **AIP Conf. Proc.** 2013, 1512, 232-233. (ISSN: 0094-243X)

Abhitosh Kedia, P. Senthil Kumar, *Solvent Induced Kinetic Growth of Shape Controlled Gold Nanostructures*, **AIP Conf. Proc.** 2011, 1349, 321-322. (ISSN: 0094-243X)

Publications in the Last one year

Kamalesh Nehra and P. Senthil Kumar, *Chloride Ion Refined Galvanic Replacement: Boosting Monodispersity of Au-Ag Hollow Nanoparticles and Their Enhanced Applications*, **Curr. Appl. Phys.**, 2018, xx, xxx-xxx. (Impact Factor = 3.387)

M. Boazbou Newmai, Manoj Verma and P. Senthil Kumar, *Monomer functionalized silica coated with Ag nanoparticles for enhanced SERS hotspots*, **Appl. Surf. Sci.**, 2018, 440, 133-143. (Impact Factor = 3.387)

Manoj Verma, M. Boazbou Newmai and P. Senthil Kumar, *Synergistic effect of Au-Ag nanoalloying: intense SEIRA and enhanced catalysis*, **Dalton Trans.**, 2017, 46, 9664-9677. (Impact Factor = 4.029)

Conference Organization/ Presentations (in the last three years)

M. Boazbou Newmai and P. Senthil Kumar, *Charge Transfer Interactions in Oligomer coated Gold Nanoclusters* – **Poster** presented at 60th DAE Solid State Physics Symposium (**DAE-SSPS-2015**) at Amity University UP, Noida, Uttar Pradesh during December 21-25, 2015.

<p>Manoj Verma, Kamalesh Nehra and P. Senthil Kumar, <i>Plasmonic Oligomers: The Role of Polymer-Solvent Interactions</i> – Oral presented at 8th National Conference on Thermophysical Properties (NCTP-2015) at MNIT, Jaipur, during 14-16 December 2015.</p> <p>Manoj Verma, Abhitosh Kedia and P. Senthil Kumar, <i>Gold-Copper Alloy “Nano-Dumplings” with Tunable Compositions and Plasmonic properties</i> - Poster presented at International Conference on Condensed Matter & Applied Physics (ICC-2015) at Govt. Engineering College Bikaner, Rajasthan, during October 30-31, 2015.</p> <p>Kamalesh Nehra, Manoj Verma and P. Senthil Kumar, <i>Nucleation Engineered Growth / Formation of Core-Shell and Hollow metal nanostructures</i> - Poster presented at International Conference on Condensed Matter & Applied Physics (ICC-2015) at Govt. Engineering College Bikaner, Rajasthan, during October 30-31, 2015.</p>
<p>Research Projects (Major Grants/Research Collaboration)</p> <p>Supported by the Scheme to Strengthen R & D Doctoral Research Program at the University of Delhi from 2009 onwards with an annual grant of Rs. 2.5 lakhs. Research collaboration with Materials Chemistry Group, Department of Chemistry, University of Delhi Research collaboration with Surface Physics Division, Saha Institute of Nuclear Physics, Kolkata, INDIA</p>
<p>Awards and Distinctions</p> <p>MRSI best paper award (2014)</p> <p>Best Poster award at ICYRAM 2012 Singapore</p> <p>Our Nanotechnology paper (2008) is one of the most cited/referenced papers</p>
<p>Association With Professional Bodies</p> <p>Included in Marquis Who's Who in the world 2014 (31st edition)</p>
<p>Other Activities</p> <p style="text-align: center;"><u>Invited Talks</u></p> <p>P. Senthil Kumar, <i>The Magic of Small Things: A Journey with Surface Science and Spectroscopy</i> – Invited talks at the National Seminar on Contemporary Physics, held at Madura College, Madurai, Tamil Nadu, INDIA, December 15, 2017.</p>

- P. Senthil Kumar**, *The Science and Engineering of Nanocrystals* – **Invited talk** at the National Seminar on Nanoscience and Technology, held at N.M.S.S.V.N. College, Madurai, Tamil Nadu, INDIA, February 19, 2016.
- P. Senthil Kumar**, *Science at the Nanoscale* – **Invited talk** at the Orientation program on Nanoscience, held at Swami Shradhaanand University of Delhi, INDIA, March 25, 2015.
- P. Senthil Kumar**, *Plasmonic Nanostructures* – **Invited talk** at the One day Seminar on Nanoscience and Nanotechnology, held at University of Delhi, INDIA, March 14, 2014.
- P. Senthil Kumar**, *Plasmonics - The Nanoscale Optics* – **Invited talk** at the Visitor's Programme, held at University of Delhi, INDIA, March 12 - 13, 2014.