

**Name : Dr. Vandna Luthra nee Arora**

Designation Associate Professor in Physics

**Qualification** M.Sc, Ph.D (Physics), DU.

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### **Awards/ Recognitions**

1. **Junior Research Fellowship cum eligibility for Lecturership** by Council of Scientific and Industrial Research

2. **BOYSCAST Fellowship** (Department of Science & Technology, availed at Department of Chemistry, University College London, UK. – 2003

3. **Meritorious Teacher Award, NCT (Delhi Govt.)-2012**

4. **UGC-UKIERI Thematic Partnership Award- (2012-2015)** – Lead Indian Investigator with Department of Chemistry, University College London, UK.

5. One of the four selected as **Digital literacy champion** for training In Edingurgh, Scotland (**June-July 2014**) (Collaboration between Campus of Open Learning and Edinburgh College, Scotland).

5. **Raman Fellowship (UGC) (2014 -2015)** availed at State University of New York, Binghamton University on energy materials

6. **Innovation project (GC-204)** was awarded the best innovative idea (DU) in

Collaboration with Physics and Botany faculty and students

7. **Excellence in Teaching and Research award by University of Delhi** (May 2015)

**Ph.D Supervision** 1- completed; 4 – ongoing

**Publications in International Journals – 21**

**Papers Presented in National/International Conferences : 20**

**Chapters in Books -2**

**Editorial Board member : Engineering (Open Access Journal)**

**Reviewer** with International Journals of repute

**Visiting Faculty: Dept. of Chemistry, University College London, UK.**



**Member – Institute of Physics, UK.**

Promotor of Free Software Foundation (FSF) , Own-a-Mug Scheme, safe e-waste disposal, etc.

Interests : Material Science, Nanotechnology, Condensed Matter Physics, Chemical Sensors, Electronics etc.

**Convenor** : 1st and 3<sup>rd</sup> Indo-UK conference on Recent Advances in Chemical Sensors held at Gargi College, 2014 and 2015

**Web-pages** : [www.researchgate.net/profile/Vandna\\_Luthra](http://www.researchgate.net/profile/Vandna_Luthra) ;

Educational Qualifications		
Qualifications	Title/Course	University
B.Sc	(Physics (H) )	Hindu College (DU)
M.Sc	Phy with spec in Electronics	Department of Physics & Astrophysics D.U.
Ph.D	Physics (Synthesis, Characterization and transport properties of polyaniline doped with various protonic acids	Department of Physics & Astrophysics, University of Delhi, Delhi-110007.
CSIR – JRF cum LS	Qualified	D.U.

Career Profile	
<b>Lecturer in Physics (Permanent) (GC)</b>	
<b>Sr. Lecturer in Physics (permanen) (GC)</b>	
<b>Reader in Physics (GC)</b>	
<b>Associate Professor in Physics (5-2-2009 to till date)(GC)</b>	
Research Undertaken	
Major Projects	Collaborative Projects
1. Technology Development of Low Cost User Friendly sensor Materials for toxic gases – DST	Synthesis, characterization and anti-microbial properties of silver nanoparticles using green methods – funded by innovative project of University of Delhi. This constituted a collaborative team of Physics, Chemistry and Microbiology
2. Exploring potential of thermally stable polyaniline and composites for tribological applications funded by University Grants Commission	Tailoring the Electrical and Structural properties of semi-conducting oxide based nanocrystalline materials. This has funding under UGC-UKIERI Thematic Partnership Award. We are fortunate to get it at the UG level ( The project is supporting exchange visits of faculty and students between India and UK)
These two projects were instrumental in establishing Physics Research Facilities at college which was further upgraded and extended by CPE and STAR COLLEGE Scheme Grant	A project on Pine Needles from Disastrous waste to multitude of applications Funded by Innovative project scheme of University of Delhi. An inter-disciplinary team of Physics and Botany department worked.

**List of Publications in International Journals : with ISSN Numbers**

S.No	Authors/ Co-Authors	Title	Details	ISSN Number Impact factor
1.	Vandna Luthra, Anita Singh, D.C. Pugh and Ivan P. Parkin	Ethanol sensing characteristics of Zn <sub>0.99</sub> M <sub>0.01</sub> O (M = Al/Ni) nanopowders	Physics Status Solidi A: Applications	11/2015; 1.62 (1862-6319)
	D.C. Pugh, Vandna Luthra, Anita Singh and Ivan P. Parkin	Enhanced Ethanol sensing characteristics of indium doped Zinc Oxide nanopowders	RSC Advances, 2015, 5, 85767	3.84
1.	Rajveer Singh, Vandna Luthra, R. S. Rawat and R. P. Tandon	Structural, dielectric and piezoelectric properties of SrBi <sub>2</sub> Nb <sub>2</sub> O <sub>9</sub> and Sr <sub>0.8</sub> Bi <sub>2.2</sub> Nb <sub>2</sub> O <sub>9</sub> ceramics,	40, 9027 (2014) Ceramic International	2.086
2.	Anita and Vandna Luthra	Tweaking electrical and magnetic properties of Al-Ni codoped ZnO nanopowders	Ceramic International 2014	2.086
3.	Suresh K. Gupta, Vandna Luthra and Ramadhar Singh	1. Electrical Transport and EPR Investigations : A comparative Study for dc conductivity of mono and multivalent ions doped polyaniline	Bulletin of Material Sci. Oct 2012 35(5) (787-794), Springer.	0250-4707 .870
4.	H.C. Gupta, Archana and Vandna Luthra	A lattice dynamical investigation for the Raman and infrared frequencies of Bi <sub>2</sub> W <sub>2</sub> O <sub>9</sub>	Physica B, 407(3) 2012 477-484.	1.276 0921-4526
5.	H.C. Gupta, Archana and Vandna Luthra	Lattice dynamical investigations for Raman and infrared frequencies of Bi <sub>2</sub> WO <sub>6</sub>	J. of Mol. Struct.1005 (2011) 53-58.	1.599 0022-2860
6.	H.C. Gupta, Archana and Vandna Luthra	Lattice vibrations of ABi <sub>2</sub> Nb <sub>2</sub> O <sub>9</sub> crystals (A = Ca, Sr, Ba) <b>IF =1.650</b>	Vib.Spectroscopy, 56 (2011) 235-240.	1.547 0924-2031
7.	Anupama Sachdeva, Mahesh Gupta, Vandna Luthra and R. P. Tandon.	Phase evolution studies of sol-gel derived lead zirconate titanate (PZT) nano powder using x-ray photoelectron spectroscopy and x-ray diffraction studies	Applied Physics A : Material Sci & Processing 104 (2011) 103-108.	0947-8396

8.	H.C. Gupta, Archana and <b>Vandna Luthra</b>	A lattice dynamical investigation of the Raman and the infrared wavenumbers of SBT(SrBi <sub>2</sub> Ta <sub>2</sub> O <sub>9</sub> )	Journal of Molecular Structure, 984 (2010) 204-08.	0022-2860 1.599 0022-2860
9.	Anupama Sachdeva, Prikshit Gautam, <b>Vandna Luthra</b> , R. P. Tandon	Structural and Electrical Properties of Lead Zirconate Titanate 0-3 composite films	Integrated Ferroelectrics. 122(1) (2010) 134-143	IF .383 1058-4587
10.	Anupama Sachdeva, <b>Vandna Luthra</b> , Prikshit Gautam, R. P. Tandon	Dielectric and ferroelectric studies on sol-gel derived calcium modified lead zirconate titanate ceramics	Integrated Ferroelectrics, 122(1) (2010) 74-82	IF .383 1058-4587
11.	Manju Arora, Anupama Sachdeva, <b>Vandna Luthra</b> , R.P. Tandon, R.P. Pant	Sol-gel Derived Nanocrystalline Lanthanum Doped Lead Zirconate Titanate Thin Films Studied for Solitary Waves Propagation	Integrated Ferroelectrics , 122(1) (2010) 144-151.	IF .383 1058-4587
12.	<b>Vandna Luthra</b> , Keith F. E. Pratt, Robert G. Palgrave, David E. Williams, R. P. Tandon and Ivan P. Parkin	Gas-sensing properties of Fe <sub>2-x</sub> Ti <sub>x</sub> O <sub>3+y</sub> (x = 0—1.4)	Polyhedron 29 (2010) 1225-1230.	0277-5387
13.	<b>Vandna Luthra</b> , Keith F.E. Pratt, Ivan P. Parkin, D.E.Williams and R. P. Tandon	Fabrication and characterization of Fe <sub>1.90</sub> Ti <sub>0.1</sub> O <sub>3</sub> gas sensitive resistors for carbon monoxide	Sensors & Actuators B: Chem, 135 (2009) 430	0925-4005 IF =3.75
14.	<b>Vandna Luthra</b> , Ramadhar Singh, A.Mansingh and S.K.Gupta	DC Conductivity and Electron Spin Resonance studies of polyaniline Doped with Sulfuric Acid	Cur. Appl. Phys. 3 (2003) 219-222	1567-1739 IF =1.900
15.	Manju Arora, <b>Vandna Luthra</b> , Ramadhar Singh and S. K. Gupta	Vibrational Spectroscopy of polyaniline doped with sulfuric and phosphoric acid	Applied Biochemistry and Biotechnology , 96 (1-3) 2001	0273-2289
16.	<b>Vandna Luthra</b> , Ramadhar Singh and A. Mansingh	Effect of protonic acids on the dielectric spectroscopy of polyaniline	Synth. Met. 119 (2001) 291-92	0379-6779
17.	R.Singh, <b>V.Arora</b> , R.P.Tandon, S.Chandra, A.Mansingh	Dielectric spectroscopy of doped polyaniline	Synth. Met.,104(1999) 137	0379-6779
18.	R.Singh, <b>V.Arora</b> , R.P.Tandon,S.Chandra, A.Mansingh	Charge transport and structural properties of polyaniline	J. Mat . Sci.,33 (1998) 2067	0022-2461
19.	R.Singh, <b>V.Arora</b> , R.P.Tandon	Transport and structural of polyaniline doped with	Polymer, 38 (1997) 4897	0032-3861 IF= 4.009

	S.Chandra , N.Kumar and , A.Mansingh	monovalent and multivalent ions		
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### Publications

Books Written	Chapters Written	Books/ Chapter Edited
	Vandna Luthra “Restructuring of Physics Syllabus” in Quest for Excellence : Policy and Practice of Undergraduate Education, edited by Dr. Meera Ramachandran, published by Wordsworth India 2013, pp 363-373.	

### Papers presented at National/ International Conferences/Seminars (A few selected)

1. Co-presented a poster entitled “Synthesis, characterization and anti-microbial properties of Silver nanoparticles using Mulberry Tree leave extract, Presented at International conference on Green Chemistry held at Jaipur in December 2012”.
2. Effect of Annealing on The Electrical And Structural Properties of Sol-Gel Derived Zinc Oxide by Vandna Luthra, Anita, Ritu Shrivastava, M. Arora and M. N. Kamalasanan at International Conference CMD at Edinburgh during September 2012. This was funded by Department of Science and Technology.
3. Presented research paper in joint collaboration on PZT at International Conference on Electroceramics , 13-17 December 2009 held at University of Delhi, Delhi-110007.
4. Indo-Japan Conference held at National Physical Laboratory. From 17-20 December and co-presented the following paper entitled “Vibration Spectroscopy of polyaniline/TiO<sub>2</sub> inorganic organic hybrid materials”
5. Temperature dependent dielectric properties of *c*-axis oriented LiNbO<sub>3</sub> thin film using SPR technique by Swati Shandilya , Monika Tomar, Vandna Luthra, K. Sreenivas<sup>1</sup> and Vinay Gupta<sup>1</sup> at Dielectrics 2009 held at University of Reading, UK.
6. Electrical properties of screen-printed polyaniline based humidity sensors by Vandna Luthra, N.G. Patel, A. K. Arora and Vinay Gupta at Dielectrics 2009 held at University of Reading, UK.
7. Effect of Humidity on the Electric and Dielectric properties of polyaniline doped with various protonic acids by V. Luthra, U.Verma, Ajay K. Arora and R. P. Tandon in National Symposium on Ferroelectrics and Dielectrics held at N. Delhi, Nov. 2004.

<b>Areas of Interest</b>
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**Academic : Teaching, Research guidance (UG and Ph.D), Publication, analysis and Dissemination of results, popularization of science etc, creating awareness for eco-friendly activities including e-bin, own a mug scheme., Philosophy of Gandhiji etc.**

- **Participation in Curriculum Restructuring:**
- **Corporate Participation at College Level**  
Actively involved in a variety of activities  
**Co-ordinator Zenith** (Physical Science) Society from 2012 -15  
**Member of Eco-Club** and associated creating awareness about electronic waste and its safe disposal and some bin have been installed in the college for collection  
**Physics Co-ordinator** Star College Scheme
- **Corporate Participation at Departmental Level**  
Many times as a member of the curriculum modification of Physics (H) as well as Physical Science courses

#### **Member of the Professional Associations**

Member of Institute of Physics (IOP) (UK)

- **Consultancy / Experts on committees**
  - Jury member of a National Level completion held by Department of Science & Technology (for school children of science stream)
  - Paper Setter of a national level completion (for school children)
  - Mentor at INSIRE camps for school children.

#### **International Collaboration**

1. *UGC\_UKIERI Thematic Partnership Scheme - 2013 -15 with UCL, UK*
2. *Honorary Position: Department of Chemistry, UCL, UK.*
3. *State University of New York, Binghamton University (Raman Fellow)*

**Editorial Board Member :** *Open Access Journal , Engineering*

**Reviewer :** *with reputed International journals*

**Professional Development:** *3 Refresher Courses and one Orientation Course and workshops*

**Other Experiences :** *C++, Open Sources ; Python, Resource person Interfacing devices Expeyes (developed by IUAC), DLITE training on MOODLE.*

**Miscellaneous:** *Conducted an Add-on Course: Fundamentals of Microcontrollers and Essentials of Interfacing.*

*Delivered a talk on Chemical Sensors at 2<sup>nd</sup> Indo-UK symposium under auspice of UGC-UKIERI Thematic Partnership 2013-15 held at Department of Chemistry, University College, London, UK.*