

## **Faculty Profile**

**Name:** Dr. JITENDRA SHARMA

**Designation:** Assistant Professor

**Department:** Physics

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**Qualification:** Ph.D. (Physics)

**Experience:**

**Teaching:** 08 years

**Research:** 16 years

**Administration:** 2 years

**Total:** 26 years



### **Areas of Interest / Specialization:**

1. Polymer Nanotechnology
2. Functional Biomaterials

### **Brief Bio-data:**

Dr. Jitendra Sharma is Assistant Professor in School of Physics, Shri Mata Vaishno Devi (SMVD) University, Katra (J&K, India). He received his Bachelor's degree (B.Sc.) with majors in Physics from Banaras Hindu University, Varanasi, followed by Masters (M.Sc.) and Doctorate (Ph.D.) in Physics from Jawaharlal Nehru University, New Delhi. During this period, he worked extensively on the applications of laser on polymeric biomaterials. Thereafter, before moving to University of Durham (UoD), England (UK) for a postdoctoral position, he just had a brief stint at IIT Delhi. At UoD, he explored the rheology of polymer blends and mixtures in close collaboration with ISIS Rutherford Appleton Laboratory, Oxfordshire and industrial partner Reologen i Lund AB, Sjobo, Sweden. At Polymers Division, National Institute of Standards and Technology (NIST), Maryland (USA) he worked on preservation of proteins (for drugs). And, prior to joining SMVD University, he was working on nanocomposites of polymer with silica, carbon nanotubes (CNT), and clays at the Department of Chemical and Biomolecular Engineering, University of Houston, Texas (USA).

## Research Profile

### Research Projects Undertaken:

S. No.	Role	Title	Funding Agency	Current Status (Closed/ Running)
1.	P.I.	Effects of Swift Heavy Ion Irradiation on Graphene-Based Polymer Nanocomposites	UGC (IUAC-Delhi)	Running

### Research Publications:

S. No.	Year	Publication
1.	In press	Sumara Khursheed, Vinay Kumar, Vivek K. Singh, Jitendra Sharma, and H.C. Swart, Optical properties of $\text{Sr}_3\text{B}_2\text{O}_6: \text{Dy}^{3+}$ /PMMA polymer nanocomposites, Physica B.
2.	2017	Mohit Manhas, Vinay Kumar, Vivek K. Singh, J. Sharma, Ram Prakash, Vishal Sharma, A.K. Bedyal and H.C. Swart, A novel orange-red emitting $\text{Ba}_2\text{Ca}(\text{BO}_3)_2: \text{Sm}^{3+}$ phosphor to fill the amber gap in LEDs: Synthesis, structural and luminescence characterizations, Current Applied Physics, 17, 1369-1375.
3.	2017	Vivek K. Singh, Brij Bir S. Jaswal, Jitendra Sharma and Pradeep K. Rai Spectroscopic investigations on kidney stones using Fourier transform infrared and X-ray fluorescence spectrometry, X-Ray Spectrometry, DOI 10.1002/xrs.2775
4.	2016	Sumara Khursheed, Vinay Kumar, and Jitendra Sharma, Effect of Synthesis Methods on Structural, optical and Spectral Properties of Bluish-Green $\text{LiZnVO}_4$ Phosphor, Materials Focus 5, 485-488
5.	2016	Neharika, Vinay Kumar, Vivek K. Singh, J. Sharma, O.M. Ntwaeaborwa, and H.C. Swart, Synthesis and Photoluminescence study of a single dopant near White light emitting $\text{Li}_4\text{CaB}_2\text{O}_6: \text{Dy}^{3+}$ nanophosphor, Journal of Alloys and Compounds, 688, 939-945
6.	2016	Nitin Kumar, Vinay Kumar, and Jitendra Sharma, Relaxation in gelatin hydrogels probed by dynamic light scattering, Advanced Materials Letters 7, 136-143
7.	2016	Vivek K. Singh, Yashashchandra Dwivedi, Jitendra Sharma, Ram Prakash, and Ashok K. Pathak, A special Issue on Advanced Functional Materials: A Modern Perspectives, Materials Focus, 5, 1-4
8.	2016	Brij Bir S. Jaswal, Vinay Kumar, Jitendra Sharma, Pradeep K. Rai, Mohammed A. Gondal, Bilal Gondal, and Vivek K. Singh, Analysis of Heterogeneous Gallstones using Laser Induced Breakdown Spectroscopy (LIBS) and Wavelength Dispersive X-Ray Fluorescence (WD-XRF), Lasers Med. Sci. 31, 573-579
9.	2016	Neharika, Vinay Kumar, J. Sharma, Vivek K. Singh, O.M. Ntwaeaborwa, and H.C. Swart, Surface and spectral studies of green emitting $\text{Sr}_3\text{B}_2\text{O}_6: \text{Tb}^{3+}$ phosphor, Journal of Electron Spectroscopy & Related Phenomena 206, 52-57
10.	2015	Brij Bir S. Jaswal, Jitendra Sharma, Vinay Kumar, Yugal Khajuria, and Vivek K. Singh, and Pradeep K. Rai, Elemental and Molecular Analysis of Gallstones using

		Wave-Dispersive X-Ray Fluorescence and Fourier Transform Infra-red Spectroscopy, <i>Advanced Science Letters</i> 21, 2613-2617
11.	2015	Brij Bir S. Jaswal, Vnay Kumar, H.C. Swart, Jitendra Sharma, Pradeep K. Rai, and Vivek K. Singh, Multi-Spectroscopic Analysis of Cholesterol Gallstone Using TOF-SIMS, FTIR and UV-Vis Spectroscopy, <i>Applied Physics B: Laser and Optics</i> 121, 49-56
12.	2015	Nitin Kumar, Vivek Kumar Singh, and Jitendra Sharma, Dynamic light scattering studies of gelatin-glutaraldehyde complexes in water, <i>Materials Focus</i> 4, 412-417
13.	2015	Nitin Kumar, Vivek K. Singh, and Jitendra Sharma, Structure and Dynamics of Biopolymeric Hydrogels: A Review, <i>Reviews in Advanced Sciences and Engineering</i> 4, 183-199
14.	2015	Neharika, Vinay Kumar, Jitendra Sharma, O.M. Ntwaeaborwa, and H.C. Swart, Surface and Thermoluminescence Study Of Dy <sup>3+</sup> Doped Sr3B2O6 Nanocrystalline Phosphor, <i>Advanced Materials Letters</i> 6, 402-406 .
15.	2014	Vivek K. Singh, Vinay Kumar, Jitendra Sharma, Yugal Khajuria, and Kaushal Kumar, Importance of laser induced breakdown spectroscopy for biomedical applications: A comprehensive review, <i>Materials Focus</i> 3,169-182
16.	2014	Vivek K. Singh, Vinay Kumar, and Jitendra Sharma, Importance of laser-induced breakdown spectroscopy for hard tissues (bone, teeth) and other calcified tissue materials, <i>Lasers Med. Sci.</i> 30:1763-1778
17.	2014	Vinay Kumar, A.K. Bedyal, J. Sharma, V. Kumar, O.M. Ntwaeaborwa, and H.C. Swart, Spectral and surface investigations of Ca <sub>2</sub> V <sub>2</sub> O <sub>7</sub> :Eu <sup>3+</sup> nanophosphors prepared by citrate-gel combustion method: a potential red-emitting phosphor for near UV light-emitting diodes, <i>Applied Physics A</i> 116, 1785–1792
18.	2012	Vivek K. Singh, Jitendra Sharma, Yugal Khajuria, Vinay Kumar, and Pradeep K. Rai, Importance and role of major and trace elements in Nephrolithiasis: A review, <i>Bulletin of Laser Spectroscopy Society of India</i> 20, 18-32
19.	2011	Vivek Goel, Joanna Pietrasik, Hongchen Dong, Jitendra Sharma, Krzysztof Matyjaszewski, and Ramanan Krishnamoorti, Structure of Polymer Tethered Highly Grafted Nanoparticles, <i>Macromolecules</i> 44, 8129–8135.
20.	2010	Jitendra Sharma, Stephen M. King, Leif Bohlin and Nigel Clarke, Apparatus for simultaneous rheology and small-angle neutron scattering from high-viscosity polymer melts and blends, <i>Nucl. Instrum. Meth. A</i> 620: 437-444.
21.	2004	Miscibility determination of a lower critical solution temperature polymer blend by rheology, Jitendra Sharma and Nigel Clarke, <i>J. Phys. Chem. B</i> , 108, 13220-13230
22.	2002	Effects of thermal fluctuations on phase-separation in polymer-solvent mixtures, J. Sharma and S. Puri, <i>Phase Transitions</i> , 75, 4&5, 401-412.
23.	2001	Kinetics of phase separation in polymer-solvent mixtures, Jitendra Sharma and Sanjay Puri, <i>Physical Review E</i> , 64, 021513
24.	2001	Small-angle neutron scattering study of chemically cross-linked gelatin solutions and gels, Jitendra Sharma, V.K. Aswal, P.S. Goyal and H.B. Bohidar, <i>Macromolecules</i> , 34, 5215-5250
25.	2000	Anomalous colloidal stability of protein coated polystyrene latex beads studied by small angle light scattering, Himadri B. Bohidar, P. Bhakat, Jitendra Sharma and Anita Saxena, <i>International Journal of Biological Macromolecules</i> , 27, 111-

		116, 2000
26.	2000	Quasi-elastic light scattering study of chemically cross-linked gelatin solutions and gels, J. Sharma and H.B. Bohidar, Colloid and Polymer Science, 278, 15-21
27.	2000	Gelatin-glutaraldehyde supramolecular structures studied by laser light scattering, Jitendra Sharma and H.B. Bohidar, European Polymer Journal, 36, 1409-1418 2000

#### **Books Publications:**

S. No.	Year	Publication
1.	2014	<b>Chapter 06:</b> <i>Characterization of Polymer Blends by X-Ray Scattering: SAXS and WAXS</i> , pp. 209-236 in the book entitled " <i>Characterization of Polymer Blends: Miscibility, Morphology and Interfaces</i> (eds.) S. Thomas, Y. Grohens, P. Jyotishkumar,". <b>John Wiley and Sons</b> (Wiley-VCH Verlag GmbH & Co., Weinheim)
2.	2013	<b>Chapter 02:</b> <i>Analyzing the phase behavior of polymer blends by small-angle neutron scattering</i> , Nitin Kumar and <b>Jitendra Sharma</b> , pp. 37-76 in " <i>Recent Progress in Neutron Scattering Research</i> " (eds.) Agustin Vidal and Matthew Carrizo, in the Series " <i>Physics Research and Technology</i> ," Nova Science Publishers Inc., New York.
3.	2011	Companion Textbook for open software Scilab codes of the text book "Introduction To Nuclear And Particle Physics" by V.K. Mittal, R.C. Verma & S.C. Gupta, 2 <sup>nd</sup> ed. compiled by Arjun Singh, (ed.) <b>Jitendra Sharma</b>
4.	2010	Companion Textbook for open software Scilab codes of the text book " <i>Solid State Physics – Structure and Properties of Materials</i> " by M.A. Wahab, 2 <sup>nd</sup> ed. (2010)" compiled by Pankaj Biswas, (ed.) <b>Jitendra Sharma</b>
5.	2014	<b>Chapter 77:</b> Gelatin-CTAB complexes probed by dynamic light scattering, Nitin Kumar and Jitendra Sharma, chapter 77, pp 284-288, in "Exploring Basic & Applied Sciences for Next Generation Frontiers", eds. N.R. Sharma, R.C. Thakur, M. Sharma, L. Parihar, and G. Kumar, Elsevier India.
6.	2014	<b>Chapter 79:</b> Sol-to-gel transitions of physically entangled gel system probed by dynamic light scattering, Nitin Kumar and Jitendra Sharma, pp 293-295, 2014 in "Exploring Basic & Applied Sciences for Next Generation Frontiers", eds. N.R. Sharma, R.C. Thakur, M. Sharma, L. Parihar, and G. Kumar, Elsevier India.
7.	2016	<b>Chapter 03:</b> Recent Developments and Applications of Novel Analytical Techniques for the Analysis of Plant Materials. Vivek K Singh, Vinay Kumar, Ram Prakash, Jitendra Sharma, Anil Kumar and Prashant Singh, pp. 37-76 in "Technological Advancements in Plant Sciences" (eds.) Raghvendra Pratap Narayan, Durgesh K. Tripathi and R.K. Gaur, Nova Science Publishers Inc., New York.

#### **Conference Publications (International):**

S. No.	Year	Conference	Publication
1.	2017	7 <sup>th</sup> South African Conference on Photonic Materials, 2017. Amanzi, <b>South Africa</b>	Optical properties of Sr <sub>3</sub> B <sub>2</sub> O <sub>6</sub> : Dy <sup>3+</sup> /PMMA polymer nanocomposites

2.	2008	American Physical Society March Meeting 2008 (New Orleans, <b>USA</b> )	Reinforcement of Epoxies Using Single Walled Carbon Nanotubes
3.	2007	American Physical Society March Meeting 2007 (Denver, <b>USA</b> )	Nanoparticles as blend compatibilizers: layered silicate and fullerenes
4.	2006	13th Annual Sigma XI postdoctoral poster presentation (Gaithersburg, <b>USA</b> )	Fast dynamics link to protein stability in sugar glasses and hydrogen-bond network lifetime
5.	2006	232 American Chemical Society National Meeting 2006, San Francisco, California, <b>USA</b>	Investigating fast local dynamics in saccharide-based glasses
6.	2004	MACRO 2004 (IUPAC 4th World Polymer Congress in Paris, <b>France</b> )	Small-angle neutron scattering studies of shear-induced homogenization in polymer blends
7.	2003	Biennial Polymer Conference of the Institute of Physics, (Reading, <b>UK</b> )	Rheology of an LCST polymer blend near the critical region

#### **Research Supervised:**

S. No.	Year	Role	Research Topic	Status
1.	2017	Co-supervisor	Synthesis and Characterization of Luminescent Powders for Solid State Lighting and Dosimetry Applications	submitted
2.	On-going (2014 onwards)	Supervisor	Synthesis and Characterization of Rare Earth Ion Doped Materials: Luminescence and Related Studies	on-going
3.	On-going (2014 onwards)	Co-Supervisor	Spectroscopic Analysis of Gallstones and Kidney Stones and Related Studies	on-going

#### **Patents/Products (International):**

S. No.	Name	Status
1.	<p><b>Bohlin Rheometer</b> (for simultaneous rheology and Small-angle neutron scattering)</p> <p>– Designed and commissioned at the Science &amp; Technology Facilities Council ISIS (UK), and is available now for International users</p> <p>For further details visit: <a href="http://www.isis.stfc.ac.uk/sample-environment/soft-condensed-matter/bohlin-rheometer12723.html">http://www.isis.stfc.ac.uk/sample-environment/soft-condensed-matter/bohlin-rheometer12723.html</a></p>	2010

**Award and Honors:**

<b>S. No.</b>	<b>Title</b>	<b>Activity/Event</b>	<b>Given by</b>	<b>Year</b>
1.	Guest Researcher (Indo-US Exchange Visitor)	Research	United States Department of Commerce  National Institute of Standards and Technology <b>USA</b>	2006

**Professional Affiliation:**

<b>S. No.</b>	<b>Designation</b>	<b>Organization</b>
1.	Guest Editor	American Scientific Publishers
2.	Life member	Indian Biophysical Society