Dr. Himani Sharma

Assistant Professor
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Research Group-Functional Nanomaterials Research Laboratory (FNR)

Research Interests

Energy harvesting Materials, 2D materials for sensors, Photocatalysis on periodically modulated nanoparticles loaded TiO_2 nanotube arrays (PMTiNTs) and other semiconducting nanostructures, carbon nanostructures & Graphene, Raman spectroscopy, Electron field emission

Current Position and Past Research Experience

Institute	Position	Duration
Doon University	Assistant Professor	August 2015-Present
National University of Singapore (NUS)	Postdoctoral Researcher	June 2014-July 2015
National Institute for Nanotechnology (NINT), University of Alberta, Canada	Postdoctoral Fellow (NRC-NINT Fellow)	May 2013-May 2014
Indian Institute of Technology	Project Scientist	October 2012-April 2013
IFW Dresden, Germany	Guest Researcher	July 2012-September 2012

Scientific Accomplishments

- Research Publications - **41** (international journals), **30** (conference presentations)
- Book Chapters- **6**, Book -**1**
- Citations- 915, H-index -13 I-index-14
- Consultancy work **-** Micralyne, Edmonton (October 2013-June 2014)
- Ph D supervision (On-going)- Supervisor-3, Co-supervisor-1
- Supervised 15 MSc students

Project Grants

1. **SERB DST under ECRA scheme** Solar Energy Harvesting using Exotic Metal Nanoparticle-Periodically Segmented TiO_2 Hybrids for Photocatalytic Applications. (India), **(47 Lakhs, Ongoing)**

2. **UGC Start up grant** Exciting MoS_2 nanosheets-one dimensional periodic TiO2 nanotubes based heterostructures for light harvesting applications.(India) **(10 Lakhs, Completed)**

3. **CMC Microsystems grant for research project** Plasmonic gold coated TiO2 nanotubes hybrids for probing hot electrons. (Canada)

4. **CMC Microsystems grant for research project** *Fabrication of through Si vias (TSVs) for performing electrical characterization and analyzing stress distribution*. (Canada)

Research Areas

- Fabrication of micro-controller based galvanostatic pulse anodization of periodically modulated nanotubes for photonic & energy harvesting applications.
- CO_2 redution on hybrid nanoparticles loaded periodically modulated TiO_2 nanotubes, transparent TiO_2 nanotube arrays and other semiconducting materials.
- Synthesis of TiO_2 and other semiconducting nanostructures by electrochemical anodization.
- Interface studies of nanoparticles grafted nanostructures for photocatalytic applications using X-rayphotoelectron spectroscopy.

- Graphene synthesis on Ni-Mo, Si/SiO_2 and copper substrates by thermal chemical vapour deposition and CO_2 equipped laser ablation systems.
- Synthesis of nanoparticles of Cu-Pt, Fe-Ni, Au by chemical root for energy storage applications.

Ph D Research

Thesis Title: Growth, Structure and Electron Emission Characteristics of Carbon Nanostructures synthesized by microwave plasma enhanced chemical vapor deposition process (MPECVD).

Achievements in Ph D Research

- Influence of catalyst nanoparticles diameters on the structure and electron emission properties of CNTs and multilayer graphene.
- Stress behavior dynamics and wetting characteristics in carbon nanotubes and multilayer grapheme after structural modification.
- Tailoring of structural and electron emission properties of CNT walls and graphene layers using high energy irradiation.
- Effect of titanium interlayer and top layer on the microstructure and electron emission characteristics of multiwalled carbon nanotubes.
- Investigations on the surface enhanced Raman scattering (SERS) and fluorescence emission of metal-CNT hybrids.

Awards, Fellowships and Membership

- UGC-RUSA award for presenting a paper in International Conference on Functional Nanomaterials and Nanodevices, Budapest, Hungary in 2017.
- ITS-travel grant for presenting research work in MRS, Arizona USA in 2016 by Science and Engineering Research Board (SERB-DST).
- Post-Doctoral Fellowship from National Research Council (NRC), Canada (May 2013-May 2014).
- Prof. C. Ambasankaran best paper award (oral presentation) by ***Indian Vacuum Society*** in 2011.
- Gold medal and certificate of merit for university topper in Master of Science - Applied Physics (2003).
- IIT Delhi institute fellowship for carrying out Ph D (January 2008- February 2012).

- Member, American Chemical Society (ACS)
- Life member, Materials Research Society of India
- Reviewer of International Journals, Carbon, ACS Applied Materials and Interfaces, ACS Omega, Ceramic International, Journal of Materials Science: Materials in Electronics etc.

Workshop/Seminars organized- Organized SLT-2016 workshop Doon University and IRDE, Dehradun collaboration, (Feb 13-14, 2016)

Educational Credentials

1. **Ph D** (Physics and Materials Science) — January 2008- June 2012
   Thin Film Laboratory (TFL)
   Indian Institute of Technology (IIT) Delhi India

2. **M. Tech** (Materials Science and Engineering) — July 2004-June 2006
   Thapar University Patiala India

3. **Master of Science** (Applied Physics) — July 2002- June 2004
   Kurukshetra University India

4. **Bachelor of Science** — July 1998-June 2001

Academic Projects Executed

- Fabrication of through Si vias (TSVs) for performing electrical characterization and analyzing stress distribution sponsored by CMC Microsystems as a part of ***postdoctoral work*** *(*February 2014*)*.

- Worked as **Project Scientist** at Indian Institute of Technology India in Defence Research Development and Organization (DRDO) sponsored project entitled *"Modeling and simulation of carbon nanotubes based field emitters"* February 2012 to June 2012.

- Worked as **Senior Research Fellow** (SRF) at IIT Delhi India in Ministry of Information Technology sponsored project "*Synthesis of carbon nanotubes and their field emission properties*" January 2007 to December 2007.

Administrative and Corporate activities

- Head/Incharge of the Department of Physics since October 2018
- Team member of University's sports committee
- Member of Doon University's NAAC team
- Member of forming and editing University's APR
- Students mentor for Physics Department, Doon University
- ACSES Workshop on Practical Surface Analysis *October 2013*

Personal Profile

Date of Birth	June 10, 1981
Marital Status	Married
Gender	Female
Nationality	Indian

Place: Dehradun, India
Date: 26-05-2021 (Himani Sharma)

List of Publications

1. Negi C., Kandwal P., Sharma M., Dalapati G.K., **Sharma H.**, Charu Dwivedi, Carbon-doped titanium dioxide nanoparticles for visible light driven photocatalytic activity, *Appl. Surf. Sci.*, **2021**. **(Accepted).**

2. Bamola, P., Rawat, S., Dwivedi, C., Sharma, M., Singh, B.,**Sharma, H. 2020**. Effect of nanotube diameter on the photocatalytic activity of bimetallic AgAu nanoparticles grafted1D-TiO_2 nanotubes, ***Journal of material science: Materials in electronics***, **1-20**. **(I.F.- 2.195)**

3. Bamola, P., Singh, B., Bhoumik A., Sharma, M., Dwivedi, C., Singh, M., Dalapati, G.K. **Sharma, H. 2020.** Mixed-Phase TiO_2 Nanotube–Nanorod Hybrid Arrays for Memory- Based Resistive Switching Devices, ***ACS Applied Nano Materials***, 10604. **(I.F.-**yet to establish**)**

4. Bamola, P., Dwivedi, C., Gautam,A., Sharma, M., Tripathy, S., Mishra, A., **Sharma, H. 2020**Strain-Induced Bimetallic Nanoparticles-TiO_2 Nanohybrids for Harvesting Light Energy, ***Applied Surface Science***, 511, 145416**. (I.F.-6.182)**

5. Yadav, V., Verma, P. **Sharma, H.,**Tripathy, S., Saini,V. K. **2020**. Photodegradation of 4-nitrophenol over B doped TiO_2 nanostructure: effect of dopant concentration, kinetics and mechanism, ***Environmental Science and Pollution Research,*** **27, 10966-10980. (I.F.-3.056)**

6. Yadav, V., **Sharma, H.,** Saini,V. K. **2020,** How different dopants leads to difference in photocatalytic activity in doped TiO_2? ***Ceramics International*****46, 27308-27317. 10980(I.F.- 3.830)**

7. Kaushik, V., Pathak, S., **Sharma, H.,** Shukla, A.K., Vankar, V.D. **2020.** Growth of hydrophilic graphene oxide layers using continuous laser ablation, ***Vacuum,* 182, 109721(I.F.- 3.056)**.

8. Bamola, P., Bhoumik, A., Dwivedi, C., Kaushik, V., **Sharma, H. 2020**. Enhanced photocatalytic activity in TiO_2 mixed phase nanostructures, **Materials Today: Proceedings. (I.F.- 1)**

9. Rawat, S., Bamola, P., Dwivedi, C., **Sharma, H. 2021**. Two Dimensional MoS_2 Gas Sensor to Detect Carbon Monoxide (CO), ***Materials Today: Proceedings*. (I.F.- 1)**

10. Bamola, P., Rawat, S., Dwivedi, C., **Sharma, H. 2021**. Light Induced Catalytic and Electrochemical Enhancement in Metal Nanoparticles Crafted One Dimensional TiO_2 Nanotubes, ***Materials Today: Proceedings*, (Accepted). (I.F.- 1)**

11. Rawat, J., Bijalwan, K., Negi, C., **Sharma, H.** Dwivedi, C. **2021**. Magnetically recoverable Au doped iron oxide nanoparticles coated with graphene oxide for catalytic reduction of 4-notrophenol, ***Materials Today: Proceedings*. (I.F.- 1)**

12. Negi, A., Bijalwan, K., Rawat, J., **Sharma, H.** Dwivedi, C., **2021**. Synthesis and characterization of the nanocomposites of grapheme oxide in polyethylene glycol (PEG), ***Materials Today: Proceedings*. (I.F.- 1)**

13. Bijalwan, K., Kainthola, A., **Sharma**, **H.** Dwivedi, C. **2020**. Catalytic reduction of 4- Nitrophenol using gold-silver alloy nanoparticles coated on Alkali activated sand, ***Materials Today: Proceedings*. (I.F.- 1)**

14. Kainthola, A., Bijalwan, K., Negi, S., **Sharma**, **H.,** Dwivedi. C. **2020**. Hydrothermal synthesis of highly stable boron nitride nanoparticles, ***Materials Today: Proceedings*. (I.F.- 1)**

15. Negi, C., **Sharma**, **H.,** Kandwal, P., Singhal, R., Dwivedi. C. **2020.** Carbon doped titanium dioxide nanoparticles: A facile synthesis, characterization and their photocatalytic activity, ***Materials Today: Proceedings*. (I.F.- 1)**

16. Farsinezhad, S., Shanavas, T., Mahdi, N., Askar, A., Kar, P., **Sharma, H**., Shankar, K. **2018**. Core-shell titanium dioxide - titanium nitride nanotube arrays with near-infrared plasmon resonances. ***Nanotechnology* 29 (I.F. = 3.5)**

17. Farsinezhad, S., Banerjee, S. P., Rajeeva, B. B., Wiltshire, B.D., **Sharma, H.**, Sura, A., Mohammadpour, A., Kar, P., Robert, F., Shankar, K. **2017.** Reduced ensemble plasmon linewidths and enhanced two-photon luminescence in anodically formed high surface area Au-TiO_2 3D nanocomposites, ***ACS Applied Materials & Interfaces,* 9, 740-749 (I.F. = 8.45)**

18. **Sharma, H.**, Farsinezhad, S., Shankar, K. **2016.** Enhanced CH_4 formation rate by photocatalytic CO_2 reduction using using TiO_2 nanotube arrays with grafted Au, Ru and ZnPd nanoparticles Nano **Research, 9, 3478-3493 (I.F. = 8.9)**

19. **Sharma, H.**, Farsinezhad, S., Shankar, K. **2015**. Interfacial Band Alignment for Photocatalytic Charge Separation in TiO_2 nanotube Arrays Coated with CuPt Nanoparticles. ***Physical Chemistry Chemical Physics,* 17, 29723-29733 (I.F. = 4.493)**

20. Kar, P., Zhang, Y., Farsinezhad, S., Mohammadpour, A., Wiltshire, B. D., **Sharma, H.**, Shankar, K. **2015**. Rutile phase n- and p-type anodic titania nanotube arrays with square-shaped pore morphologies. ***Chemical Communications* 51, 7816-7819. (I.F. = 6.567)**

21. **Sharma, H.**, Krabbe, J., Farsinezhad, S., Van, A., Wakefield, N., Fitzpatrick, G., Shankar, K. **2015**. Mapping Stresses in High Aspect Ratio Polysilicon Electrical Through-Wafer Interconnects (ETWIs). ***Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3)* 14, 024001-05. (I.F. = 1.335)**

22. Adl, A. H., Kar, P., Farsinezhad, S., **Sharma, H.**, Shankar, K. **2015**. Effect of sol stabilizer on the structure and electronic poperties of solution processed ZnO thin films. ***RSC Advances* 5, 87007-87018. (I.F. = 3.289)**

23. **Sharma, H.**, Agarwal, D. C., Sharma, M., Shukla, A. K., Avasthi, D. K., Vankar, V. D. **2014**. Structure Modified Stress Dynamics and Wetting Characteristics of Carbon Nanotubes and

Multilayer Graphene for Electron Field Emission Investigations. ***ACS applied materials & interface* 6, 12531-12540. (I.F. = 8.45)**

24. Kaushik, V., **Sharma, H.**, Shukla, A. K., Vankar, V. D. **2014**. Sharp Folded Graphene Ribbons Formed by CO_2 laser ablation for Electron Field Emission Studies. ***Vacuum* 110, 1-6. (I.F. = 1.558)**

25. Sharma, M., Gao, S. L., Mader, E., **Sharma**, **H.,** Leong, Y. W., Bijwe, J. **2014**. Carbon fiber surfaces and composite interphases. ***Composites Science and Technology* 102, 35-50**. **(I.F. = 3.897)**

26. Patra, R. **Sharma, H.**, Ghosh, S., Vankar, V. D. **2014**. Geometrical shape dependence field emission from patterned Carbon nanotube array: A simulation based study. ***Advanced Materials Letters.* (I.F.= 1.9)** Accepted.

27. Farsinezhad, S., Waghmare, P. R, Wiltshire, B. D., **Sharma**, **H.,** Amiri, S., Mitra, S. K., Shankar, K. **2014**. Amphiphobic surfaces from functionalized TiO_2 nanotube arrays. ***RSC Advances* 4, 33587-33598**. **(I.F.= 3.289)**

28. Benlamri, M., Bothe, K. M., Ma, A. M., Shoute, G., Afshar, A., **Sharma**, **H.,** Mohammadpour, A., Gupta, M., Cadien, K. C Tsui, ,Y. Y., Shankar, K, Barlage, D. W. **2014**. High-mobility solution-processed zinc oxide thin films on silicon nitride. ***Rapid Research Letters* 10, 871-875**. **(I.F. = 2.58)**

29. Sharma, H., Agarwal, D. C., Sharma, M., Shukla, A. K., Avasthi, D. K., Vankar, V. D. **2013**.Tailoring of structural and electron emission properties of CNT walls and graphene layers using high energy irradiation, ***J Physics D: Applied Physics* 46, 315301- 315308**. **(I.F. = 2.772**

30. Sharma, H., Shukla, A. K., Vankar, V. D. **2013**. Influence of Fe nanoparticles diameters on the structure and electron emission studies of carbon nanotubes and multilayer graphene. ***Materials Chemistry and Physics* 137, 802-810**. **(I.F. = 2.101)**

31. Patra, R., **Sharma, H.**, Ghosh, S., Vankar, V. D., **2013**. High stability field emission from zinc oxide coated multiwalled carbon nanotube films. ***Advanced Materials Letters* 4, 849. (I.F. =1.9)**

32. Sharma, H., Agarwal, D. C., Shukla, A. K., Avasthi, D. K., Vankar, V. D. **2012**. Surface enhanced Raman scattering and fluorescence emission of gold nanoparticles-multiwalled carbon nanotubes hybrid. ***Journal of Raman Spectroscopy* 44, 12-20**. **(I.F. = 2.395)**

33. Sharma, H., Shukla, A. K., Vankar, V. D. **2012**. Structural modifications and enhanced Raman scattering from multiwalled carbon nanotubes grown on titanium coated silicon single crystals. ***Thin Solid Films* 520, 1902-1908. (I.F. =1.761)**

34. Kauhsik, V., **Sharma, H.**, Vankar, V. D. **2012**. Recent Developments in the Growth and Properties of Carbon Nanotubes and Carbon Nanostructures: A Review. ***International Journal of Green Nanotechnology* 4, 534-540**. **(I.F. =0.9)**

35. Kaushik, V., **Sharma, H.**, Girdhar, P., Shukla, A. K., Vankar, V. D. **2011**. Structural modification and enhanced electron emission from multiwalled carbon nanotubes grown on Ag/Fe catalysts coated Si substrates. ***Materials Chemistry and Physics* 130, 986-992**. **(I.F. = 2.101)**

36. Sharma, H., Shukla, A. K., Vankar, V. D. **2011**. Effect of titanium interlayer on the microstructure and electron emission characteristics of multiwalled carbon nanotubes. ***Journal of Applied Physics* 110, 033726-36**. **(I.F. = 2.183)**

37. Sharma, H., Kaushik, V., Girdhar, P., Singh, V. N., Shukla, A. K., Vankar, V. D. **2010**. Enhanced electron emission from titanium coated multiwalled carbon nanotubes. ***Thin Solid Films* 518, 6915-6920**. **(I.F. =1.761)**

38. Sharma, M., **Sharma, H.,** Raina, K. K., **2008**. La^{3+} substituted lead calcium titanate ceramics. ***Journal of Physics and Chemistry of Solids* 69, 2584-2588**, **(I.F. = 2.04)**

39. **Sharma, H.**, Avasthi, D. K., Shukla, A. K., Vankar, V. D. **2012**. Au-nanoparticles-MWCNT hybrids demonstrating enhanced fluorescence and Raman spectroscopy. ***AIP conference Proceedings*, 1451, 58-60. (I.F.** = yet to establish**)**

40. Kaushik, V., **Sharma, H.**, Shukla, A. K., Vankar, V. D., **2012**. Modification in Surface Morphology and Enhanced Field Emission Properties of Pristine Carbon Nanotubes by Introducing Nitrogen Gas, ***AIP conference Proceedings*, 1451, 148-150**. **(I.F.** = yet to establish**)**

41. **Sharma, H.**, Shukla A. K., Vankar V. D. **2010**. Effect of Titanium on the growth and field emission, properties of PECVD grown multiwalled carbon nanotubes, ***Proceedings of NSTI-Nanotech Conference*, 1, 300-303**. (NSTI, USA).

Papers Presented in conferences

1. P. Bamola, Saurabh Rawat, C. Dwivedi, **H. Sharma**, Nanorod Hydrids for Enhanced Visible Light Driven Photocatalytic Activity, Virtual International Conference on Hierarchically Structured Materials – 2021, Department of Physics, SRM Institute of Science and Technology, Ramapuram Campus, Chennai April 08th to 10th 2021. **(Best Paper Award)**

2. Shivanika, P. Bamola, Priya, S. Rawat, C. Dwivedi, **H. Sharma**, 1D/2D TiO2/MoS_2 heterostructures for light energy harvesting photocatalysis, NEAT, DIT Dehradun, 25th March 2021,

3. P. Bamola, C. Dwivedi, **H. Sharma** an International Conference on Aspects of Materials Science and Engineering (ICAMSE 2021), Punjab University Chandigarh from March 5th to March 6th 2021. **(Best Oral Presentation)**

4. P. Bamola, A. Bhoumik, B. Singh, C. Dwivedi, **H. Sharma**, Enhanced photocatalytic activityin mixed phase nanostrucutres, International Conference on Advanced Materials and Nanotechnology, Jaypee Institute of Information Technology, Noida 20th to 22nd February, 2020. **(Best Presentation Award)**
5. **H. Sharma**, Exciting TiO_2 Nanostructures based Hybrids for Energy Harvesting Applications, ICMAT, June 23-June 28, 2019, Singapore. **(Invited Talk)**

6. **H. Sharma**, 1D TiO_2 Nanostructures based Hybrids: Role of interfaces for photocatalytic based Investigations, June 23-June 28, 2019, Singapore. **(Invited Talk)**

7. P. Bamola, C. Dwivedi, **H. Sharma,** Enhanced photoctalytic properties of metal nanoparticles-TiO2 Nanotube Hybrids, June 23-June 28, 2019, Singapore.

8. P. Bamola, **H. Sharma**, Interfacial Investigations of metal nanoparticles-TiO_2 nanotube hybrids for photoctalytic applications, December 14-December 15**,**ICAMEES-2018, UPES Dehradun, India.

9. P. Bamola, **H. Sharma**, Exotic metal nanoparticles-one dimensional TiO_2 nanotubes for light harvesting applications, National conferences on advanced materials and nanotechnology, AMN-2018, March 15-17, 2018, New Delhi, India.

10. V. Yadav, P. Verma**, H. Sharma**, V. K. Saini, Influence of boron doping on photo physical properties of titania, International conference on advances in analytical sciences, March 15-17, 2018, CSIR-Indian Institute of Petroleum (IIP) Dehradun, India.

11. P. Bamola, **H. Sharma**, Exotic metal nanoparticles-one dimensional TiO_2 nanotubes for light harvesting applications, National conferences on advanced materials and nanotechnology, AMN-2018, March 15-17, 2018, New Delhi, India.

12. **H. Sharma**, A.K. Shukla, D.K. Avasthi, V.D. Vankar, Structural modification and improved electron emission in carbon nanostructures using ion induced irradiation, International Conference on Functional Nanomaterials and Nanodevices, September 24-27, 2017, Budapest, Hungary.

13. **H. Sharma**, Priyanka, A.K. Shukla, D.K. Avasthi, V.D. Vankar, "Surface Modification and Enhanced Electron Emission Properties of Gold Grafted Carbon Nanostructures, 2017 ICMAT, June 18-June 22, 2017, Singapore. **(Invited Talk)**

14. V.D. Vankar, V. Kaushik, **H. Sharma,** Recent developments in field emission characteristics from carbon nanostructures, International Conference on Advances in Nanomaterials and Nanotechnology (ICANN-2016)' November 4-5, 2016, Jamia Millia Islamia Delhi, India.

15. **H. Sharma**, M. Sharma. D.C. Agarwal, A.K. Shukla, D.K. Avasthi, V. D. Vankar Structure-modified stress behaviour by ion irradiation in carbon nanostructures for field emission applications, 2016 MRS Spring meeting, March 28- April 1, 2016**,** Phoenix, Arizona, USA.

16. **H. Sharma**, P. Kar, S. Farsinezhad, K. Shankar, Investigations into the electronic properties of the nanoparticle-TiO_2 nanotube array interface for photocatalytic applications, 23rd Canadian Symposium on Catalysis, May 10-14, 2014, Edmonton Canada.

17. S. Farsinezhad, **H. Sharma**, U. Obuekwe, J. Shen, N. Semagina, K. Shankar, Enhanced CO_2 photoreduction catalysts using noble metal and alloy nanoparticles grafted on to TiO_2 nanotubes 23rd Canadian Symposium on Catalysis, May 10-14, 2014, Edmonton Canada.

18. V. Kaushik, **H. Sharma**, V D. Vankar, 1st National Conference on Micro and Nano Fabrication, January 21-23, 2013, Carbon nanotubes and carbon nanostructures for electron field emission displays, CMTI , Bangalore, India.

19. V. Kaushik, **H. Sharma**, V D. Vankar, National Conference on Functional Materials: Synthesis, Characterization and Applications, Electron field emission from carbon nanostructure metal-hybrid, January 31- February 2, 2013, Pune University, India.

20. **H. Sharma**, V. Kaushik, V. D. Vankar, International Conference on Emerging Technologies:Micro to Nano 2013, Field emission characteristics from carbon nanostructures, ETMN 2013, February 23-February 24, BITS Pilani Goa, India.

21. **H. Sharma**, D.K. Avasthi, A. K. Shukla, V. D. Vankar Au-nanoparticles-MWCNT hybrids demonstrating enhanced fluorescence and Raman spectroscopy, ISJPS-2012, Feb 19 - 22, 2012, IIT Delhi, India.

22. **H. Sharma**, A.K. Shukla, V.D. Vankar, Hydrophobic to hydrophilic wetting in carbon nanotubes, Diamond-2011, September 4-8, 2011, Garmisch - Partenkirchen, Bavaria, Germany

23. **H. Sharma**, V. Kaushik , D. K. Avasthi, A. K. Shukla, V. D. Vankar, Au-nanoparticles-MWCNT hybrids demonstrating enhanced fluorescence and Raman spectroscopy, AIP Conference Proceedings, 1451, 58 (2012) **(Best oral presentation award)**

24. **H. Sharma**, V. Kaushik , D. K. Avasthi, A. K. Shukla, V. D. Vankar *"Growth of exotic carbon nanostructures and their field emission characteristics"*, **Indian Institute of Technology Delhi**, February 28, 2012. **(Invited Talk)**

25. V. Kaushik, **H. Sharma**, A. K. Shukla, V. D. Vankar, Modification in Surface Morphology and Enhanced Field Emission Properties of Pristine Carbon Nanotubes by Introducing Nitrogen Gas, AIP Conference Proceedings, 1451, 148 (2012).

26. R. Patra, **H. Sharma**, S. Ghosh, V. D. Vankar, Field emission studies of CNT, Zn-CNT, ZnO-CNT and correlation with microstructure, Diamond-2011, September 4-8, 2011, Garmisch - Partenkirchen, Bavaria, Germany.

27. **H. Sharma**, A.K. Shukla, V. D. Vankar, Effect of Titanium on the growth and field emission properties of PECVD grown multiwalled carbon nanotubes, NSTI-Nanotech, 1, 100 (2010), NSTI-Nanotech, June 21-25, 2010, Anaheim, CA, USA.

28. **H. Sharma**, V. Kaushik, M.C. Bhatnagar, A.K. Shukla, V.D. Vankar, Multiwalled Carbon nanotubes-based gas sensors, NSPTS-15, March 4-6 2010, Pune University, India.

29. **H. Sharma**, V. Kaushik, Pooja, A. K. Shukla, V. D. Vankar, Field Emission and Raman Characteristics of MPECVD grown multiwalled CNTs, IRNANO, November 26-29 2009, Delhi University India.

30. **H. Sharma**, S. Chhoker, S. Vinayak, A.K. Shukla, V. D. Vankar, Field Emission Studies of Carbon Nanotubes Grown over Ni- Cr Films, Fourteenth APAM State of Materials Research and New Trends in Materials Science, November 18-20 2008, CSIR-NPL India.

Books/ Contributed Book Chapters

1. Sustainable Advanced Biopolymer Composites: Biocompatibility, Self-healing, modelling repair and recyclability, D. Verma, M. Sharma K. Goh, S. Jain, **H. Sharma, *Accepted 2021 (Elsevier),* ISBN 9780128222911 (Editor)**

2. P. Bamola, S. Rana, B. Singh, C. Dwivedi, **H. Sharma**, Nanostructured TiO_2 Ceramic Materials for Light and Mechanical Energy Harvesting Applications. **(Accepted)**

3. C. Dwivedi, Priyanka, B. Singh, **H. Sharma**, Infra-red (IR) radiation and materials interaction: Active, passive, transparent and opaque coatings, ***Energy Saving Coating Materials 2020.***

4. **H. Sharma,** C. Dwivedi, I. Rayal, V. Singh, Priyanka, B. Singh, Solar Radiation and Light materials Interaction, ***Energy Saving Coating Materials 2020.***

5. M. Sharma, **H. Sharma**, S. Shannigrahi, Tribology of Biocomposites, In: Luigi Ambrosios, (Ed) ***'Biomedical Composites 2e' Elsevier 2017***.

6. M. Sharma, **H. Sharma**, S. Shannigrahi, Advanced Fiber-Polymer Composites with Strengthened Nanostructured Interface, In: ***Hybrid Polymer Composite Materials Volume 2: Processing, Elsevier BV 2017***.

7. **H. Sharma**, A. K. Shukla, V.D. Vankar, Structural Modification in CNT and graphene nanostructures for enhanced Raman and electron field emission characteristics "Chemical Functionalization of Carbon Nanomaterials: Chemistry and Applications" ***Taylor & Francis-CRC Press Publisher, April 2015.***