
Dr. Mukesh K. Sahu

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Educational Details

Ph.D. Delhi Technological University (DTU), Delhi

“Color Tunable and Energy Transfer Studies in Single Phase Rare Earth Doped Calcium Bismuth Orthophosphate Phosphor for Energy Efficient Optoelectronic Applications” 2023

Master of Technology (M. Tech.) in Nanotechnology

Center for Nanoscience and Nanotechnology, Jamia Millia Islamia, New Delhi, India 2015

Specialization: **Nanotechnology & Nanoscience**

Bachelor of Engineering (B.E.) in Electronics & Communication Engineering

Guru Ghasidas Vishwavidyalaya, Bilaspur, India 2011

Subjects: **Electronics & Communication Engineering**

Key Achievements/ Awards

- ❖ Received sixth time *“Commendable Research Award” for the excellence in research* by Vice Chancellor of Delhi Technological University (DTU), India.
- ❖ Received **The Best Poster Award** CAMNP-2019 organized by Department of Applied Physics, DTU.
- ❖ Qualified (Two times) *University Grant Commission UGC National Eligibility Test (NET)* Electronic Science in November 2017 & June 2019.
- ❖ Qualified **Gate-2013** exam in Electronics and Communication (E.C.) Engineering.
- ❖ International travelling grant sponsored by DTU to present part of research work in **8th International Workshop on Photoluminescence in Rare Earths: Photonic Materials and Devices (PRE-2019)** at Université Côte d'Azur, CNRS, INPHYNI, UMR 7010, Parc Valrose 06100 Nice, **France during 4th – 6th September, 2019.**

International Research Papers Published in SCI Journals:

- “Visible and NIR spectral analysis of Er³⁺ doped LiBiAlBSi glasses for laser applications” Mohit Kumar, **Mukesh K Sahu**, Sumandeep Kaur, Aman Prasad, Rajat Bajaj, Rupesh A Talewar, Yasha Tayal, K Swapna, AS Rao *Journal of Materials Science: Materials in Electronics*, 35 (7) (2024) 504 (**IF: 2.8**)

- “Li₂Ba₅W₃O₁₅: Dy³⁺/Eu³⁺ phosphor for color tunable devices and non-contact optical thermometry” Anu, Seema, A Kumar, Nisha Deopa, **Mukesh K Sahu**, Aman Prasad, AS Rao, *Journal of Luminescence* 269 (2024) 120444. (IF: 3.6)
- “Energy transfer mechanisms and color-tunable luminescence of Tm³⁺/Tb³⁺/Eu³⁺ co-doped Sr₄Nb₂O₉ phosphors for high-quality white light-emitting diodes” Ravina, Kanishk Poria, **Mukesh K. Sahu**, A. Kumar, Anu, Sajjan Dahiya, Nisha Deopa and A. S. Rao *RSC Advances*, 13 (2023) 33675-33687 (IF: 3.9)
- “Structural and photoluminescent features of Eu³⁺ activated single-phase niobate phosphor for lighting applications” Animesh Verma, **Mukesh K. Sahu**, Deepali, Mrinal Pandey, P. Koteswara Rao, M. Jayasimhadri, *International Journal of Applied Ceramic Technology*, 21 (2024) 485-492 (IF: 2.3)
- “Structural, thermal, and luminescence kinetics of Sr₄Nb₂O₉ phosphor doped with Dy³⁺ ions for cool w-LED applications” Ravina Lohan, A Kumar, **Mukesh K Sahu**, Anu Mor, V Kumar, Nisha Deopa, AS Rao, *Journal of Materials Science: Materials in Electronics*, 34 (8) (2023) 694 (IF: 2.8)
- “Temperature-dependent photoluminescence and optical thermometry performance in Ca₃Bi(PO₄)₃:Er³⁺ phosphors” **Mukesh K Sahu**, M Jayasimhadri, D. Haranath *Solid State Sciences*, 131 (2022) 106956. (IF: 3.5)
- “Synthesis and luminescence characterization of aqueous stable Sr₃MgSi₂O₈: Eu²⁺, Dy³⁺ long afterglow nanophosphor for low light illumination” Dipti Bidwai, Yatish R Parauha, **Mukesh K Sahu**, Sanjay J Dhoble, M Jayasimhadri, G Swati, *Journal of Solid-State Chemistry*, 310 (2022) 23089. (IF: 3.3)
- “Structural and color tunable properties in Sm³⁺/Eu³⁺-doped Ca₃Bi(PO₄)₃ phosphor for solar cell and w-LED applications” Mukesh K Sahu, M Jayasimhadri, *Journal of Materials Science: Materials in Electronics*, 33 (2022) 5201–5213. (IF: 2.8)
- “Spectral characteristics of Tb³⁺ doped ZnF₂–K₂O–Al₂O₃–B₂O₃ glasses for epoxy free tricolor w-LEDs and visible green laser applications” A. Kumar, Anu, **M. K. Sahu**, Ravita, S. Dahiya, Nisha Deopa, Anand Malik, R. Punia, A. S. Rao *Journal of Luminescence* 244 (2022) 118676. (IF: 3.6)
- “Thermally stable Mn²⁺ activated zinc silicate nanophosphor for speedy recognition of high contrast latent fingerprints” **Mukesh K. Sahu**, S Bishnoi, G Swati, M Jayasimhadri, D Haranath, *International Journal of Applied Ceramic Technology* 19 (2022) 488-497 (IF: 2.3)
- “Synthesis and optimization of photoluminescence properties in potential reddish orange emitting niobate phosphor for photonic device applications” Rakshit Jain, Rachna Sinha, **Mukesh K. Sahu**, Mula Jayasimhadri, *Luminescence* 36 (6) (2021) 1444-1451. (IF: 2.6)
- “Physical, structural and optical characterization of Dy³⁺ doped ZnF₂-WO₂-B₂O₃-TeO₂ glasses for

- opto-communication applications” Sanju, Ravina, Anu, A. Kumar, V. Kumar, **M. K. Sahu**, S. Dahiya, Nisha Deopa, R. Punia d, A.S. Rao, *Optical Materials* 114 (2021) 110937. (IF: 3.9)
- “Conversion of blue emitting thermally stable $\text{Ca}_3\text{Bi}(\text{PO}_4)_3$ host as a color tunable phosphor via energy transfer for luminescent devices” **Mukesh K. Sahu**, M. Jayasimhadri, *Journal of Luminescence* 227 (2020) 117570. (IF: 3.6)
 - “Structural and spectroscopic characteristics of thermally stable Eu^{3+} activated barium zinc orthophosphate phosphor for white LEDs” **Mukesh K. Sahu**, Harpreet Kaur, B.V. Ratnama, J. Suresh Kumar, M. Jayasimhadri, *Ceramics International*, 46 (2020) 26410-26415. (IF: 5.2)
 - “Synthesis of orange emitting Sm^{3+} doped sodium calcium silicate phosphor by sol-gel method for photonic device applications” Harpreet Kaur, M. Jayasimhadri, **Mukesh K. Sahu**, P. Koteswara Rao, N.S. Reddy, *Ceramics International*, 46 (2020) 26434-26439. (IF: 5.2)
 - “Judd-Ofelt Parameterization and Luminescence Characterization of Dy^{3+} Doped Oxyfluoride Lithium Zinc Borosilicate Glasses for Lasers and w-LEDs” Poonam, Shivani A Kumar, **M. K. Sahu**, PR Rani, Nisha Deopa, R Punia, AS Rao, *Journal of Non-Crystalline Solids*, 544 (2020) 120187. (IF: 3.5)
 - “Enhanced visible green and 1.5 μm radiative emission of Er^{3+} ions in $\text{Li}_2\text{O-PbO-Al}_2\text{O}_3\text{-B}_2\text{O}_3$ glasses for photonic applications” Nisha Deopa, **Mukesh K. Sahu**, Sumandeep Kaur, Aman Prasad, K Swapna, Vinay Kumar, R Punia, AS Rao, *Journal of Rare Earths*, 39 (5) (2021) 520-525. (IF: 4.9)
 - “Realization of warm white light and energy transfer studies of $\text{Dy}^{3+}/\text{Eu}^{3+}$ co-doped $\text{Li}_2\text{O-PbO-Al}_2\text{O}_3\text{-B}_2\text{O}_3$ glasses for lighting applications” Nisha Deopa, **Mukesh K. Sahu**, RR Rani, R Punia, AS Rao, *Journal of Luminescence*, 222 (2020) 117166. (IF: 3.6)
 - “White light emitting thermally stable bismuth phosphate phosphor $\text{Ca}_3\text{Bi}(\text{PO}_4)_3:\text{Dy}^{3+}$ for solid-state lighting applications” **Mukesh K. Sahu**, Jayasimhadri Mula, *Journal of the American Ceramic Society* 102 (2019) 6087-6099. (IF: 4.1)
 - “Effect of Sm^{3+} ions concentration on borosilicate glasses for reddish orange luminescent device applications” Nisha Deopa, Babloo Kumar, **Mukesh K. Sahu**, P. Rekha Rani, A.S. Rao, *Journal of Non-Crystalline Solids* 513 (2019) 152–158. (IF: 3.5)
 - “Synthesis and enhancement of photoluminescent properties in spherical shaped $\text{Sm}^{3+}/\text{Eu}^{3+}$ co-doped NaCaPO_4 phosphor particles for w-LEDs” **Mukesh K. Sahu**, M. Jayasimhadri, Kaushal Jha, B. Sivaiah, A.S. Rao, D. Haranath, *Journal of Luminescence* 202 (2018) 475–483. (IF: 3.6)
 - “Optimization of synthesis technique and luminescent properties in Eu^{3+} -activated NaCaPO_4 phosphor for solid state lighting applications” B.V. Ratnam, **Mukesh K. Sahu**, Amit K. Vishwakarma, Kaushal Jha, Hyun-Joo Woo, Kiwan Jang, M. Jayasimhadri, *Journal of Luminescence* 185 (2017) 99-105. (IF: 3.6)

- “Appearance of efficient luminescence energy transfer in doped orthovanadate nanocrystals” Swati Bishnoi, G. Swati, Paramjeet Singh, V. V. Jaiswal, **Mukesh K. Sahu**, Vinay Gupta, N. Vijayan and D. Haranath *Journal of Applied Crystallography* 50 (3), (2017) 787-794. (IF: 4.8)

International Research Papers Published in Conference Proceedings:

- “Influence of Dy³⁺ ions on spectroscopic studies of thermally stable telluro zinc phosphate glasses for white light emitting devices” Vikas Sangwan, Vertika Siwach, **Mukesh K Sahu**, Indrajeet Maurya, M Jayasimhadri, D Haranath *Materials Today: Proceedings (in press)*.
- “Structural, morphological, photoluminescence and electrical characterization of aluminium doped ZnO phosphors for solar cell applications” Swati Bishnoi, B. Rajesh, G. Swati, Vishnu Vikesh Jaiswal, **Mukesh Sahu**, Paramjeet Singh, D. Haranath, *Materials Today: Proceedings* 5 (2018) 610–619.

Patent Granted

- ❖ “Process for Preparing Oxyfluoride Lithium Zinc Borosilicate Glasses Doped with Dy³⁺ ions” Poonam, Shivani, Anu, Amit, **M. K. Sahu**, P.R. Rani, Dr. Nisha Deopa, Prof. Rajesh Punia, Indian Patent No.364481.

Teaching Experience

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- ❖ Working as an Assistant Professor in Electronics and : Jan. 2024-Nov. 2024
Communication Engineering, GLA University, Mathura UP
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Research Experience

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| ❖ Designation | : Junior Research Fellow (JRF) in DST- SERB sponsored project at LMRL, Delhi Technological University, Delhi-110042 |
| Period | : Sep 2015 – Sep 2017 |
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| ❖ Designation | : Senior Research Fellow (DST- SERB project) at Delhi Technological University, Delhi-110042 |
| Period | : Oct 2017 –2019 |
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Fellowship

- ❖ Received DTU Teaching and research fellowship award in 2020, during the Ph.D. work.
- ❖ Awarded National level CSIR-Direct Senior Research Fellowship in November 2020.

Master Thesis Project

1. “Synthesis and Characterization of Silica Based Nanocomposites and Nanophosphor for Display Applications” at Council for Scientific and Industrial Research – National Physical Laboratory, Dr. K.S. Krishnan Marg New Delhi – 110012, India.

Area of Interest

- ❖ Solid state devices, rare earth/transition metal ions doped amorphous and crystalline materials for w-LEDs, lasers and solar cell applications.
- ❖ Nanoelectronics, Nanomaterials and Nanotechnology.
- ❖ Solar Photovoltaic Materials and Solar Cells.
- ❖ Optoelectronic Materials and Devices.

Workshop Training & Certification

- ❖ Participated in the AICTE Recognized **Faculty Development Programme** on “**Raspberry Pi and Its Interfacing**” organized by National Institute of Technical Teachers Training & Research, Chandigarh on 27th Feb-3rd Mar, 2023.
- ❖ Participated in the AICTE Recognized **Faculty Development Programme** on “**Machine Learning and Predictive Analysis using Python**” organized by National Institute of Technical Teachers Training & Research, Chandigarh on 11th-15th Jul, 2022.
- ❖ Attended online workshop on “**Research Methodology**” organized by Department of Physics Chaudhary Ranbir Singh University, Jind Haryana on 24th-30th may, 2020.
- ❖ TEQIP- III sponsored **Faculty Development Program (FDP)** on “**Recent Trends in Material Science and Engineering (RTMSE-2018)**” held Delhi Technological University, Delhi on 17th-21st September, 2018.
- ❖ Attended one day workshop on “**Patent Filing Procedure**” jointly conducted by Rajiv Gandhi National Institute of Intellectual Property Management (RGNIIPM), Nagpur and Delhi Technological University, Delhi on 28th May, 2018.
- ❖ TEQIP- II sponsored Faculty Development program on “**Microelectronics and Plasma Diagnostics**” organized by Department of Applied Physics, Delhi Technological University during 29th Aug – 02nd Sep 2016.
- ❖ 17th International Workshop on “**The Physics of Semiconductor Devices**” organized by Society for Semiconductor Devices (SSD).
- ❖ Attended in “**National workshop on Power Electronics (NWPE-2015)**” 06-07 November 2015, Delhi Technological University, Delhi.

National /International Conferences Presentations

- “*Energy transfer and tunable emission from single phase triply doped $\text{Ca}_3\text{Bi}(\text{PO}_4)_3$ phosphor for WLEDs*” presented (online) in **Workshop on Optical Materials and Their Applications (WOM&A-2022)** at University of Aveiro, Portugal on 5th July 2022.
- “*Structural and Spectroscopic Studies of Rare Earth Free Deep Red Emitting Lithium*

Aluminate Phosphor for Optoelectronic Applications” presented in International Conference on Atomic, Molecular, Optical & Nano Physics with Applications (CAMNP-2019) at Delhi Technological University Delhi, during 18-20th Dec, 2019.

- “*Structural and spectroscopic properties of thermally stable Eu³⁺ doped barium zinc orthophosphate phosphor for w-LEDs*” presented in 8th International Workshop on Photoluminescence in Rare Earths: Photonic Materials and Devices (PRE-2019) at Université Côte d'Azur, CNRS, INPHYNI, UMR 7010, Parc Valrose 06100 Nice, France during 4th – 6th Sep, 2019.
- “*Synthesis and photoluminescence properties of Dy³⁺ doped pyro-phosphate phosphor for white LEDs*” presented in International Conference on Luminescence and its applications (ICLA-2019) at Pt. Ravishankar Shukla University, Raipur, during 07- 10 Jan, 2019.
- “*Synthesis and photoluminescent studies of Eu³⁺ activated Ca₃Bi(PO₄)₃ phosphors for white LEDs*” presented in National Conference on Luminescence and its applications (NCLA-2018) at National Institute for Interdisciplinary Science and Technology, Trivandrum, during 14- 16 Feb, 2018.
- “*Intense white light emission from Dy³⁺ doped Ca₃Bi(PO₄)₃ phosphor for w-LEDs application*” presented in International Conference on Advanced Production and Industrial Engineering (ICAPIE-2017) at Delhi Technological University Delhi, during 6-7 Oct, 2017.
- “*Trivalent Europium Doped BaZnP₂O₇ phosphor for White LED applications*” presented in International Conference on Advanced Production and Industrial Engineering (ICAPIE-2016) at Delhi Technological University Delhi, during 9-10 Dec, 2016.
- “*Structural and Luminescence Properties of Sol-gel Synthesized Silica Based Nanophosphor for Display Applications*” presented in National Conference on Luminescent Materials and its Applications (NCLA-2016) organized by Luminescent Society of India (LSI) at RTM Nagpur University during 18-20 Feb, 2016.
- “*Efficient photoluminescence from rare-earth doped silica gel nanoparticles for application in solar cells*” presented in International Conference on Luminescent Materials and its Applications (ICLA-2015) organized by Luminescent Society of India (LSI) during 9-12 Feb, 2015.