

Ashok Kumawat

Mobile. No: +91-9782865615

Email (Personal): ashokkkumawat504@gmail.com,

Email (Official): ashok.191024611@mu.j.manipal.edu

Google Scholar: [Ashok kumawat - Google Scholar](#)

Research Gate: [Ashok Kumawat \(researchgate.net\)](#)



OBJECTIVE

To join a progressive research team whereby I can enhance my knowledge and refine present standards of skills and efficiency.

RESEARCH EXPERIENCE

Title : **Luminescence Properties of RE (Ce & Eu) Doped ZnO Nanostructures**

Duration : July-2019 – Present

Role : Ph.D.

Thesis : Dr. Kamakhya Prakash Misra

Supervisor

Summary : The aim of my research work was to find the potential scope of sol-gel synthesized Ce & Eu doped ZnO nanostructures. To enhance and optimize the crystal structure by growth parameters to make these nanostructures suitable for various optoelectronic and sensing applications. Investigation of band gap and photoluminescence emission properties by incorporating Ce & Eu in ZnO matrix is the prime focus my work. Besides, monitoring the microstrain and surface morphology due to the presence of dopants is also part of investigations.

Title : **Electronic and optical properties of CaCl₂ using Compton scattering and density functional theory.**

Duration : July-2017 – May-2018

Role : Post-Graduate Project

Supervisor : Dr. Jagarati Sahariya

Summary : Experimental Compton profile (CP) of CaCl₂ was measured using ²⁴¹Am source. Experimental CP was compared with LCAO based profiles. Energy bands & DOS were computed using LCAO & FP-LAPW schemes. The optical properties of CaCl₂ were deduced from mBJ schemes.

KNOWLEDGE PREVIEW

Synthesis of Nanoparticles and thin films using Sol-Gel method.

Materials Characterization Techniques such as X-ray diffraction (XRD), X-ray photo-electron spectroscopy (XPS), Field Emission Scanning Electron Microscopy (FESEM), FTIR Spectroscopy, UV-Visible Spectroscopy, Photoluminescence Spectroscopy (PL), Optical Properties, DTA-TGA etc.

MATERIALS CHARACTERIZATION TOOLS

X'Pert High Score Plus (XRD), Origin Lab(XRD, XPS, UV-Vis, PL, FTIR), ImageJ (FESEM), COMSOL, MATLAB etc.

EDUCATIONAL QUALIFICATIONS

- **PhD** (Submitted in August).
- **M.Sc. (Physics)** from Manipal University Jaipur, Jaipur, Rajasthan, India. (2016-18) with **76.5%**.
- **B.Sc. (PCM)** from Manipal University Jaipur, Jaipur, Rajasthan, India. (2013-16) with **71.2%**.
- **Senior Secondary** from R.B.S.E. Board (2013) with **65.40%**
- **Secondary** from R.B.S.E Board (2011) with **65.67%**

AWARDS AND ACHEIVEMENTS

- **Secured 1st Position in Oral Poster Presentation** in International Conference on Multifunctional Nanomaterials (ICMN2020), held at Manipal University Jaipur, Jaipur during December 28-30, 2020.
- **Best Oral Presentation Award** in the “International Conference on Materials Science and Spectroscopy” organized by School of Science, Maharishi University of Information Technology, Lucknow, Uttar Pradesh, India during September 22-24, 2021
- Awarded **Dr. Ramdas Pai Scholarship (2019-2022)**, Manipal University Jaipur, India.

PERSONAL DETAILS

Date of Birth	: 18 May 1995
Father's Name	: Mr. Ramdayal Kumawat
Nationality	: Indian
Marital Status	: Single
Language	: English, and Hindi
Permanent Address	: 72, Baithadiyon Ki Dhani, Ward No. 9, Dehmi Kalan, Jaipur, Rajasthan, India (303007)
Mobile. No	: +91-9782865615

PUBLICATIONS

1. Ashok Kumawat, Saikat Chattopadhyay, Kamakhya Prakash Misra, “Band Gap Engineering and Relationship with Luminescence in Rare-Earth Elements Doped ZnO: An Overview”, Materials Technology, 1-16, 2022.

- <https://doi.org/10.1080/10667857.2022.2082351>.
2. Jagdish Parihar, Ashok Kumawat, Kamakhya Prakash Misra, Ashima Bagaria, “Synthesis and Characterization of Zinc Oxide Nanoparticles Using Thermophilic Bacteria Isolated from Arid Region of Rajasthan”, *Chemistry Select*, 7(26) e202200419, (2022).
<https://doi.org/10.1002/slct.202200419>.
 3. Kamakhya Prakash Misra, Ashok Kumawat, Atul Bandyopadhyay, Brindaban Modak, SK Mukherjee, PD Babu, Sanjib Kabi, Saikat Chattopadhyay, RDK Misra, “Structural Analysis and Magnetic Properties of Cobalt-Doped Nanotitania”, *Materials Science and Engineering: B*, 282, 2022, 115761.
<https://doi.org/10.1016/j.mseb.2022.115761>.
 4. Ashok Kumawat, Saikat Chattopadhyay, Rajneesh Kumar Verma, Kamakhya Prakash Misra, “Eu Doped ZnO Nanoparticles with Strong Potential of Thermal Sensing and Bioimaging”, *Materials Letters*, 308, Part B, 2022, 131221.
<https://doi.org/10.1016/j.matlet.2021.131221>.
 5. Ankit Sharma, Ashok Kumawat, Saikat Chattopadhyay, Rama Kanwar Khangarot, R.D.K. Misra & Kamakhya Prakash Misra, “Low temperature induced red-shift in violet-blue emission from Zn(Al, Ag)O nanoparticles”, *Materials Technology*, 2021.
<https://doi.org/10.1080/10667857.2021.1967550>.
 6. Saikat Chattopadhyay, Ashok Kumawat, Kamakhya Prakash Misra, Nilanjan Halder, Atul Bandyopadhyay, Albin Antony, Ashok Rao, P. Poornesh, J. Jedryka, K. Ozga, B. Kucharska, R.D.K. Misra, “Micro-strain administered SHG intensity enhancement by heavy Ce doping in co-precipitated ZnO nanoparticles”, *Materials Science and Engineering: B*, 266, 2021, 105041.
<https://doi.org/10.1016/j.mseb.2021.115041>.
 7. Kamakhya Prakash Misra, Ashok Kumawat, Priyanka Kumari, Susruta Samanta, Nilanjan Halder, Saikat Chattopadhyay, “Band Gap Reduction and Petal-like Nanostructure Formation in Heavily Ce-doped ZnO Nano powders”, *Journal of Nano and Electronic Physics* 13(2), 2021, 02008.
[https://doi.org/10.21272/jnep.13\(2\).02008](https://doi.org/10.21272/jnep.13(2).02008).
 8. Ashok Kumawat, Saikat Chattopadhyay, Nilanjan Halder, Kamakhya Prakash Misra, “Band Gap Enhancement and Temperature Dependent PL in Sol-gel Synthesized Ce Doped ZnO Nanoparticles”, *Journal of Nano- and Electronic Physics*, 13(2), 2021, 02001.

- [https://doi.org/10.21272/jnep.13\(2\).02001](https://doi.org/10.21272/jnep.13(2).02001).
9. Jagdish Parihar, Ashok Kumawat, Kamakhya Prakash Misra, Ashima Bagaria, Extracellular Synthesis of Zinc Oxide Nanoparticles Using Thermo-Halotolerant *Aeribacillus pallidus* strain SJP 27: Characterization and Antibacterial Potential, *Journal of Nano- and Electronic Physics*, 13(2), 2021, 02007.
[https://doi.org/10.21272/jnep.13\(2\).02007](https://doi.org/10.21272/jnep.13(2).02007).
 10. Kamakhya Prakash Misra, Ashok Kumawat, Aga Shahee & Saikat Chattopadhyay, “Effect on optical and structural parameters in heavy Ca-doped ZnO nanostructures”, *Materials Technology*, 36(9) 2021, 529-540.
<https://doi.org/10.1080/10667857.2020.1776028>.
 11. Ashok Kumawat, Saikat Chattopadhyay, Kamakhya Prakash Misra, Nilanjan Halder, Sushil Kumar Jain, Banwari Lal Choudhary, “Blue-shift in the optical band gap of sol-gel derived $\text{Zn}_{(1-x)}\text{Sr}_x\text{O}$ nanoparticles”, *Solid State Sciences*, Volume 108, 2020, 106379.
<https://doi.org/10.1016/j.solidstatesciences.2020.106379>.

CONFERENCES/ SYMPOSIUM/ WORKSHOPS

1. Presented paper titled as “Microstructural Analysis of Sol-Gel Derived Eu Doped ZnO Nanoparticles” International Conference on Recent Advances in Materials Science and Computational Techniques organized by Manipal University Jaipur, Jaipur, Rajasthan (November 24-26, 2021)
2. Presented paper titled as “Temperature Dependent Photoluminescence in Sol-Gel Synthesized Eu Doped ZnO Nanoparticles Suitable for Luminescence Thermometry” International Conference on Materials Science and Spectroscopy organized by Maharishi University of Information Technology, Lucknow, Uttar Pradesh (September 22-24, 2021).
3. Presented paper titled as “Temperature Dependent Photoluminescence in Sol-gel Derived Ce doped ZnO Nanoparticles” in International Conference on Micro and Nanomaterials (ICMN-2020) organized by Manipal University Jaipur, Jaipur, Rajasthan (December 28-30, 2020).
4. Presented paper titled as “Blue-shift in The Optical Band Gap of Sol-gel Derived $\text{Zn}_{(1-x)}\text{Sr}_x\text{O}$ Nanoparticles” in National E-Conference on Interdisciplinary Research in Science and Technology (NCIRST-2020) organized by Amiruddula Islamia Degree College, Lucknow, Uttar Pradesh (May 30-31, 2020).

5. Presented paper titled as “Band Gap Enhancement and Temperature Dependent PL in Sol-gel Synthesized Ce Doped ZnO Nanoparticles” in International Conference on Cutting-edge Research in Material Science and Chemistry (CRMSC-2021) organized by Manipal University Jaipur, Jaipur, Rajasthan (January 11-12, 2020).
6. Presented poster titled as “Comparison of Structural and Optical Properties of Cobalt and Nickel Doped ZnO Nanoparticles” International conference on Functional Materials (ICFM-2020) at Material science center at IIT Kharagpur, West Bengal.
7. Presented paper titled as “Effect of Heavy Al Doping on Microstructural and Morphological Behavior of ZnO Thin Film Deposited by Sol-Gel Spin Coating” 4th International conference on Emerging Technologies: Micro to Nano (ETMN-2019) organized by Savitribai Phule Pune University, Pune, Maharashtra.