




## KIRORI MAL COLLEGE, UNIVERSITY OF DELHI



|  |   |            |              |           |               |   |
|--|---|------------|--------------|-----------|---------------|---|
| Title  | Dr.   | First Name | <b>Kajal</b> | Last Name | <b>Jindal</b> | Photograph  |
| Designation  | Assistant Professor                                       |            |              |           |               |  |
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| Educational Qualifications   |   |            |              |           |               |   |
| Degree   | Institution   |            |              |           | Year          |   |
| Ph.D. (Physics)  | Department of Physics & Astrophysics, University of Delhi |            |              |           | 2015          |   |
| M.Sc. (Physics)  | Miranda House, University of Delhi                        |            |              |           | 2009          |   |
| B.Sc. (H) Physics  | Miranda House, University of Delhi                        |            |              |           | 2007          |   |
| Career Profile   |   |            |              |           |               |   |
| Assistant Professor at Department of Physics, Kirori Mal College, University of Delhi- September 2013 – Present<br>University Teaching Assistant at Department of Physics & Astrophysics, University of Delhi- 2009-2013.  |   |            |              |           |               |   |
| Administrative Assignments   |   |            |              |           |               |   |
|  |   |            |              |           |               |   |
| Areas of Interest / Specialization   |   |            |              |           |               |   |
| Material Sciences, Electronics   |   |            |              |           |               |   |
| Subjects Taught  |   |            |              |           |               |   |
| <b>Subjects Taught:</b>  |   |            |              |           |               |   |
| Analog systems and applications, Waves and Optics, Solid State Physics theory, Thermal Physics   |   |            |              |           |               |   |
| Research Guidance  |   |            |              |           |               |   |
| NA   |   |            |              |           |               |   |
| Publications Profile   |   |            |              |           |               |   |
| a. Research Paper  |   |            |              |           |               |   |
| 1. “Enhanced low temperature thermoelectric properties by nano-inclusion of 2D MoS <sub>2</sub> with Fe:ZnO thin films”, Aakash Gupta, Sujit Kumar. <b>Kajal Jindal</b> , Anjali Sharma and Monika Tomar, <b>Journal of Electronic Materials</b> , 50, 4567–4576 (2021) (IF=1.774) <a href="https://doi.org/10.1007/s11664-021-08979-5">https://doi.org/10.1007/s11664-021-08979-5</a> . |   |            |              |           |               |   |
| 2. “Role of charge states and dopant site in governing electronic properties of Cr doped BiFeO <sub>3</sub> ”, Tahir Ahmad, <b>Kajal Jindal</b> , Monika Tomar, Pradip K. Jha, Vinay Gupta, <b>Materials Chemistry and</b>   |   |            |              |           |               |   |

**Physics 263 (2021) 124438 (IF = 3.408).**

3. “Thiol-functionalized Multiwall Carbon Nanotubes for Electrochemical Sensing of Thallium”, Amit Lochab, Megha Saxena, **Kajal Jindal**, Monika Tomar, Vinay Gupta, Reena Saxena, **Materials Chemistry and Physics 259 (2021) 124068 (IF = 3.408).**
4. “Tunable electronic and magnetic properties of 3d transition metal doped  $\text{Bi}_2\text{Fe}_4\text{O}_9$ ”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Journal of Magnetism and Magnetic Materials, 509 (2020) 166893 (IF = 3.046).**
5. “Role of unintentional carbon dopant in resolving the controversial conductivity aspects in  $\text{BiFeO}_3$ ”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Physical Chemistry Chemical Physics 22 (2020) 10010-10026 (IF = 3.567).**
6. “Insight into electronic, magnetic and optical properties of magnetically ordered  $\text{Bi}_2\text{Fe}_4\text{O}_9$ ”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Journal of Magnetism and Magnetic Materials, 475 (2019) 695-702 (IF = 3.046).**
7. “Pyrene appended bis-triazolylated 1, 4-dihydropyridine as a selective fluorogenic sensor for  $\text{Cu}^{2+}$ ”, Rakesh Kumar, Rashim Bawa, Parveen Gahlyan, Manu Dalela, **Kajal Jindal**, Pradip Jha, Monika Tomar, Vinay Gupta, **Dyes and Pigments, 161 (2019) 162-171 (IF = 3.572).**
8. “Structural, morphological and optical properties of  $\text{BiFe}_{0.99}\text{Cr}_{0.01}\text{O}_3$  thin films”, Shaan Ameer, **Kajal Jindal**, Savita Sharma, Pradip K. Jha, Monika Tomar, Vinay Gupta, **Vacuum 158 (2018) 166-171 (IF = 2.067).**
9. “A theoretical and experimental formalism of electronic structure of BFO:Cr thin films and modulation of their electrical properties upon visible light illumination”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Journal of Applied Physics 124, 155304 (2018) (IF = 2.210).**
10. “Effect of Li doping on electronic and magnetic properties of  $\text{BiFeO}_3$  using first principles”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Integrated ferroelectrics, 193 (2018) 123-128 (IF = 0.457).**
11. “Effect of vacancies on structural and magnetic properties of  $\text{BiFeO}_3$ ”, Shaan Ameer, **Kajal Jindal**, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Adv. Sci. Eng. Med. 10, 7-8 (2018) 741-744.**
12. “A novel low-powered uric acid biosensor based on arrayed p-n junction heterostructures of ZnO thin film and CuO microclusters”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **Sensors and Actuators B Chemical, 253 (2017) 566-575 (IF = 7.1).**
13. “Raman scattering and photoluminescence investigations of N doped ZnO thin films: Local vibrational modes and induced ferromagnetism”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **Journal of Applied Physics, 120, 135305 (2016) (IF = 2.210).**
14. “Transition from diamagnetic to ferromagnetic state in laser ablated nitrogen doped ZnO thin films”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **AIP Advances, 5, 027117 (2015) (IF = 1.591).**
15. “Optical properties of  $\text{Pb}(\text{Zr}_{0.52}\text{Ti}_{0.48})\text{O}_3/\text{BiFeO}_3$  multilayers with ZnO buffer layer”, Shankar Dutta, Akhilesh Pandey, **Kajal Jindal**, O.P. Thakur, Vinay Gupta and Ratnamala Chatterjee, **Applied Physics A: Materials Science and Processing (2015) 120:53-58 (IF = 1.444).**
16. “Inducing electrocatalytic functionality in ZnO thin film by N doping to realize a third generation uric acid biosensor”, **Kajal Jindal**, Monika Tomar and Vinay Gupta, **Biosensors and Bioelectronics, 55, (2014) 57-65 (IF = 10.257).**
17. “Stabilization of ferromagnetism in Co codoped ZnO:N”, **Kajal Jindal**, Monika Tomar and Vinay

Gupta, **Integrated ferroelectrics** **158**, (2014) **90-97** (IF = 0.457).

18. “N doped ZnO thin film for development of magnetic field sensor based on surface plasmon resonance”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **Optics letters**, **38**, No. **18** (2013) (IF = 3.416).
19. “Nitrogen doped Zinc Oxide thin films biosensor for determination of Uric Acid”, **Kajal Jindal**, Monika Tomar and Vinay Gupta, **Analyst**, **138**, (2013) **4353-4362** (IF = 3.969).
20. “Room temperature ferromagnetism in PLD grown  $Zn_{1-x}Li_xO_{1-y}N_y$  thin films”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **Integrated ferroelectrics** **148**, (2013) **96-101** (IF = 0.457).
21. “Realization of Surface acoustic wave (SAW) and semiconductor gas sensors for room temperature detection of  $NO_2$  gas”, Anjali Sharma, V. Bhasker Raj, **Kajal Jindal**, Monika Tomar and Vinay Gupta, **Integrated ferroelectrics** **148**, (2013) **90-95** (IF = 0.457).
22. “Comparison of Residual Stress in Deep Boron Diffused Silicon (100), (110) and (111) Wafers”, Shankar Dutta, Geeta Saxena, Shaveta, **Kajal Jindal**, Ramjay Pal, Vinay Gupta and Ratnamala Chatterjee, **Materials Letters** **100**, (2013), **44-46** (IF = 2.572).
23. “CuO thin film based uric acid biosensor with enhanced response characteristics”, **Kajal Jindal**, Monika Tomar and Vinay Gupta, **Biosensors and Bioelectronics**, **38**, (2012) **11–18** (IF = 10.257).
24. “Structural and magnetic properties of N doped ZnO thin films”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, **Journal of Applied Physics**, **111**, **102805** (2012) (IF = 2.210).
25. “Uric acid biosensor based on Pulsed laser deposited CuO thin film”, **Kajal Jindal**, Kashima Arora, Monika Tomar and Vinay Gupta, **Journal of Nanoscience letters** (2012) **2**: **28**.

a. **Books**

b. **Chapter in books**

c. **Articles/Research Paper in Books**

d. **Conference Proceedings**

1. “Influence of magnetic ordering on electronic, optical and magnetic properties of  $Bi_2Fe_4O_9$ ”, Kajal Jindal, Shaan Ameer, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Materials Today: Proceedings** (2021) <https://doi.org/10.1016/j.matpr.2021.04.425>.
2. “Growth of highly oriented orthorhombic phase of  $Bi_2Fe_4O_9$  thin films by Pulsed laser deposition”, Shaan Ameer, Kajal Jindal, Monika Tomar, Pradip K. Jha, Vinay Gupta, **Materials Today: Proceedings**. (2021) <https://doi.org/10.1016/j.matpr.2021.04.543>.
3. “Study of half-metallicity in  $BiFe_{1-x}Mn_xO_3$ ”, Shaan Ameer, Kajal Jindal, Monika Tomar, Pradip K. Jha, Vinay Gupta, **AIP conference proceedings**, 1953, 110018 (2018).
4. “Surface Plasmon Resonance based optical temperature sensor using ZnO:N thin film”, **Kajal Jindal**, Monika Tomar and Vinay Gupta, **Mater. Res. Soc. Symp. Proc.**, **1399** (2012).

Conference / Workshops/Training Organized

- Member of organizing team “6<sup>th</sup> International Symposium on Integrated Functionalities (ISIF 2017)”, held at Shangri-La Eros’ Hotel, Delhi, India from 10<sup>th</sup> -13<sup>th</sup> December, 2017.
- Resource Person, 2-months Training program in Physics for faculties of Kabul University at University of Delhi (January 2013).

## Creation of ICT Mediated Teaching Learning Pedagogy and Content

Content writer for preparation of e-content of paper “Measurement and Instrumentation” and “Thin film science and technology” for post-graduate students on material science under the UGC project “**e-PG Pathshala**” (an MHRD Project under its National Mission on Education through ICT).

## Conference/Workshops/Training attended as Faculty Member

### Conferences

1. “Role of underlying substrate in the development of ZnO thin film based SAW UV photodetector”, **Kajal Jindal**, Monika Tomar, Vinay Gupta, presented at “**World Nano Congress on Advanced Science and Technology (WNCST-2021)** organized by **Centre for Nanotechnology research (CNR) at Vellore Institute of Technology, Vellore** from **8<sup>th</sup> -13<sup>th</sup> March 2021**.
2. “Electrocatalytic properties of ZnO thin film based biosensor for detection of uric acid”, **Kajal Jindal**, Monika Tomar, Vinay Gupta, presented at **International Conference on “Advanced Functional Materials and Devices” (AFMD-2021)** organized by **Atma Ram Sanatan Dharma College, University of Delhi, India** from **3<sup>rd</sup> – 5<sup>th</sup> March 2021**.
3. “Influence of magnetic ordering on the electronic, optical and magnetic properties of  $\text{Bi}_2\text{Fe}_4\text{O}_9$ ”, **Kajal Jindal**, Shaan Ameer, Monika Tomar, Pradip K. Jha, Vinay Gupta, presented at **Recent Advances in Functional Materials (RAFM-2020)** held at **Atma Ram Sanatan Dharma College, University of Delhi, India** from **5<sup>th</sup> – 6<sup>th</sup> November 2020** and has been awarded the “*Best Presentation award*”.
4. “First principle calculations and experimental investigations of electronic and optical properties of Cr doped BFO thin films”, **Kajal Jindal**, Shaan Ameer, Monika Tomar, Pradip K. Jha, Vinay Gupta, presented at **New Trends in Nanotechnology and Applications 2018**, held at **Atma Ram Sanatan Dharma College, University of Delhi, India** from **27<sup>th</sup> – 28<sup>th</sup> September 2018**.
5. “Origin of ferromagnetism by N doping in ZnO – Experimental and theoretical investigations”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar and Vinay Gupta, presented at **Nanoworld 2018** held at **Shivaji College, University of Delhi, India** from **12<sup>th</sup> -13<sup>th</sup> April 2018**.
6. “Development of magneto-optic kerr effect (MOKE) based magnetic field sensor using ferromagnetic ZnO:(N,Li) thin film”, **Kajal Jindal**, Monika Tomar and Vinay Gupta, presented at **6<sup>th</sup> International Symposium on Integrated Functionalities (ISIF 2017)**, held at **Shangri-La Eros’ Hotel, Delhi, India** from **10<sup>th</sup> -13<sup>th</sup> December, 2017**.
7. “Fabrication of SAW devices for ultraviolet photo-detector”, **Kajal Jindal**, Lokesh Rana, Reema Gupta, Monika Tomar, Vinay Gupta, presented at **6<sup>th</sup> International Symposium on Integrated Functionalities (ISIF 2017)**, held at **Shangri-La Eros’ Hotel, Delhi, India** from **10<sup>th</sup> -13<sup>th</sup> December, 2017**.
8. “Modulation of ferromagnetic and biosensing properties in N doped ZnO thin film: A consequence of defects”, **Kajal Jindal**, Monika Tomar, R.S. Katiyar, Vinay Gupta presented at **International Conference on Technologically Advanced Materials & Asian Meeting on Ferroelectricity (ICTAM-AMF10)** held at **University of Delhi, Delhi, India**, from **7<sup>th</sup> – 11<sup>st</sup> November, 2016**.
9. “Influence of growth kinetics on the electrocatalytic properties of ZnO thin film based biosensor”,

**Kajal Jindal, Shweta Sharma, Vinay Gupta, Monika Tomar presented at International Conference on Technologically Advanced Materials & Asian Meeting on Ferroelectricity (ICTAM-AMF10) held at University of Delhi, Delhi, India, from 7<sup>th</sup> – 11<sup>st</sup> November, 2016.**

### Workshops

1. Attended “International Research Workshop on Advances in Deep Learning and Applications (WADLA2021)” from February 22-26, 2021 at Indian Institute of Information Technology, Sri City, Chittoor in online mode.
2. Participated in “TI Embedded system Design using MSP 430 MCU” 12 weeks-MOOC as part of SWAYAM-NPTEL Online course from 18 January 2021.
3. Participated in 21 day Live workshop on “Integrating Mind, Body and Soul by practice of Yoga and Exercise” from 1<sup>st</sup> -21<sup>st</sup> June 2021 by Kalindi college, University of Delhi.

### Training programmes

1. *Faculty Development programme* on “Digital Tools for 21<sup>st</sup> Century: Word Processing & Spreadsheets” from 27<sup>th</sup> January 2021 to 02<sup>nd</sup> February 2021 organized by Guru Angad Dev Teaching Learning Centre, S.G.T.B. Khalsa College, University of Delhi under PMMMNMTT scheme.
2. *Faculty Development programme* on “Innovation in scientific research methods” from 14<sup>th</sup> October 2020 to 18<sup>th</sup> October 2020 organized by Kirori Mal college, University of Delhi under DBT star college scheme.
3. *Faculty Development programme* on “Pedagogical Training for effective online Teaching & Learning” from 03<sup>rd</sup> August 2020 to 10<sup>th</sup> August 2020 organized by Deen Dyal Upadhyaya college, University of Delhi in collaboration with K.T.H.M. College, Nashik
4. *Faculty Development programme* on “Research Methodology: Tools & Techniques” from 5<sup>th</sup> June 2020 to 11<sup>th</sup> June 2020 organized by Atma Ram Sanatan Dharma College in Collaboration with Teaching Learning Center, Ramanujan College (University Of Delhi)
5. *Faculty Development programme* on “Recent advances in Science &Technology” from 21<sup>st</sup> May 2020 to 27<sup>th</sup> May 2020 organized by RPS Group of Institutions, Mahendergarh, Haryana
6. *Refresher course* on “Managing Online Classes and Co-Creating MOOCs 3.0” from 25<sup>th</sup> July 2020 to 10<sup>th</sup> August 2020 organized by Teaching Learning Centre, Ramanujan College, University of Delhi.
7. Seventh Online Induction Training/ *Orientation Programme* for Faculty in Universities/Colleges/Institutions of Higher Education from February 11 – 2021 to March 13, 2021 organized by Ramanujan College University of Delhi under the aegis of MINISTRY OF EDUCATION PANDIT MADAN MOHAN MALAVIYA NATIONAL MISSION ON TEACHERS AND TEACHING.

Invited Lectures/Resource Persons

Research Projects (Major Grants/Research Collaboration)

Awards and Distinctions

**Best Presentation award**

“Influence of magnetic ordering on the electronic, optical and magnetic properties of  $\text{Bi}_2\text{Fe}_4\text{O}_9$ ”, **Kajal Jindal**, Shaan Ameer, Monika Tomar, Pradip K. Jha, Vinay Gupta, presented at **Recent Advances in Functional Materials (RAFM-2020)** held at **Atma Ram Sanatan Dharma College, University of Delhi, India** from **5<sup>th</sup> – 6<sup>th</sup> November 2020**.

Association with Professional Bodies

Other Activities

in International Conference on “Advanced Functional Materials and Devices” (AFMD-2021) organised by Department of Physics & IQAC, ARSD College, University of Delhi during 03rd -05th March 2021.



Signature of Faculty Member