

Name: Dr. Kanandeep

Designation: Assistant Professor

Specialization: Nuclear Physics

Email: kunnu85@gmail.com

Contact Number: +91- 9780508385



Education

M.Sc. Physics (Gold Medalist) (2008, Punjabi University, Patiala)

Ph.D. (July, 2015, Punjabi University, Patiala)

Title of Ph. D Thesis: A Study of Matrix Effects and Transmutations in Selective Botanical Samples using XRF Technique.

Professional Experience:

Department of Physics, Government Mohindra College, Patiala, India (Feb., 2016 to May, 2018).

Department of Physics, M. M. Modi College, Patiala, India (10 August, 2018 to till date)

Teaching Interests:

- Nuclear Physics
- Microprocessors
- Computational Physics
- Radiation Physics

Research Interest:

Analytical Studies, XRF Technique, Empirical Formulations, Matrix Effects

Publications

- Sheenu Gupta, **Kanan Deep**, Lalita Jain, M.A. Ansari, Vijay Kumar Mittal and Raj Mittal (2010). X-ray fluorescence (XRF) set-up with a low power X-ray tube. *Applied Radiation and Isotopes*. **68 (10)**: 1922–1927.
<https://doi.org/10.1016/j.apradiso.2010.05.001>
- Meenakshi Bansal, **Kanan Deep** and Raj Mittal (2012). Matrix effect studies with empirical formulations in maize saplings. *Applied Radiation and Isotopes*. **70 (10)**: 2525–2533.
<https://doi.org/10.1016/j.apradiso.2012.07.011>
- **Kanan Deep**, Meenakshi Bansal and Raj Mittal (2012). Effect of Calcium and Potassium Fertilizer on Potassium and Calcium Contents in Maize Saplings using XRF Technique. *Archives of Applied Science Research*. **4 (3)**: 1320-1328.

<https://www.scholarsresearchlibrary.com/abstract/effect-of-calcium-and-potassium-fertilizer-on-potassium-and-calcium-contents-in-maize-saplings-using-xrf-technique-3614.html>

- Kamaldip Kaur, **Kanan Deep**, Meenakshi Bansal, M. K. Tiwari, Raj Mittal ((2012). Peak energy shift with fertilization in mint plants: EDXRF measurements with synchrotron photon source. *Archives of Applied Science Research*. **4 (5)**: 2152-2160.
<https://www.scholarsresearchlibrary.com/abstract/peak-energy-shift-with-fertilization-in-mint-plants-edxrf-measurements-with-synchrotron-photon-source-9802.html>
- Meenakshi Bansal, **Kanan Deep**, Raj Mittal (2013). Checking of XRF Observations with Matrix Terms Involved in Sample Analysis. *Open Journal of Microphysics*. **3(2)**: 23-27.
<https://m.scirp.org/papers/31500>
- **Kanan Deep** and Raj Mittal (2014). Macronutrient K Variation in Mung Bean Sprouts with Lunar Phases. *European Scientific Journal*. **10 (9)**: 295-306.
<https://ejournal.org/index.php/esj/article/view/3063>
- **Kanan Deep**, Preeti Rao, Himani Bansal and Raj Mittal (2014). Matrix effects for calcium and potassium K-X-rays, in fenugreek plants grown in iron rich soils. *Applied Radiation and Isotopes*. **90**: 109–116.
<https://doi.org/10.1016/j.apradiso.2014.03.024>
- **Kanan Deep** and Raj Mittal (2014). Calcium Hardness Analysis of Water Samples Using XRF Technique. *Journal of Nuclear Physics, Material Sciences, Radiation and Applications*. **2 (1)**: 105-113.
<https://doi.org/10.15415/jnp.2014.21008>
- P. Rao, H. Bansal, **K. Deep** and R. Mittal (2015). Matrix Effects Studies in Fenugreek plants grown under two different soil conditions. *Proceedings NSRP-20*. 784-788.
[https://drive.google.com/file/d/1L9dAwk6zLf3IqP2BmVyNjDdvzjq08EX1/view?](https://drive.google.com/file/d/1L9dAwk6zLf3IqP2BmVyNjDdvzjq08EX1/view?usp=drivesdk)

[usp=drivesdk](https://drive.google.com/file/d/1L9dAwk6zLf3IqP2BmVyNjDdvzjq08EX1/view?usp=drivesdk).

Conferences / Seminars

(Papers presented in International/National Conferences/Symposia/Seminars)

- Sheenu Gupta, **Kanan Deep**, Vijay Kumar Mittal and Raj Mittal (2009). Development of a low power x-ray tube facility for x-ray fluorescence studies. 11th International Symposium on Radiation Physics (ISRP-11) at University of Melbourne, Melbourne, Australia (Sep. 20-25, 2009).
- Sheenu Gupta, **Kanandeep**, V.K.Mittal, M.K.Tiwari, G.S.Lodha and Raj Mittal (2009). Effect of macro concentrations on photon scattering in low Z synthetic substrates. Punjab Science Congress (PSC-12) at Panjab Agriculture University, Ludhiana (Feb. 7-9, 2009).

- **Kanan Deep** and Raj Mittal (2010). XRF Technique for Determination of Potassium in Presence of Calcium. TC-2010 at RRCAT, Indore (March 3-6, 2010).
- **Kanandeep**, Gurpreet Kaur, Sheenu Gupta and Raj Mittal (2011). Effect of Geometry Material on XRF Measurements Using Low Power X-Ray Tube as Photon Source. NSRPN-11 at Physics Department, Punjabi University, Patiala (Feb. 4-5, 2011).
- Kamaldip Kaur, **Kanan Deep** and Raj Mittal (2011). Effect of Substrate Variations on Energy Shifts and Intensity Ratios of Potassium $K\beta$ and $K\alpha$ X-Rays. AMRP-11 at SLIET, Longowal (Nov. 4-5, 2011).
- **Kanan Deep** and Raj Mittal (2011). Dependence Of $K\beta/K\alpha$ Intensity Ratios Of K And Ca On The Substrate Constituents. CDAMOP-2011 at University of Delhi, Delhi (Dec. 14-16, 2011).
- Kamaldip Kaur, **Kanan Deep** and Raj Mittal (2012). Chemical Shift Measurements in Metals and their Chemical Compounds Using EDXRF Technique. Punjab Science Congress (PSC-15) at GNDU, Amritsar (Feb. 7-9, 2012).
- **Kanan Deep**, Kamaldip Kaur, Preeti and Raj Mittal (2012). Impact of Fertilizer Environment on Nutrient Status In Maize Saplings. ETPEMM-12 at Punjabi University (Dec. 17-19, 2012).
- **Kanan Deep** and Raj Mittal (2013). Calcium Monitoring of Hardness of Water Samples Using EDXRF. AMRP-2013 at SLIET, Longowal (Nov. 22-23, 2013).
- Preeti Rao, Himani Bansal, Kamaldip Kaur, **Kanan Deep** and Raj Mittal (2013). EDXRF studies of K and Ca uptake by fenugreek saplings under soil conditions. AMRP-2013 at SLIET, Longowal (Nov. 22-23, 2013).
- Preeti Rao, Himani Bansal, **Kanan Deep** and Raj Mittal (2013). EDXRF studies of K and Ca uptake by fenugreek plants with fertilizers on contaminated soil. National Symposium ETPRAM-13 at Punjabi University, Patiala (Dec. 13- 14, 2013).
- **Kanan Deep** and Raj Mittal (2014). Transmutation Studies in Botanical Samples Using X-Ray Fluorescence Technique. EBAS-2014 at Lovely Professional University, Jalandhar (Nov. 14- 15, 2014).
- Palvinder Kaur, Pooja Rani, Manpreet Kaur, **Kanandeep** and Kavita (2019). Semiconductor Nanocrystals (NCS) and Quantum Confinement. RACES-2019 at Multani Mal Modi College, Patiala (April 11-12, 2019).
- Pooja Rani, Kavita, Manpreet Kaur, Palvinder Kaur and **Kanandeep** (2019). DFT Study of electronic properties of Toluene adsorbed on Na- Toluene Interface. RACES-2019 at Multani Mal Modi College, Patiala (April 11-12, 2019).
- Manpreet Kaur, Kavita, Pooja Rani, **Kanandeep** and Palvinder Kaur (2019). Decay of a medium mass compound system formed by alpha-induced reaction. RACES-2019 at Multani Mal Modi College, Patiala (April 11-12, 2019).

- **Kanandeeep** (2023). Transmutation Studies in Fenugreek using EDXRF technique. RACES-2023 at Multani Mal Modi College, Patiala (April 12-13, 2023).
- **Kanandeeep** (2024). Interdisciplinary Science Teaching at Undergraduate level: A Collaborative Approach. National Seminar on Higher Education in India: A Road Map for Future Generations at Asian Group of Colleges, Patiala (January 20, 2024).

(Virtual Conferences / Webinars)

- Participated in National Webinar on “Recent Advances in Material Sciences and Nano-Technology” organized by Department of Physics, Ch. Chhotu Ram (P.G.) College, Muzaffarnagar, Uttar Pradesh (October 01, 2020).
- Participated in “International Virtual Conference on Advanced Materials for Energy and Environmental Applications (ICAMEEA-2020)” organized at International Relationship Centre, Bharathidasan University, Tiruchirappalli, Tamil Nadu (June 26-27, 2020).
- Attended National Webinar on “Frontiers of Science & Technology in Defense” organized by PG Department of Physics, Khalsa College, Patiala (August 07, 2020).
- Participated in Webinar on “Nanotechnology: A Multidisciplinary Technology of 21st Century” organized by Department of Physics, S.D. College, Barnala (July 10, 2020).
- Attended One day National Webinar on the theme “Hind di Chadar : Sri Guru Teg Bahadur” organized by Punjabi University, Patiala (August 26, 2020).
- Participated in one day International virtual conference on “Novel Corona and Novel Challenges: Life Ahead with Covid-19” organized by Sri Guru Gobind singh College, Chandigarh (June 03, 2020).
- Participated in Physics Webinar on “Extension of Modern Periodic Table Towards Superheavy Metals–Indian Perspective” organized by Smt Danamma Channabasaviah College of Arts Commerce Science and Management Studies, Kodiramasandra, Kolar (June 17, 2020).
- Participated in Special Lecture on the occasion of WORLD ENVIRONMENT DAY organized by Department of Local Governance, RGNIYD (June 05, 2021).
- Attended and Participated in the 7-Days Virtual National Level Capacity Building Programme on “Integration of Pedagogy & Technology in Teaching-Learning” organized by Multani Mal Modi College, Patiala (July 13-19, 2021).
- Participated in National Webinar on “Recent Advances in Chemistry” organized by Department of Chemistry & IQAC, Govt. G.N.A PG College, Bhatapara, Chhattisgarh (July 26, 2021).
- Attended National Webinar on “Intellectual Property Rights (IPRs)” organized by Human Resource Development Centre, S. L. Bawa DAV College, Batala, Punjab (July 28, 2021).
- Participated in “Virtual International Conference on Multifunctional Advanced Materials (VICMAM-2021)” organized by Department of Chemistry, Jnan Vikas Mandal’s Degree College, Airoli, Navi Mumbai, Maharashtra (August 9-10, 2021).

- Participated in Two Days National Webinar on “Qualitative Initiatives and Best Practices in Higher Education Institutions” organized by GHG Khalsa College of Education, Gurusar Sadhar, Ludhiana (August 27-28, 2021).
- Participated in Webinar on “Condensed Matter Physics” organized by Department of Physics, Christ College, Munjaka, Rajkot, Gujarat (September 02, 2021).
- Participated in National Webinar on “Perspectives, Challenges and Opportunities for Students in the Field of Nuclear Reactor Physics in the Indian Context” organized by Department of Physics, Akal University, Talwandi Sabo, Bathinda (March 3, 2022).
- Participated in Webinar on “Virtual Labs” organized by Punjabi University, Patiala (April 17, 2023).

Workshops and Training Courses

- Attended National Workshop on Mathematica, NWOM-2011, at Chitkara University, Barotiwala, H.P. (July 28-30, 2011).
- Attended and participated in Workshop on Environment Awareness and Perception through Sciences and Technology at Punjabi University, Patiala (March 28- April 1, 2011).
- Attended and participated in Workshop on Science- Techno fest 2012 at Punjabi University, Patiala (October 25-26, 2012).
- Attended and participated in Workshop on Science and Technology 2013 at Punjabi University, Patiala (December 4-5, 2013).
- Presented poster during Punjabi University Environment Society (P.U.E.S) in collaboration with Punjab Pollution Control Board remembered the Martyrs of Hiroshima (August 6, 2015).
- Attended and participated in Sensitization Workshop on Environment, Pollution and Health at Punjabi University, Patiala (December 8, 2015).
- Attended UGC Sponsored Faculty Development Program at Multani Mal Modi College, Patiala (July 17-22, 2019).
- Attended National Workshop on Research Methodology in Physical Sciences at Khalsa College, Patiala (February 15, 2020).
- Participated in the course Advanced Course on Special theory of Relativity by Centre for Continuing Education, IIT Kanpur (January 26-May 19, 2020).
- Completed course on Learning Physics through Simple Experiments by Centre for Continuing Education, IIT Kanpur (April 2-June 10, 2020).
- Attended Seven days Faculty Development Programme on Research Methodology for Social Studies organized by Multani Mal Modi College, Patiala (June 20-26, 2020).

- Attended One Week Faculty Development Program on Advancements in Science and its Applications in Engineering organized by Department of Science & Humanities, Hyderabad Institute of Technology & Management, Hyderabad (June 22-26, 2020).
- Participated in Science Leadership Workshop organized by Central University of Punjab, Bathinda (June 22-28, 2020).
- Completed a 4-Week Induction/ Orientation Programme for Faculty in Universities/ Colleges/ Institutes of Higher Education organized by Ramanujan College, University of Delhi (June 26- July 24, 2020).
- Participated in One Day Capacity Building Program on Basic Tools and Techniques for Online Teaching organized by Punjabi University, Patiala (August 09, 2020).
- Participated in the course Classical Electromagnetism-I by Centre for Continuing Education, IIT Kanpur (August 15- December 13, 2020).
- Attended Five Day Online Lecture Series organized by P.G Department of Physics, Khalsa College, Patiala (December 22-26, 2020).
- Participated in the course Classical Mechanics by Centre for Continuing Education, IIT Kanpur (January 26- April 25, 2021).
- Completed course on The Story of Photoelectric Effect by Centre for Continuing Education, IIT Kanpur (July 15 -August 17, 2021).
- Participated in National Workshop on Experimental Physics organized by Department of Physics, Government PG College, Sector-1, Panchkula (December 27, 2021).
- Participated in the IPA- Young Physicist Meet- 02 organized by Department of Physics, Panjab University (December 9-10, 2022).
- Attended Seven days Faculty Development Programme on Research Methodology organized by Multani Mal Modi College, Patiala (January 12-19, 2022).
- Completed a 4-Week Induction/ Orientation Programme for Faculty in Universities/ Colleges/ Institutes of Higher Education organized by Ramanujan College, University of Delhi (February 15- March 16, 2022).
- Participated in the course Classical Electromagnetism-2 (Magnetostatics) by Centre for Continuing Education, IIT Kanpur (August 15- December 25, 2022).
- Completed an online Inter Disciplinary two-week Refresher Course in “Managing Online Classes and Co-Creating MOOCS” organized by Ramanujan College, University of Delhi (January 7-21, 2024).
- Completed “NEP 2020 Orientation and Sensitization Programme” under Malaviya Mission Teacher Training Programme of UGC organized by Punjabi University, Patiala (January 16-25, 2024).

Achievements, Awards and Recognitions

- Organizing Physics Quiz and Poster Making Competition in M. M. Modi College to celebrate National Science Day since 2019.
- Successfully organized National Seminar in M. M. Modi College on September 26-27, 2019 on 'Popularization of Physical Sciences' under aegis of Silver Jubilee celebration of International Academy of Physical Sciences (IAPS), Allahabad, INDIA.

Membership

- Lifetime member of Indian Society of Atomic and Molecular Physics (ISAMP).