Name: **Dr. Kanandeep**

Designation: Assistant Professor

Specialization: Nuclear Physics

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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 (17 Feb., 2016 to 14 May, 2016; 01 August, 2016 to 13 May, 2017; 17 July, 2017 to 31 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://eujournal.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?usp=drivesdk.

Conference / 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 Kβ and Kα X-Rays. AMRP-11 at SLIET, Longowal (Nov. 4-5, 2011).
- **Kanan Deep** and Raj Mittal (2011). Dependence Of Kβ/Kα 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).

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 (Oct. 25-26, 2012).
- Attended and participated in Workshop on Science and Technology 2013 at Punjabi University, Patiala (Dec. 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 on 6 August, 2015.
- Attended and participated in Sensitization Workshop on Environment, Pollution and Health at Punjabi University, Patiala (Dec. 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 (Feb. 15, 2020).

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.
- Prof. in-charge for conducting National Graduate Physics Examination, NGPE-2020.

Membership

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