CURRICULUM VITAE: Dr. Genius Walia

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Google Scholar ID: https://scholar.google.com/citations?user=-uBLvP8AAAAJ&hl=en

PhD. Supervisor: Prof. Manjit Kaur (manjit@pu.ac.in), Department of Physics, Panjab University, Chandigarh, Punjab, India

Education

- 2012-2018 Ph.D. High Energy Physics, Panjab University, Chandigarh.
- 2009-2011 MSc. (Hons. School) Physics, Guru Nanak Dev University, Amritsar, Punjab (80%).
- 2006-2009 B.Sc. (Hons. School) Physics, Guru Nanak Dev University, Amritsar, Punjab (73%).
- 2004-2006 Senior Secondary, Sri Guru Harkrishan Public School (C.B.S.E), Amritsar, Punjab (86%).
- 2003-2004 Matriculation, Alexandra School (I.C.S.E), Amritsar, Punjab, India (79%).

Ph.D. Thesis work:

Title : Study of Drell-Yan process $qq \rightarrow Z/\gamma^* \rightarrow \mu^+\mu^-$ in p-p collisions using CMS detector at LHC

- During my Ph.D., I have been involved in the study and measurement of the differential cross-sections of Drell-Yan process via muon decay mode using CMS detector at LHC. The measurement is based on data collected by the CMS experiment during 2012 run at a centre-of-mass energy of 8 TeV which corresponds to an integrated luminosity of 19.7 fb^{-1}. The measured distributions are corrected for signal selection efficiency and unfolded for detector effects and then compared with the theoretical predictions from leading-order (LO) and next-to-leading-order (NLO) calculations. The

differential cross-section measurements are performed as a function of *f* and rapidity of Z. The measured differential cross-sections are compared to Monte Carlo predictions of LO and NLO generators using "RIVET" toolkit.

- I have contributed in evaluating the calibration constants for the Hadron Calorimeter (HCAL) of the CMS detector. I have also participated in installation and quality checks for the Hadron Outer (HO) Calorimeter of the CMS detector.

- Worked as Data Validation Expert and Coordinator for the Standard Model Physics (SMP) Group within CMS Collaboration.

- Experience with CMS online & offline Shifts

Research Experience

Ph.D.'s awarded under my supervision: 3

M.Sc. Dissertation Guided: 3

Ongoing Ph.D.s : 4

Teaching Experience

- 2018-till date: Assistant Professor, Physics Department, Guru Kashi University, Talwandi Sabo, Punjab

Research Publications/Book Chapters:

- A review of measurement of radioactivity levels in soil and water, along with heavy metals in water samples, around Okaba and Okobo coalfields in Ankpa, Kogi state, Nigeria (2024), *GIS Science Journal*, ISSN No. 1869-9391. https://drive.google.com/file/d/1R8GcQ5i0bG5sm7H3vUjIVsfT1oYCmq3V/view

- Risk Evaluation of Uranium Exposure through Drinking Water: Bio-kinetic Modeling and Assessment in Ferozepur District, Punjab, India (2024), *Journal of Chemical Health Risks*, ISSN No. : 2251-6727 https://www.jchr.org/index.php/JCHR/article/view/5235

- Analysing the reduction of no-load losses in distribution transformers on the usage of amorphous alloy (2024), *AIP Conference Proceedings*, ISSN No: 1551-7616, https://doi.org/10.1063/5.0207302

- Study on the Computation of Power Transformer Reactance Using Finite Element Method (2024), *BP International*, ISBN No.: 978-81-970279, http://eprints.go2submission.com/id/eprint/2602/

- Health Implications of Uranium Contamination in Drinking Water (2024), *International Journal of Applied Engineering & Technology*, ISSN No. : 2633-4828, https://romanpub.com/resources/ijaet20v5-4-2023-300.pdf

- Characterization of silicon rubber doped with bismuth (III) oxide (Bi2O3) and boron nitride (hBN) for neutron and gamma radiation shielding competences via GEANT4-toolkit and PYMLBUF (2023), *Semiconductor Optoelectronics*, ISSN No. : 1001-5868 https://bdtgd.cn/article/view/2023/1234.pdf
- A closer look at neutron and gamma shielding behaviors of some multi-constituent composite materials (2023), *Journal of Aeronautical Materials*, ISSN No.:1005-5053, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4144307

- Coupled Field Magnetostatic Analysis for Free Buckling in Double Layer Helical Winding of a Distribution Transformer (2022*), International Journal of Performability Engineering*, ISSN No. : 2993-8341 https://www.ijpe-online.com/EN/Y2022/V18/I2/79

- Transient Finite Element Method for Computing and Analyzing the Effect of Harmonics on Hysteresis and Eddy Current Loss of Distribution Transformer (2021), *International Journal of Performability Engineering*, ISSN No. : 2993-8341 https://www.ijpe-online.com/www.ijpe-online.com/EN/Y2021/V17/I5/451

- Assessment of the use of FEM for computation of Electromagnetic Forces, Losses and Design of Transformers (2020), *Journal of Physics: Conference Series*, ISSN No. 1742-6596 https://iopscience.iop.org/article/10.1088/1742-6596/1478/1/012029/meta

- Computation of Power Transformer Reactance using Finite Element Method (2020), *International Journal of Recent Technology and Engineering*, ISSN No. : 2277-3878

Talks/Posters Presented in Conferences/Symposium/Workshops

- "Measurements of Φ* differential cross sections for Drell-Yan events in pp collisions at s = 8 TeV", Approval Talk presented in SMP General Meeting, 15 June, 2017.

- "Measurement of Drell-Yan cross sections at various LHC energies", CHASCON2017: 11th Chandi-garh Science Congress, March 9-11, 2017, Panjab University, Chandigarh.

- "Single and Double differential Drell-Yan cross section measurements using the CMS detector", XXII DAE-BRNS High Energy Physics Symposium 2016, December 12-16, 2016, University of Delhi, Delhi.

- "Measurement of the Drell-Yan differential cross sections at LHC energies", CMS Week, November 14-18, 2016, TIFR, Mumbai.

- "Measurement of f differential cross-sections for Drell-Yan events in p-p colisions at 8 TeV with CMS", International Workshop on Frontiers in Electroweak Interactions of Leptons and Hadrons, November 2-6, 2016, Aligarh.

- "Study of Drell-Yan process in p-p collisions using CMS detector at LHC", CHASCON2015: 9th Chandigarh Science Congress, February 25-27, 2015, Panjab University, Chandigarh.

- "Measurement of Φ* variable in Drell-Yan events in p-p collisions using CMS detector at LHC", XXII DAE-BRNS High Energy Physics Symposium 2014, December 8-12, 2014 ,Indian Institute of Technology, Guwahati.

Awards/Scholarships

- DST-INSPIRE Research Fellow (2012-2017)
- Gold-Medalist in B.Sc. (Hons. School) Physics, Guru Nanak Dev University, Amritsar, Punjab.
- Gold-Medalist in M.Sc. (Hons. School) Physics, Guru Nanak Dev University, Amritsar, Punjab.
- 1st prize in poster presentation in 11th Chandigarh Science Congress (CHASCON-2017).

Invited Talks/Expert Lecture

- Guest Lecture on "Unlocking the Secrets of the Universe: The Wonders of the Large Hadron Collider" delivered on 20 Sept, 2024 at NIILM University.

Workshops/STC/Conferences Attended

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- UGC sponsored short term course in E-content development from 01.08.2024 to 08.08.2024 organized by MMTTC.

Computer and Technical skills

- Programming Languages : C, C++,Python, HTML
- Operating System : Windows, Linux
- Data analysis software: ROOT, MATLAB, Origin, MS Excel
- Type setting software: MS word, LATEX
- Graphics editing: Adobe Photoshop
- MS Power Point presentation

Academic Responsibilities

- Head, Physics Department, GKU (Aug 2023-till date)
- Member, IQAC, Guru Kashi University
- Senior Coordinator, International Student Division (Aug 2022-July 2024)
- Member, Women Grievance Cell, Guru Kashi University
- Member Secretary, Board of Studies, Physics Department, GKU
- Member, Faculty Board, Physics Department, GKU
- Member, Internal Curriculum Audit Committee, GKU
- Member, Internal Administrative Audit Committee, GKU

Personal Data

Name: Genius Walia
Father's Name: S. Sharanpal Singh
Mother's Name: Smt. Kiran Inder
Gender: Female
Nationality: Indian
Marital Status: Married
Date of Birth: November 7, 1987