

BIO-DATA

1. **Name** : Maninder Kaur
2. **Designation** : Assistant Professor
3. **Department** : Physics, Punjabi University, Patiala
4. **Areas of Specialization** : High Energy Physics (Theory)
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maninderphysics@gmail.com
8. **Academic Qualifications** :

Sr. No	Degree Held	Year	Board / University	Percentage of Marks obtained	Thesis Title	Supervisors
1.	Ph.D.	2015-2021	Punjabi University, Patiala	Grade A	<i>s</i> -wave and <i>p</i> -wave Mesons emitting Weak decays of Charm and Bottom Hadrons	<i>Dr. Supreet Pal Singh and Dr. R.C.Verma</i>
2.	M. Phil	2009-2010	Panjab University, Chandigarh	Grade A	A Theoretical Study of Fusion Probabilities using Proton/neutron-rich Nuclei	<i>Dr.R. K. Puri</i>
3.	M.Sc. (<i>Honours School</i>)	2008	G. N. D. University, Amritsar	Grade A	Basic Introduction to FPGA	<i>Dr. R. C. Singh</i>

4.	B.Sc.	2006	Panjab University, Chandigarh	72.65%		
5.	10+2	2002	P.S.E.B, Mohali	62.00%		
6.	Matric	2000	P.S.E.B, Mohali	64.46%		

9. Educational qualified exams:

- UGC NET
- GATE
- DRDO
- IAPT

10. Details of Experience:

S. No.	Name of the Inst./Employer	Position held	From	Duration	Major job responsibilities and Nature of experience
1.	Rayat and Bahra Institute of Engineering and Bio-Technology, Mohali Campus	Lecturer	2009-2011	1 years, 4 months	UG Teaching
2.	G.N.D.U. college Verka, Amritsar	Assistant Professor	Oct 2011- Dec 2011	1.5 month	UG Teaching
3.	Department of Physics, Punjabi University, Patiala	Assistant Professor	Dec 2011- till date	10 years	PG Teaching & Research

11. Research Work

My research work is Phenomenological in nature, which requires understanding of both experimental and theoretical analysis in the field of High Energy Particle Physics. In order to bridge the existing gap between theory and experiments, lots of measurements have been made for weak decays of charm and bottom hadrons. Weak leptonic and semileptonic decays are reasonably explained in the Standard Model of High Energy physics. However, Weak hadronic decays have posed serious problems as these decays experience strong interaction interference due to the hadronization, gluon-exchange

around weak quark-vertices and final state interactions. We have explored the missing physics by employing constituent quark models, isospin and $SU(3)$ flavor symmetries along with Topological Quark Diagram Scheme (TQDS). These decays serve as a good testing ground for various theoretical issues in hadronic B decays, which provide some insight into the long distance non-perturbative aspects of QCD. Significance of this work lies in probing the interplay of weak and less understood strong interactions.

12. Contribution to Teaching since 2011

- Mathematical Methods in Physics
- Statistical Mechanics
- Quantum Mechanics
- Particle Physics
- High Energy Physics

13. List of Publications

- **Maninder Kaur**, Rohit Dhir, Avinash Sharma and R. C. Verma, “Topological Diagram Analysis of Bottom Meson Decays Emitting Two Pseudoscalar Mesons”, Phys. Part. Nucl. Lett **12**, 230 (2015).
- **Maninder Kaur**, Supreet Pal Singh and R. C. Verma “Quark Diagram Analysis of Bottom Meson Decays Emitting Pseudoscalar and Vector Mesons”, Phys. Part. Nucl. Lett **14**, 7 (2017).
- **Maninder Kaur**, “Quark Diagram Analysis of B-meson emitting vector (V) and vector (V) mesons”, Phys. Part. Nucl. Lett **15**, 12 (2018).
- **Maninder Kaur**, Supreet Pal Singh, R. C. Verma, “Nonfactorizable Contribution to B-Meson Decays to s-Wave Mesons”, Journal of Nuclear Physics Material Sciences Radiation and Applications, Vol. 9 No. 1 (Aug. 2021)
- **Maninder Kaur**, Supreet Pal Singh and R. C. Verma, “Searching a systematics for nonfactorizable contributions to B^- and \bar{B}^0 mesons”, - Accepted for publication in Chinese Physics C.
- **Maninder Kaur**, Supreet Pal Singh and R. C. Verma, “ $SU(3)$ Analysis of Nonfactorizable Contributions to Decays of Bottom Mesons Emitting two Pseudoscalar Mesons”, submitted in Phys. Rev. D.

13. Paper Presented in International / National Conferences

- International symposium on Nuclear Physics, DAE, BARC, Mumbai, India, 8-12 Dec, (2009).
- 4th Chandigarh CHESS-Con at Panjab University, Chandigarh Feb 2010.
- ETPEMM-12 at Punjabi University, Patiala from 17-19 December, 2012.

- National Symposium on Emerging Trends in Physics for Ionizing Radiations, Aerosols & Material Science (ETPRAM-13) at Punjabi University, Patiala, Punjab (INDIA) from 13-14 December, 2013.
- National Conference at Modi College 19-20, Feb 2016.
- National Conference at Arya College, Panipat, 27-28, Feb 2016.
- International Conference at Shri Guru Granth Sahib World University, Fatehgarh Sahib, “Isospin analysis of non- Factorizable contributions to hadronic decays”, 1-2, March 2016.
- International Conference at Dept of Public Administration, Punjabi University, 10, Oct 2016.
- National Conference at Rayat and Bahra University. 11 march, 2016.
- National Conference at Chaudhary Devi Lal Univerity, Sirsa-125055, Haryana. On 19-20, March, 2016.
- National Conference at Arya College, Panipat, 26 March 2016.
- National Seminar at Dept of Public Administration, Punjabi University, 30, March 2016.
- 19th Punjab Science Conference, “Two body weak decays of B Meson using TQD Approach”, 7-9, Feb 2016.
- National Conference at Modi College, “Reanalysis of the nonfactorizable contributions to hadronic decays of D mesons”, 19-20, Feb 2016.
- International Conference at Dept of Public Administration, Punjabi University, 13, Nov 2017.
- National Conference at Dept of Chemistry, “Recent challengs in Two body weak decays of Hadrons”, 19-20, Feb 2020.
- International Conference at Central university of Himachal Pradesh organized by CUHP, Dharmashala on Theoretical Aspects of Nuclear Physics, “Nonfactorizable Contribution to B-meson decays to s - wave mesons”, 15-20 Feb, 2021.

14. Participation in Workshops/ Conferences/ Seminar

- National Seminar at G. M. N College, Ambala Cantt, “Two body weak decays of B- Mesons”, 04-05, Nov 2015.
- 19th Punjab Science Conference, 7-9, Feb 2016.
- National Seminar at Govt. P. G. College, Ambala Cantt, 11, Feb 2016.
- “First IISER Mohali Workshop on BSM Phenomenology”, IISER Mohali, Punjab 140306, India, 6-9 April, 2016.
- “Three days national workshop on LaTeX and Technical Writing”, 23-25 Nov, 2018.

- National workshop on “Research Methodology in Physical Sciences” ,Punjabi University, Patiala, 15 Feb 2020,.
- FDP on “Quantum Physics Simulations Using Gnumeri Worksheets”, Department of Physics and Astronomical Sciences Central University of Himachal Pradesh and IAPT-RC3, 1-7 August 2021.
- “UGC- Sponsored workshop on Research methodology, at Punjabi University, Patiala,23-30, Sep 2021.

15. HRDC Orientation/Refresher Course Attended

Name of the Course Summer School	Place	Duration	Sponsoring Agency
Refresher Course	Punjabi University, Patiala	01/03/2012 to 21/03/2012	UGC
Orientation Course	Punjabi University, Patiala	18/04/2016 to 14/05/2016	UGC
Refresher Course	Punjabi University, Patiala	10/08/2020 to 24/08/2020	UGC

16. Administrative/Academic Responsibilities

Member of AACD of the Physics Department

Member of Purchase Committees of the Physics Department

Member of Admission Committee of M.Sc. Classes

Member of Fee Concession Committee of Physics Department

Member of Augmentation of P. G. Labs Committees of the Physics Department

Member of Board of Post Graduate Studies in Physics

Member of Dept Library Committee of the Physics Department

Member of Dept Computer purchasing Committee of the Physics Department

Organizer of Extempore Events on National Science Day 2013

Acted as Judge at P. G. College, Ambala Cant, on the eve of National Seminar

17. Computational Skills

MATHEMATICA, origin, FORTRAN, C, C++, MS- Office,

(MANINDER KAUR)