

# Curriculum Vitae

*Name:* Hira Sarfraz

*Affiliation:* University of the Punjab, Department of Physics, Lahore - 54590, Pakistan.

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## Education

1. **PhD Physics** (2014-2021)  
University of the Punjab, Lahore, Pakistan  
Thesis: Darboux transformations, nonlocal and noncommutative integrable systems
2. **MPhil Physics** (2012-2014)  
University of the Punjab, Lahore, Pakistan  
Thesis: Darboux transformation for nonlinear sigma models
3. **MSc Physics** (2009-2011)  
University of the Punjab, Lahore, Pakistan
4. **BSc Physics & Math** (2007-2009)  
Government Samanabad College for Women, University of the Punjab, Lahore, Pakistan

## Work Experience

1. **IPFP Fellow** – Faculty member (Feb. 2024 to Present)  
University of the Punjab (Department of Physics), Lahore, Pakistan.
2. **Assistant Professor** – Visiting faculty member (Oct. 2023 to Jan. 2024)  
University of the Punjab (Department of Physics), Lahore, Pakistan.
3. **Lecturer** (Oct. 2019 to Jan. 2021)  
University of the Punjab (School of Chemistry)

## Awards/Scholarships

1. **Double Gold Medallist in MSc Physics** (2012)  
University of the Punjab and Phillips Electronics Gold Medal
2. **PhD Research Fellowship** (2015-19)  
Higher Education Commission (HEC) Islamabad, Pakistan
3. **Merit Scholarship in MPhil Physics** (2012-14)

Doctoral Programme Coordination Committee (DPCC), University of the Punjab, Lahore, Pakistan

4. **Merit Scholarship in MSc Physics (2009-11)**

University of the Punjab, Lahore, Pakistan

**Research Interests**

My primary area of research is Integrable systems, with a specific focus on continuous, discrete, and PT-symmetric nonlocal integrable systems. Present interests include:

1. Solution dynamics of different integrable systems subjected to reverse space, reverse time, and reverse space-time nonlocal symmetry reductions on the associated AKNS scheme.
2. Integrable systems subjected to shifted nonlocal symmetric reductions.

**Publications**

1. ***Loop dynamics of a fully discrete short pulse equation***  
Authors: **H. Sarfraz**, U. Saleem and Y. Hanif  
Journal: Modern Physics Letters A, (2023)  
DOI: 10.1142/S0217732323500864
2. ***Dynamics of kink soliton solutions of the (2 + 1)-dimensional sine-Gordon equation***  
Authors: U. Saleem, **H. Sarfraz** and Y. Hanif  
Journal: Theoretical and Mathematical Physics, **210** (2022) 80-98
3. ***Symmetry broken and unbroken solutions of nonlocal NLS equation in (2+1) dimensions***  
Authors: **H. Sarfraz** and U. Saleem  
Journal: Results in Physics **17** (2020) 103100
4. ***Novel solutions of general and reverse space-time nonlocal coupled integrable dispersionless systems***  
Authors: **H. Sarfraz**, Y. Hanif and U. Saleem  
Journal: Results in Physics **16** (2020) 102893
5. ***On PT-symmetric semi-discrete coupled integrable dispersionless system***  
Authors: **H. Sarfraz**, Y. Hanif and U. Saleem  
Journal: Nonlinear Dynamics **99** (2020) 2409
6. ***Dynamics of loop soliton solutions of the PT-symmetric nonlocal short pulse equation***  
Authors: Y. Hanif, **H. Sarfraz** and U. Saleem  
Journal: Nonlinear Dynamics **100** (2020) 1559
7. ***PT-symmetric semi-discrete short pulse equation***  
Authors: Y. Hanif, **H. Sarfraz** and U. Saleem  
Journal: Results in Physics **19** (2020) 103522

8. ***Symmetry broken and symmetry preserving multi-soliton solutions for nonlocal complex short pulse equation***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Chaos, Solitons and Fractals **130** (2020) 109451
9. ***Supersymmetric integrable AB system***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Modern Physics Letters A **35** (2020) 2050023
10. ***Integrable discretizations of AB system and multi-soliton solutions***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Communications in Nonlinear Science and Numerical Simulation **79** (2019) 104921
11. ***General, symmetry non-preserving and preserving multiple soliton solutions of long wave-short wave resonant models***  
 Authors: Y. Hanif, **H. Sarfraz** and U. Saleem  
 Journal: Chaos, Solitons and Fractals **125** (2019) 119-138
12. ***Quasideterminant solutions of 2-component noncommutative complex coupled integrable dispersionless system***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Journal of Physics Communications **2** (2018) 085020
13. ***Darboux transformation and multi-soliton solutions of local/nonlocal N-wave interactions***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Modern Physics Letters A **32** (2017) 1750196
14. ***Exact solutions of the noncommutative and commutative nonlinear Schrödinger equation in 2 + 1 dimensions***  
 Authors: **H. Sarfraz** and U. Saleem  
 Journal: Modern Physics Letters A **32** (2017) 1750158

### **Training/Workshop**

I successfully completed the National Faculty Development Programme (2023–24) conducted by the National Academy of Higher Education—Higher Education Commission (HEC) of Pakistan. The training lasted from December 19, 2023, until January 3, 2024.

### **Memberships**

1. Institute of Physics – **IOP** (London UK): Membership ID number 80271775

### **Personal Information**

- **Gender:** Female
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- **Contact No.:** +92 (42) 9923 1243
- **Nationality:** Pakistan

- **ResearchGate:** <https://www.researchgate.net/profile/Hira-Sarfraz>
- **ORCID:** 0000-0002-3620-0560