Maria Tabraiz

Nationality: Pakistani **Phone number:** (+92) 3089450584

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Home: H # 18 G 160 POF Wah Cantt, 47040 Wah cantt (Pakistan)

Work: Women University Swabi ., Swabi (Pakistan)

OBJECTIVES

Objectives

As a dedicated and passionate particle physicist, my objective is to contribute to groundbreaking research and advancements in the field of particle physics. With a solid foundation in theoretical and experimental techniques, I aim to apply my expertise to unravel the mysteries of the universe. Seeking a challenging position where I can collaborate with esteemed researchers, utilize cutting-edge technology, and make significant contributions to the understanding of fundamental particles and their interactions. Committed to pursuing excellence, I aspire to play a pivotal role in pushing the boundaries of our current understanding of particle physics.

EDUCATION AND TRAINING

Doctor of Philosophy in Physics

Quaid-i-Azam University Islamabad, Pakistan. [29/09/2021 – Current]

City: Islamabad | **Country:** Pakistan

Area of Specialization:
Theoretical High Energy Physics, with a focus on physics beyond the Standard Model. Special interest in probing new physics through effective field theories, flavor physics, neutrino phenomenology, and potential signatures of supersymmetry, extra dimensions, and dark sector interactions. Skilled in model building, analytical calculations, and phenomenological implications of novel theoretical frameworks.

Master of Philosophy in Physics (M.Phil)

Quaid.I.Azam University Islamabad, Pakistan [18/09/2017 – 22/10/2019]

City: Islamabad | **Country:** Pakistan | **Field(s) of study:** Theoratical High Energy Physics

CGPA: 3.7/4
Supervisor: Dr. Mansoor-Ur-Rehman
Thesis: Renormalization is a technique in quantum field theory that is used to treat the infinities arising in the loop diagrams. These ultraviolet divergences can introduce energy scale dependence in the couplings involved. The evolution of renormalized couplings with this energy dependence is determined by so called renormalization group equations(RGEs). In this dissertation we used general results derived by Machacek and Vaughn in the explicit calculation of RGEs for specific models. Further, we used a Mathematica package, called SARAH to calculate the RGEs for various models. We mostly implemented new models in SARAH by modifying the gauge group and/or matter content for a given built-in model. The results of RGEs calculated through SARAH exactly match with those already derived. The evolution of RGEs is also performed numerically by using SARAH package.

Master of Science in Physics (MSc)

University of the Punjab [15/09/2014 – 16/12/2016]

City: Lahore | **Country:** Pakistan

Percentagr: 74%

Bachelor of Science (BSc)

University of the Punjab [15/08/2012 – 20/08/2014]

City: Lahore | **Country:** Pakistan | **Field(s) of study:** Natural sciences, mathematics and Physics

Bachelor of Education (B.Ed)

Allama Iqbal Open University, Islamabad [15/01/2015 – 14/01/2016]

City: Islamabad | **Country:** Pakistan

WORK EXPERIENCE

Women University Swabi – Swabi, Pakistan

City: Swabi | **Country:** Pakistan

Lecturer in Department of Physics

[13/01/2020 – Current]

An organized professional with proven teaching, guidance and counseling skills.
Courses Taught:
Quantum Mechanics, Classical Mechanics, Nuclear Physics, Electricity and magnetism, Mathematical Methods of Physics, Particle Physics, Relativity and Cosmology, Digital Electronics, Mechanics

Women University Swabi – Swabi, Pakistan

City: Swabi | **Country:** Pakistan

Deputy Director Sports (Additional Charge)

[15/10/2025 – Current]

- Responsible for planning, organizing, and supervising all university-level sports and athletic programs.
- Coordinated interdepartmental and inter-university tournaments promoting student engagement and teamwork.
- Managed sports facilities, equipment maintenance, and budget utilization for athletic development.
- Worked closely with administration to enhance the university's sports infrastructure and student participation.

F G post Graduate college for women Wah cantt – Wah cantt, Pakistan

City: Wah cantt | **Country:** Pakistan

Physics lecturer

[01/10/2016 – 31/05/2017]

Ability to be a team player and resolve problems and conflicts professionally.

Quaid.i.Azam University – Islamabad, Pakistan

City: Islamabad | **Country:** Pakistan

Research Associate

[15/09/2022 – Current]

- Engaged in research on **New Physics in rare B-meson decays**, studying flavor-changing neutral current processes and their deviations from Standard Model predictions.
- Utilizing analytical and computational tools (such as Mathematica and SARAH) for model analysis and theoretical predictions.
- Contributing to theoretical interpretation of LHCb and Belle-II experimental results in the context of Beyond Standard Model (BSM) frameworks.

COURSES

[22/07/2024 – 09/08/2024]
Third Refresher Course for Physics Teachers - Problem Solving and Concept Development (1st Module)

This Module has covered 3 major disciplines at the BS level, namely

1. Mathematical Methods
2. Classical Mechanics
3. Electromagnetism

[14/07/2025 – 01/08/2025]
Third Refresher Course for Physics Teachers - Problem Solving and Concept Development (2nd Module)

This Module has covered 3 major disciplines at the B.S. level, namely

1. Mathematical Methods
2. Quantum Mechanics
3. Thermal and Statistical Physics

CONFERENCES AND SEMINARS

[11/02/2025 – 13/02/2025] Quaid-e-Azam University, Islamabad Pakistan
18th National Symposium on Frontiers in Physics Organized by Pakistan Physical Society and hosted jointly by Quaid-e-Azam University & National Centre for Physics.

[19/08/2024 – 30/08/2024] National Center for Physics,Islamabad, Pakistan
13th School on LHC Physics

[11/12/2023 – 15/12/2023] National Center for Physics Islamabad, Pakistan
5th International Workshop on Heavy Quark Physics

[27/09/2023] Women University Swabi
One Day Workshop on Optics I organized this workshop for bachelors students. This workshop is part of SPIE outreach activities, 2023. Guest speaker was Dr. Imrana Zahid from QAU, Pakistan.

[02/09/2019 – 20/09/2019] National center for physics Islamabad, Pakistan
1st School on advance Particle physics and cosmology

[23/09/2019 – 26/09/2019] National center for physics Islamabad, Pakistan
1st International Workshop on heavy quark physics

SPIE at Quaid.i.Azam university Islamabad
Optics fair

[06/08/2018 – 17/08/2018] National center for physics (NCP) Islamabad, Pakistan
7th School on LHC Physics 3rd Position in presentation competition in 7th school of LHC physics

LANGUAGE SKILLS

Mother tongue(s): Urdu

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B1 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

SKILLS

Microsoft Powerpoint / Google Docs / Microsoft Office / Microsoft Excel / Microsoft Word / Power Point / Good knowledge of: Mathematica [SARAH, Spheno, MadGraph Sym2Int], Python, Arduino IDE / Wolfram Mathematica - xTensor, FeynCalc

ORGANISATIONAL SKILLS

Managerial skills

An organized professional with proven teaching, guidance and counseling skills. Ability to be a team player and resolve problems and conflicts professionally. Have the ability to communicate complex information in a simple and entertaining manner. Looking to contribute my knowledge and skills in an institution that offers a genuine opportunity for career progression.

Job Related Skills

Problem solving – with a pragmatic and analytical approach

Reasoning – constructing logical arguments and grasping complex problems Research and data analysis – undertaking research and applying analytical skills

Numeracy – Skills in using mathematics to find solutions to scientific problems, mathematical modelling and interpreting and presenting information graphically

Practical skills – planning, executing and reporting experiments, using technical equipment and paying attention to detail

COMMUNICATION AND INTERPERSONAL SKILLS

Communication skills

- Good-Communication-written and oral skills

COMPETITIVE AWARDS AND FELLOWSHIPS:

[18/09/2017 – 22/10/2019]
Department Fellowship

[01/07/2017 – 06/2018]
Prime Minster Internship, at Hot sol interprices,

RECOMMENDATIONS

Name: **Dr. Mansoor-ur-Rehman** | Professor
Organization: Quaid-i-Azam University Islamabad, Pakistan
Email: mansoor.ur.rehman1976@gmail.com

Name: **Dr Mohsin Siddq** | Director TPD, NCP Islamabad
Organization: National Center of Physics
Email: mohsin.siddique@ncp.edu.pk

Name: **Dr. Nilem Khalique** | Head of Department
Organization: Women University Swabi, Pakistan
Email: nilemnk@gmail.com

Name: **Muhammad Asghar** | Assistant Professor
Organization: Govt. Post Graduate College For Boys Satellite Town Rawalpindi
Email: asgharqaui@gmail.com