Aarouj Ahmed

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Education

University of Camerino — Camerino, Italy
Ph.D. in Science and Technology, Physics Division — *July 2015*

Quaid-i-Azam University — Islamabad, Pakistan
M.Phil. Electronics — *March 2009*

Quaid-i-Azam University — Islamabad, Pakistan
M.Sc. Electronics — *March 2007*

University of the Punjab — Lahore, Pakistan
B.Sc. Physics, Mathematics — *March 2004*

Experience

Visiting Assistant Professor — Sep. 2021 – Dec 2024
University of Education, Attock Campus — *Attock, PU, Pakistan*

- Taught MS-level Course: Advanced Mathematical Methods of Physics.
- Taught BS-level Courses: Digital Logic Design, Applied Physics, Circuit Analysis, Electricity and Magnetism-1, Electricity and Magnetism-2, Modern Physics and Electronics, Mechanics-1, Mechanics-2, and Classical Mechanics.

Visiting Assistant Professor — Sep. 2022 – Jan. 2023
Air University Aerospace and Aviation Campus — *Kamra, PU, Pakistan*

- Taught Physics course to BSCS students.

Advising Assistant — Jan. 2019 – Feb. 2020
International Student and Scholar Services, University of Illinois at Urbana-Champaign — *Champaign, IL, USA*

- Organized workshops for the international students.
- Advised international students and scholars on daily basis through walk-ins and scheduled appointments.
- Answered international students' queries through phone calls and emails.
- Conducted International scholar check-in sessions.

Physics Lecturer — May 2010 – Apr. 2011
Army Public School and College Systems — *Sialkot, PU, Pakistan*

- Taught Physics to pre-engineering, pre-medical, and Cambridge O-Levels students.
- Tailored lesson plans and course contents to facilitate student centered learning.
- All of students who appeared in the Board Exam passed their exam.
- Graded assignments according to strict institutional policies and upheld guidelines.

Achievements

Winner of a Ph.D. Fellowship — 2011 – 2014

Won a fellowship for my Ph.D. program for a period of three years.

Higher Education Commission of Pakistan Fellow — 2008– 2009

Was selected as a Higher Education Commission of Pakistan Fellow during my M.Phil. project for a period of one year.

Skills

Computer Skills
Mathematica, LaTeX, FORTRAN, C++, PSpice
Outlook, Word, Excel, PowerPoint, Sunapsis
General Skills
Research, Workshop Organization, Event Organization,
Student Advising, Working with Diverse Student Population, Student Support,
Budgeting, Administrative Work, Customer Service, Team Management.

RESEARCH PROJECTS AND PUBLICATION

PhD Research

- During my PhD project, I studied about the dynamics of a wavepacket in time-dependent potential wells.
- Used numerical method to solve a tedious problem and derived some interesting results.
- On the base of the observations, tried to derive a general formula to fit well for similar kind of problems.
- Derived results for a realistic experimental parameters on the base of theoretical observations.

MPhil Research

- Performed theoretical study to quantify the entanglement in four-cavity system.
- Studied compelling aspects of engineering NOON-state and co-authored a paper on this topic.

MSc Projects

- Designed a digital clock using integrated circuits.
- Designed a program for K-Map simplification in C++.

Published

- Propagation and reflection of thermoelastic waves through diffusive porous non-local semiconductor with higher-order fractional derivative
  Research in Mathematics, (2024)
  Aarouj Ahmed, and Hashmat Ali
- Tunneling Probability in Time-Dependent Potential Well: A numerical Approach
  Quanta, (2024)
  Aarouj Ahmed
- Nonlocal Theory on Plane Waves in a Higher-order Thermo-Diffusive Semiconducting Medium Under the Gravitational Field
  Waves in Random and Complex Media, (2024)
  Hashmat Ali, Ehtsham Azhar, Aarouj Ahmed, Muhammad Jamal, and Zahid Iqbal
- Non Local Theory on Plane Waves in Higher Order Thermo Diffusive Semiconducting Medium
  Journal of Thermal Stresses, (2023)
  Hashmat Ali, Aarouj Ahmed, Iftikhar Ahmed, Adnan Jahangir, and Ehtsham Azhar
- Engineering noon states in cavity QED
  Journal of Russian Laser Research, (2010)
  Muhammad Aqil, Aarouj, Fauzia Bano, and Farhan Saif

SCHOOLS AND SYMPOSIUMS

- **Conference on Quantum Information** 20-21 May 2022
  Society of Promotion of Science,
  Virtually held, Pakistan
  Gave a talk, titled: "Dynamics of a trapped particle while going from single- to double-well potential"

- **The 3rd ASEAN-UEC Workshop on Informatics and Engineering for SDGs**, 10 December 2021
  jointly held with ECTI Workshop on BEC Phranakhon Si Ayutthaya Rajabhat University ARU, Thailand
  Held in parallel of On site and On line
  Presented a poster virtually, titled: "Dynamical trapped quantum particle in time-dependent single-to-double well potentials"

- **Pakistan International Conference on Quantum Information Computation** 13-15 October 2021
  Virtually held, Pakistan

- **Summer School** on **Ion Traps for Tomorrow's Application** 21-30 July 2013
  International School of Physics "Enrico Fermi", Varenna, Italy

- **Winter School** on **Physics with Trapped Charged Particles** 09-20 January 2012
  Les Houches, France

- **Third International Symposium** on **Quantum Optics** 05-07 August 2007
  Centre for Quantum Physics,
  COMSATS Institute of Information Technology, Islamabad, Pakistan