Roohi Zafar

Department of physics

NEDUET, Karachi

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- **ACADEMIC QUALIFICATIONS**

Degree	Subject	Institution/Awarding body	Grade/ G.P	Year
Ph.D.	Spectroscopy	University of karachi	3.94	2021
MS	Spectroscopy	University of karachi	3.9	2011
M.Sc.	Physics	University of karachi	1st class 1st position	2004
B.Sc(H)	Physics (H), Mathematics and statistics	University of Karachi	1st class 3rd position	2003
H.S.C	Pre-engineering	Sir Syed Govt. Girls college	1st division	2000
S.S.C	Science	Dehli Govt. School	1st divsion	1998

- **PH.D. SYNOPSIS TITLE:**

"Theoretical Investigation of fine structure of Praseodymium-I"

- **MS. THESIS:**

"Investigation of hyperfine structure of Praseodymium-I in far infrared region"

- **JOB EXPERIENCE**

1. 1st Jan 2005 -1st Nov 2006: worked as a co-operative teacher in the department of physics, university of Karachi.
2. 1st March 2005 – 31st Oct 2006: worked as visiting faculty member in department of physics, SSUET.
3. 1ST Nov 2006 – 13th mar 2018: As a lecturer in the department of physics, NEDUET.
4. 13th March 2018 – to date: As an assistant professor, NEDUET.

- **AWARDS:**

1. Was Awarded Philips gold medal on academic distinction in M.Sc in Physics from university of Karachi, 2004.
2. Was awarded certificate and shield of conference finance head in "1st international conference on Applied Physics and Engineering" organized by Department of Physics, NED university of Engineering and Technology, 2021.
3. Was awarded certificate of oral presentation in "1st international conference on Applied Physics and Engineering" organized by Department of Physics, NED university of Engineering and Technology, 2021.

4. Was awarded certificate of achievement for successful completion of the research based course "Atomic Astrophysics and Spectroscopy with Computational workshops on the SUPERSTRUCTURE and the R-matrix codes (online), organized by Indo-US APJ Abdul Kalam STEM Education , Research Center of Aligarh Muslim University and the Ohio State University, 2021.
5. Was awarded letter of Congratulations for the outstanding performances in "Atomic Astrophysics and Spectroscopy with Computational workshops on the SUPERSTRUCTURE and the R-matrix codes (online), organized by Indo-US APJ Abdul Kalam STEM Education, Research Center of Aligarh Muslim University and the Ohio State University, 2021.

➢ CONFERENCES/ WORKSHOPS/TRAINING ATTENDANT:

1. Attended Atomic Astrophysics and Spectroscopy with Computational workshops on the SUPERSTRUCTURE and the R-matrix codes (online), organized by Indo-US APJ Abdul Kalam STEM Education, Research Center of Aligarh Muslim University and the Ohio State University, 2021.
2. Attended "1st international conference on Applied Physics and Engineering" organized by Department of Physics, NED university of Engineering and Technology, 2021.
3. Attended LaTeX workshop organized by NEDUET.
4. Attended ITE workshop organized by HEC-NEDUET, 2011.
5. Presented a poster paper and attended national conference "physics and the world of today" held at department of physics, university of Karachi, 2011.
6. Presented a paper and attended national conference "physics and the world of today" held at of physics, university of Karachi, 2009.
7. Training on "Research methodology" Held at NEDUET, 2009.
8. on, "presentation and communication skills" held at NEDUET, 2006'
9. Training on "role of teacher as an examiner and invigilator" held at NEDUET, 2006.
10. Attended international school on "Surface, thin film, nano structures and application" held at COMSATS information technology, Lahore, 2006.
11. Attended international Nathiagali Summer College, held at nathiagali, 2006.

➢ PUBLICATIONS:

1. A survey on radiation protection awareness at various hospitals in Karachi, Heliyon, 8(11), e11236 2022.
2. Spectroscopic properties of lithium like ions: Prospective elements for quantum computation. Mehran University Research Journal of Engineering and Technology. Accepted: 13 September 2021.
3. Python program to generate spherical harmonics. International journal of advanced trends in computer science and engineering, Vol.10, 2021.
4. Wave functions for ground state 4f 3 6s 2 configuration of praseodymium to calculate energy of fine levels and other spectroscopic quantities. Journal of Physics Communications, 4(3), 035003, 2020.
5. Wave function for configuration 4f25d6s2 of Praseodymium (Pr I) to calculate energy and other spectroscopic quantities. International Journal of Advance Research Vol.7, 233-237, 2019.
6. Theoretical analysis of 4f25d2 configuration of singly ionized praseodymium. Journal of Physics Communications, 3(9), 095012, 2019.

7. Coulomb energies for the configuration 4f2 5d2 and fine level details of the configurations 4f3 6p & 4f3 6s of singly ionized Praseodymium (Pr II). International Journal of Advance Research Vol.7, 294-302, 2019.
8. Investigation of Pr-I lines by a simulation of their hyperfine patterns: Discovery of new levels J.Phys. B: At. Mol. Opt. Phys. 45205001, 2012, IOP Science.
9. Composition related time dependent dielectric response of lithium ion conducting glasses. Publish in Karachi University, journal of science, Volume 33 (I and II) july-december, 2005. PP.13-19.

- **RESEARCH SUPERVISOR**

1. Determination of term energy of Ca I using Semi-classical formula.
2. The study of radiation protection aspect (occupational medical and public) in a radiology facility (coordination with PNRA).
3. Quantum Neural Network
4. Theoretical Investigation of fine structure of Tantalum (Ta I)
5. Asymptotic behavior of Rydberg atoms.
6. Dose rate mapping during Angiography procedure and estimation of occupational. (Coordination with PNRA).
7. Hybrid quantum system involving Nano mechanics
8. Theoretical Investigation of Rydberg Energy levels of Sodium Atom
9. Implementation of machine learning in medical linac Quality Assurance & treatment plans
10. AB Initio Calculations Of Ionization Energy Of Boron Ions
11. AB Initio Calculations Of Ionization Energy Of Beryllium Ions.