

NOOR ABBAS DIN KHATTAK

Date of Birth: JUNE. 10, 1958.
Place of Birth: KARAK, N.W.F.P
Marital Status: Married.

Father's Name: Asal Din
NIC No. 145-58-096358
Nationality: Pakistani.

Office:
Assistant Professor
Department of Physics,
Gomal University,
Dera Ismail Khan, Pakistan.
Ph. +92-961-750363
e-mail: ktk_nad@yahoo.com

Residence: House No.B-35
University Staff Colony, D.I. Khan
Ph. +92-961-750380
Home:
Village & P.O. Tarki Khel,
Tehsil & District **KARAK**, NWFP
PAKISTAN

Current/Future Research Interests:

- (a): *Computational Modeling of Plasma in the Dynamical Systems, in Relevance to Controlled thermonuclear Fusion and other Technological Applications.*
- (b): *Experimental/Computational Study of Cold and Thermal Plasma for Material Studies and other Technological Applications.*
- (c): *Diagnostics and Analysis in Medical Physics and Nano-science.*

Qualification:

Ph.D. October 1998 Department of Physics, Quaid-i-Azam University, Islamabad, Pakistan

Subject: Plasma Physics & Controlled Fusion/ Computational Physics

Thesis Title: “Study of Plasma Parameters in Staged Pinch Device”

Supervisor: Prof. Dr. G. Murtaza.

Plasma dynamic in Staged Pinch device, including driver gas-puff and target solid D-T plasmas, has been studied numerically to estimate the plasma gain parameters in terms of density, temperature confinement time and mega-gauss level of magnetic field generation. A model for a coupled dynamical system of plasmas, by including different heating and radiation energy loss mechanisms, for various condition of plasma stability, has been developed to work out possibility of this compact plasma source, for variety of applications.

M. Sc. 1982-84 Department of Physics, Gomal University, D.I.Khan, Pakistan.

Thesis (Project): “Uranium Ore Analysis using NaI (Tl) Detector System”.

Supervisor: Prof. Dr. M. Yar Khan (late).

Uranium ore analysis was made using NaI(Tl) detector with multi-channel analyzer and allied diagnostics and the presence of Uranium chain daughter nuclei were identified.

B. Sc. 1979-81 Government College Karak. (University of Peshawar)

Special subjects: “Mathematics, Physics and Statistics”.

Research & Teaching Experience:

9th March 1985-18th Jan. 2002

Lecturer

Department of Physics, Gomal University, D.I.Khan. Pak.
Job Responsibilities: Full time Research & Teaching.

18th January 2002 -14th Jan, 2004

Assistant Professor

Department of Physics, Gomal University, D.I.Khan. Pak.
Job Responsibilities: Full time Research & Teaching.

15th January 2004 –3rd Dec. 2008

Associate Professor

Department of Physics, Gomal University, D.I.Khan. Pak.
Job Responsibilities: Full time Research & Teaching.

4th Dec. 2008- To Date

Professor

Department of Physics, Gomal University, D.I.Khan. Pak.
Job Responsibilities: Full time Research & Teaching.

Administrative Experience

April 1987-March 1989

Warden

Abdali Hostel (No.1), Gomal University, D.I.Khan. Pak
Job Responsibilities: Student Hostel Management

1988-89 & 1998-99

Teacher Procter/Tutor

University Campus, Gomal University, D.I.Khan Pak
Job Responsibilities: Student's Guidance & Discipline

Fellowships & Awards:

September 1991-August 1994

Research Scholarship

University Grants Commission (UGC), Pakistan
Job Responsibilities: Research

August 1994-June1997

Research Fellowship

PAEC (Project), QAU, Islamabad, Pakistan
Job Responsibilities: Research

2001-to date

Research Associate

National Centre for Physics (NCP), Islamabad. Pak.
Job Responsibilities: Visiting Research Scientist

January 1st (2003-2004)

World Laboratory Post-Doctoral Fellow

Salam Chair in Physics, G.C.U. Lahore, Pakistan
Job Responsibilities: Research

(June- Sept.) 2004

Short-tem Post-Doctoral Fellow (S&T)

Plasma Physics Lab. NIE. Nanyang Technological University
Singapor

Research Students Supervised:

Thirty-four M.Sc. Research Students Thesis (Completed)

Six M.Phil Research Students Thesis (Completed)

Five M.Phil Research Students Thesis (Registered)

Four Ph.D. Research Students Thesis (Registered)

Research Project:

- I: Research Project entitled “Plasma Parameters in a Multi-cascade Gas-puff Staged Pinch Device” awarded under Gomal University Research Fund (Completed in 1999)
- II: Research Project entitled “Generation and Characterization of Cold Plasma for Deposition on Solid Surfaces” awarded Higher Education Commission, Islamabad (2007)

Membership of the Scientific (Academic) Societies/Bodies:

- I: Member (Elected) of the Academic Council, Gomal University, D.I. Khan, Pakistan.
- II: Member (Elected), Senate Gomal University, D.I. Khan, Pakistan.
- III: Member, National Curriculum Review Committee-Physics, UGC, Islamabad, Pakistan.
- IV: Member(Life), Pakistan Physical Society (PPS), Islamabad, Pakistan.
- V: Member, Pakistan Society for Semi-conductor Science and Technology (PS³T), Islamabad, Pakistan.
- VI: Member (Life), Plasma Physics Society of Pakistan, Islamabad, Pak.
- VII: Secretary Pakistan Physical Society (PPS), N W F P Chapter.
- VIII: President, Gomal University Academic Staff Association (GUASA)

Computer Skills:

Proficiency in:

Word Processing: CHIWRITE[®], WORDPERFECT, MS-WORD, LATEX, SCIENTIFIC WORK PLACE[®]

Graphic & Images: MS-EXCEL, ORIGIN[®] SIGMA PLOT[®], COREL DRAW[®], ADOBE-ACROBAT[®] etc.

Programming: FORTRAN, MATHLAB[®], MATHCADE[®], MAPLE[®] & MATHEMATICA[®]

Ph.D. and M.Phil level examiner at Quaid-i-Azam University Islamabad, G.C. University Lahore, University of Karachi and Peshawar University

CONFERENCES/WORKSHOPS ATTENDED

- 1: *Recent Advances in Physics and its Applications* (8-10) May, Gomal University, D. I. Khan (1990).
 - 2: *Summer School on High Energy Physics and Cosmology* (16, June- 28, July), ICTP, Trieste, Italy (1990).
 - 3: *Basic Course on Plasma Physics* (22nd September- 22nd December), Organized by AAAPT, Quaid-I-Azam University, Islamabad (1990).
 - 4: *3rd National Symposium on Frontiers in Physics*, (26-29) November, Quaid-I-Azam University, Islamabad (1990).
 - 5: *International Conference and Symposium on Quark Matter and Heavy Ions Collisions*, QUMATIC (13-20) January, Gomal University, D. I. Khan (1992).
 - 6: *4th National Symposium on Frontiers in Physics*, (15-18) April, Quaid-I-Azam University, Islamabad (1992).
 - 7: *17th International Nathiagali Summer College* (25 June-09 July), Nathiagali, Pakistan (1993).
 - 8: *Regional Course on Plasma Physics* (12-30) November, Organized by Commonwealth Directorate, London at Quaid-I-Azam University, Islamabad.
 - 9: *5th National Symposium on Frontiers in Physics* (26-28) December, Quaid-I-Azam University, Islamabad (1995).
 - 10: *2nd International Conference and Symposium on Quarks Matter and Heavy Ions Collisions*, QUMATIC (6-13) January, Gomal University, D. I. Khan. (1996).
 - 11: *6th National Symposium on Frontiers in Physics* (15-18) December, Quaid-I-Azam University, Islamabad (1997).
 - 12: *7th National Symposium on Frontiers in Physics* (18-21) November, Quaid-I-Azam University, Islamabad (1998).
 - 13: *National Workshop on Computational Physics* (20-26) September, Quaid-I-Azam University, Islamabad (1999).
 - 14: *Preparatory School on Plasma Physics*, 28th August-8th September, QAU, Islamabad (2000).
 - 15: *Regional College on Plasma Physics*, 28th Jan-3 Feb., QAU, Islamabad (2001).
27th International Nathiagali Summer College (25th June-6th July), Nathiagali, Palistan (2002).
 - 16: *9th National Symposium on Frontier in Physics* (28-30) January, G. C. University, Lahore (2003).
 - 17: *AAPT-Experts Meeting held on (21-22) August 2004, NIE Nanyang Technological University Singapore.*
 - 18: *10th National Symposium on Frontiers in Physics (11-14) Feb. 2005, G.C. University, Lahore.*
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- 19: *International Symposium on Contemporary Physics*, 26-30 March 2007, National Centre for Physics, Quaid-i-Azam University, Islamabad.
- 20: *33rd International Nathiagali Summer College*, (23rd June-5th July) Nathiagali, Pakistan
- 21: *National conference on Plasma Physics (25-27) March 2008*, PAS, Islamabad, Pakistan
- 22: *11th National Symposium on Frontiers in Physics*, (29th –31st) January. 2009, G.C. University, Lahore.
- 23: *First NCP Scientific Spring, National Center for Physics*, 6th-9th April, 2009, Islamabad.
- 24: *2nd National workshop on Vacuum Science and Technology (14-18) Dec., 2009*, NINVAST, NCP, Islamabad

RESEARCH PUBLICATIONS

- 1: “Theoretical Model for a Finite-thickness Gas-puff Z- θ Pinch”
Arshad M. Mirza, M. Iqbal, **N. A. D. Khattak** and G. Murtaza
Mod. Phys. Lett. **B7**, 1655 (1993), (*Impact Factor: 0.621*).
- 2: “Fusion Condition in a Finite-thickness Gas-puff Staged Pinch”
Arshad M. Mirza, **N. A. D. Khattak**, M. Iqbal, and G. Murtaza
J. Plasma. Phys. **52**, 365 (1994), (*Impact Factor: 0.57*).
- 3: “Thermonuclear Fusion with a Spinning Gas-puff Staged Pinch ”
Arshad M. Mirza, **N. A. D. Khattak**, M. Salahuddin and G. Murtaza
Plasma Phys. Cont. Fusion **38**, 847(1996) (*Impact Factor: 2.29*).
- 4: “Radiative Collapse in Impurity Seeded Staged Pinch”
Arshad M. Mirza, Z Ahmed, **N. A. D. Khattak** and G. Murtaza
J. Plasma Phys. **56**, 656 (1998), (*Impact Factor: 0.57*).
- 5: “Environmental Radioactivity in Dera Ismail Khan and its Adjacent Area-Pakistan”
E. U. Khan, M. Tufil, R. Tahseen, **N A Din**, Mathiullah, E. Ansari, H. X. Hao, Y. L. Wang, S. L. Guo and A. Waheed, *Rads. Measur.*
(*Nucl. Track Radiat. Meas.*) **19**, 761(1991), (*Impact Factor 1.26*)
- 6: “Study of Plasma Parameters with a Spinning Thick Gas-puff Staged Pinch”
N. A. D. Khattak, Arshad M. Mirza, Z. Ahmed and G. Murtaza
Physica Scripta, **62**, 399(2000), (*Impact Factor: 0.97*) .
- 7: “Thermonuclear Fusion in a Multicascade Liner Staged Pinch”
Zahoor Ahmed, Arshad M. Mirza, **N A D Khattak** and G. Murtaza
Lasers & Particles Beams, **19**, 655(2001), (*Impact Factor: 4.42*).
- 8: “Characterization of Argon Plasma by use of Optical Emission Spectroscopy and Langmuir Probe Measurements”
A.Qayyum, M. Ikram, M. Zakaullah, A. waheed, G. Murtaza, R. Ahmed, A. Majeed, **N.A.D. Khattak**, K. Mansoor and Khaliq A. Chaudhry
Int. J. Mod. Phys. B **17**, 1(2003), (*Impact Factor: 0.381*).
- 9: “Longitudinal Oscillations and linear Landau Damping in Quark-Gluon Plasma”
G. Murtaza, **N A D Khattak** and H. A. Shah, *Physical Review E*, **68**, 066404
(2003), (*Impact Factor: 2.50*).
- 10: “Collective Oscillations and Linear Landau Damping in a Strongly Relativistic Quark Gluon Plasma”, G. Murtaza, **N A D Khattak** and H. A. Shah, *Physica Scripta T* **116**, 93 (2005), (*Impact Factor: 0.97*).

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- 11 “Effect of Neon Mixing on Vibrational Temperature of Molecular Nitrogen Plasma Generated at 13.56 MHz.” N. U. Rehman, F. U. Khan, **N. A. D. Khattak** and M. Zakaullah *Phys. Lett. A*, **372**, 1472(2008), (Impact factor 2.174).
 12. “Compression Enhancement by Current Stepping in a Multi-cascade Liner Gas-puff Z-pinch Plasma”, **N. A. D. Khattak**, Zahoor Ahmed, M. Zakaullah and G. Murtaza *Physica Scripta.*, **77**, 045501(2008), (Impact factor 0.97).
 13. “Characterization of Ar+N₂ RF Mixture Plasma by Optical Emission Spectroscopy” F.U. Khan, N.U. Rahman, **N.A.D. Khattak**, S. Nasir, Abdul Qayyum and M. Zakaullah *Euro. Phys.J. : Appl. Phys.* **45**, 11002(2008), (Impact factor 1.7).
 14. Reply to Comments on “Determination of Excitation Temperature and Vibrational Temperature of the N₂(C³Π_u, v) state in Ne-N₂ RF Discharges” N.U. Rehman, F.U. Khan, **N A D Khattak**, M.A. Naveed and M. Zakaullah, *Plasma Sources Sci. Tech.* **18**, 018002 (2009), (Impact factor 2.68).
 15. “Effect of Excitation and Vibrational temperature on the dissociation of nitrogen molecules in Ar-N₂ mixture RF discharge”F.U. Khan, N.U. Rehman, S. Naseer, M.Y. Naz, **N.A.D. Khattak** and M. Zakaullah), *Spectroscopy lett.* **44**, 194(2011). (Impact factor 1.03)
 16. Reply to comment on “ Diagnostics of 13.56 MHz RF sustained Ar-H₂ plasma optical emission spectroscopy”, F.U. Khan, N.U. Rehman, S. Naseer, M.A. Naveed, A. Qayyum, **N.A.D. Khattak** and M. Zakaullah., *Eur. Phys. J. Appl. Phys.* **47**, 11002 (2009),(Impact factor 1.5)
 17. “Impact of Temperature on Diffusion during the Growth of Thin Metal Film: Monte Carlo Simulation”, H.A. Zaidi, M. Khalid, **N.A. D Khattak**, *Surface and Colloid Science*, 2008 (Submitted), (Impact Factor 0.5)
 18. “Effects of the Initial Temperature and Pressure on Plasma dynamics in Plasma Focus Device”, **N A D Khattak** and Zahid Usman, *Physics Scripta*, 2009 (submitted). (Impact Factor 0.97)
 19. “Study of Fusion Conditions with MHD Model for the Staged Pinch Plasma”, Zhaoor Ahmed , **N A D Khattak**, Arshad M Mirza and G. Murtaza, *Laser and Particle Beams*, 2009 (Submitted), (Impact Factor 4.42)

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- 20: “Thermonuclear Fusion with Pinch Devices”, Arshad M Mirza, G. Murtaza and **N A D Khattak**. *Proc. of Regional Course on Plasma Physics*, (12-30) November, 1994, Islamabad, p.272.
- 21: Study of Fusion Conditions with a Spinning Gas-puff Z- Θ Pinch”, Arshad M Mirza, **N A D Khattak** and G. Murtaza. *Proc. of 5th National Symposium on Frontiers in Physics*, (18-21) November 1998, Islamabad, p.160.
- 22: “Plasma Dynamic in a Staged Pinch Device”, **N A D Khattak**, Arshad M Mirza, and G. Murtaza *Proc. of 5th National Symposium on Frontiers in Physics*, (18-21) November 1998, Islamabad, p.144.
- 23: “Staged Pinch: An Alternative Approach to Fusion”, Arshad M Mirza, Zahoor Ahmed, **N A D Khattak** and G. Murtaza *Proc. of Regional College on Plasma Physics*, (28th Jan-3 feb.) 2001, Islamabad.
- 24: “Magneto-hydrodynamic (MHD) Model for Staged Pinch Plasma to Study Fusion Parameter”, Zahoor Ahmed, N. A. D. Khattak, Arshad M. Mirza and W, J, Geodheer and G. Murtaza. 15th Symposium on Plasma Physics & Straling Technologie (12-13) March, 2002, DelWeret, Luntern, Netherland (Holland).
- 25: “Plasma Parameters with a Multi-cascade Stagd Pinch”, Arshad M. mirza, N. A. D. Khattak, Zahoor Ahmed and G. Murtaza. In *Proc. 27th International Nathiagali Summer College (25th June-6th July)2002*, Nathiagali, Palistan.
- 26: “Linear Landau Damping in Strongly Relativistic Quark Gluon Plasma”, G. Murtaza, N. A. D. Khattak and H. A. Shah, In *Proc. First Cairo International Conference on Plasma Physics (10-15) October, Egypt 2003*.
- 27: “Staged Pinch: A source of Hot-dense Plasma”, In *Proceedings of AAPT-Experts Meeting held on (21-22) August 2004, NIE Nanyang Technological University Singapore*.
- 28: “Modeling of Plasma Dynamics in Plasma Focus Device”, **N A D Khattak**, *Proc. of 10th National Symposium on Frontiers in Physics*, (11-14) January 2005, GC Lahore.

@ A. Sadiq and **N.A.D. Khattak**: Article of public interest entitled “Research Evaluation: Quality Vs. Quantity” **Frontier Post**. Peshawar, 5th Dec.1990.