**CURRICULUM VITEA**

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Designation: **ASSOCIATE PROFESSOR**

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**EDUCATION**

* **Ph.D.** Nuclear Physics, 1991

UNIVERSITY OF MANCHESTER, Manchester, UK

* **M.Sc**. Nuclear Physics, 1989

UNIVERSITY OF MANCHESTER, Manchester, UK

* **M.Phil**. Particle Physics (Theory), 1983

QUAID-I-AZAM UNIVERSITY, Islamabad, PAKISTAN

**TEACHING & RESEARCH EXPERIENCE**

* **Associate Professor 2002-todate,** Department of Physics, Quaid-i-Azam University, Islamabad, PAKISTAN
* **Assistant Professor 1994-2002,** Department of Physics, QUAID-I-AZAM UNIVERSITY, Islamabad, PAKISTAN
* **Assistant Professor 1993-1994,** Department of Physics, FEDERAL GOVERNMENT DEGREE COLLEGE Islamabad PAKISTAN
* **Visiting Fellow, 1992-1993,** Department of Physics, Schuster Laboratory, UNIVERSITY OF MANCHESTER,Manchester, UK
* **Teaching & Research Associate, 1984-1987,** Department of Physics, QUAID-I-AZAM UNIVERSITY, Islamabad, PAKISTAN
* **Research Officer 1980-1981**, Pakistan Science Foundation Project, QUAID-I-AZAM UNIVERSITY, Islamabad, PAKISTAN\newline

**POSTDOCTORAL FELLOW 2005-2006**

* Completed one year of postdoctoral fellowship at University of Manchester U.K. from March 2005 to March 2006. This postdoctoral fellowship was funded by H.E.C., Government of Pakistan.

**EDITORSHIP**

* Associate Editor, Islamabad Journal of Sciences, Quaid-i-Azam University, Islamabad (2002-to-2005)

**MEMBERSHIP**

1. Pakistan Physical Society (1991-Present)
2. Pakistan Society for Semiconductor Sciences and Technology (1996-Present)
3. The Institute of Physics (IOP), UK (1987-91)
4. European Physical Society, Geneva (1988-92)
5. CMS CERN Geneva (2000- 2002)

**COURSES TAUGHT AT M.Sc. LEVEL**

1. Methods of Mathematical Physics, I & II
2. Classical Mechanics
3. Quantum Mechanics, I & II
4. Electromagnetism. I & II
5. Statistical Mechanics
6. Nuclear Physics(Two courses)
7. Particle Physics
8. Quantum Electronics
9. Solid state Physics
10. Laboratory Courses(I, II, III & IV)
11. Thermal Physics
12. Laser and Quantum Optics

**COURSES TAUGHT AT M.Phil. LEVEL**

1. Methods of Mathematical Physics
2. Group Theory
3. Classical Electrodynamics
4. Advanced Quantum Mechanics
5. Particle Physics
6. Laser Physics I & II
7. Semiconductor Physics
8. Statistical Physics
9. Quantum Optics I
10. Quantum Information Theory I

**M.Phil. THESES SUPERVISED**

1. *Resonant Interaction of A Two-level Atom with the Electromagnetic Field*,

Mr. Ghulam Murtaza, 2000.

1. *Atomic Mirrors*, Mr. Saqib Yousaf, 2001
2. *Faraday Effect and Solar Neutrino Problem*, Mr. Shahid Nawaz, 2001
3. *Field Theoretical Approach in Neutrino Oscillations*, Mr. Amir Javaid, 2001
4. *Nonlinear Dynamics of Electron-Positron Dusty Magnetoplasma*, Mr. Shahid Majid Mirza, 2003
5. *Neutrino Oscillations in Moving Matter*, Ms. Faiza Yasmin, 2003
6. *Ising Model Simulations using Single Flip and Cluster Algorithm*, Mr. Fahad Saeed, 2004
7. *Study of Bose-Einstein Condensation in Real and Momentum Space*, Mr. Mohammad Altaf, 2005
8. *Quantum Theory of Strongly Driven V-Type Micromaser*, Mr. Marjan Ali, 2005
9. *Casimir Effect*, Ms. Samina Gulistan , 2007
10. *Directed Spontaneous Emission,* Mr. Tufail Ahmad, 2008
11. *Entanglement and teleportation through a two qubit Heisenberg XXZ model,* Ms.Saima Shaheen, 2011
12. *Non-Markovian dynamics of a qubit coupled to an Ising spin bath* Mr. Kaleem Ullah, 2011
13. *Classical and Quantum Electrodynamics of Negative Indexed Materials,* Mr. Sajjad Zafar Siddiqui, 2011

**M.Phil. STUDENTS SUPERVISING**

* Mr. Atif Ghafoor
* Mr. Asif Ilyas
* Mr. Muhammad Junaid
* Mr. Niaz Ali
* Mr. Quaid Zaman
* Mr. M. Ibrahim
* Mr. Murtaza

**Ph.D. THESES SUPERVISED**

1. Title of thesis: “*Application of Game-theoretic Techniques to Quantum Information Theor*y”. **Dr. M. Ramzan,** 2010
2. Title of thesis: “*Analysis of Quantum Games in a Noisy Environment*”

**Mr. Salman Khan,** 2011

**Ph.D. STUDENTS SUPERVISING**

1. Mr. Muhammad Usman
2. Mr. Syed Jamal Anwar
3. Mr. Wajid Joyia

**Publications**

1. *Decoherence and entanglement degradation of a qubit-qutrit system in non-inertial frames*

Authors: M. Ramzan M. K. Khan

Quantum Inf. Process, 11, 443(2012)

1. *Relativistic Quantum games in Noninertial frames*

Authors: Salman Khan and **M. K. Khan**

J. Phys. A: Math. Theor. 44 355302 (2011).

1. *Quantum Stackelberg duopoly in Noninertial frames*

Authors: Salman Khan and **M. K. Khan**

Chin. Phys. Lett. 28 070202 (2011).

1. *Decoherence effects on multiplayer cooperative quantum games*

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

Commun. Theor. Phys. 56 228 (2011).

1. *Nondistillability of a distillable qutrit-qutrit state under depolarizing noise*

Authors: Salman Khan and **M. K. Khan**

J. Mod. Opt. 58 918 (2011).

1. *Open quantum system in noninertial frames*

Authors: Salman Khan and **M. K. Khan**

J. Phys. A: Math. Theor. 44 045305 (2011).

1. *Quantum Model of Bertrand duopoly*

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

Chin. Phys. Lett. 27, 8 080302 (2010)

1. Noisy Non-Transitive Quantum Games

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

J. Phys. A: Math. Theor. 43,14(2010)

1. Quantum Stackelberg duopoly in the presence of correlated noise

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

J. Phys. A: Math. Theor. 43 375301 (2010)

1. *Quantum Monty Hall problem under decoherence*

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

Communications in Theoretical Physics *,* **54,** 47 (2010)

1. *Distinguising quantum channels via magic squares game*

Authors: M. Ramzan and **M. K. Khan**

Quantum Information Processing , **9**, 667(2010)

1. *Quantum Parrondo’s Games Under Decoherence*

Authors: Salman Khan, M. Ramzan and **M. K. Khan**

International Journal of Theoretical physics, Vol. **49**, No. 1, 31(2010)

1. *Communication aspects of a three-player Prisoner's Dilemma quantum game*

Authors: M. Ramzan and **M. K. Khan**

Journal of Physics A: Mathematical & Theoretical Vol. **42** 025301 (2009)

1. *Multiparty Quantum Cryptographic Protocol*

Authors: M. Ramzan and **M. K. Khan**

Chin. Phys. Lett. Vol. **25,** No. 10 3543 (2008)

1. *Noise effects in a three-player Prisoner's Dilemma quantum game*

Authors: M. Ramzan and **M. K. Khan**

Journal of Physics A: Mathematical & Theoretical Vol. **41** 435302 (2008)

1. *The effect of quantum memory on quantum games*

Authors:M. Ramzan, Ahamd Nawaz, A. H. Toor, and **M. K. Khan**

Journal of Physics A: Mathematical & Theoretical Vol. **41** 055307 (2008)

1. *Defects induced by irradiation with fast neutrons in n-type Germanium*

Authors: I. Kovacevic, B. Pivac, R. Jaeimovic, **M.K. Khan**, V.P. Markevich and A.R. Peaker, Material Science in Semiconductor Processing, Vol. 9, 606(2006)

1. *Generalized Ideal Gas Equations for Structureful Universe*

Authors: Shahid N. Afridi and **Khalid Khan**

Entropy, Vol. 8, 175(2006)

1. *Why Time is Future Oriented*

Authors: Shahid N. Afridi and **M. Khalid Khan**

The Old and New Concepts of Physics, Vol. III, No. 2, 71(2006)

1. *Effect of Experimentally Observed Hot Atom Adsorption Mechanism on the Phase Diagram of Monomer-Dimer Catalytic Reaction on Pt (111): A Monte-Carlo Simulation Study*

Authors: M. Khalid, Q. N. Malik, A.U. Qaisrani and **M.K. Khan**

Brazilian Journal of Physics, Vol. **36**, No. 1B, 164(2006)

1. *CO-NO Catalytic Surface Reaction on Body-Centered Cubic Structure:*

*Monte Carlo Study*

Authors: M. Khalid, A.U. Qaisrani and **M.K. Khan**

International Journal of Modern Physics C, Vol. **16**, No. 8, 1279(2005)

1. *Effect of Precursor Mechanism on CO-NO Catalytic Reaction on Body-centered Cubic Structure: Monte Carlo Simulation.*

Authors: A.U. Qaisrani, M. Khalid, **M.K. Khan**

Chin. Phys. Lett. Vol. 22, No. 9, 2422(2005)

1. *Self-organized and chaotic states in dust-contaminated electron-positron magnetoplasma with equlibrium flows*,

Authors: Arshad M. Mirza and **Khalid Khan**

Physica Scripta, Vol. **66**, 376(2002)

1. *Band structures and octupole correlation effects in* 151Sm.

Authors: **M.K. Khan**, W. J. Vermeer, W. Urban, J.B. Fitzgerald, A.S. Mowbray,

B.J. Varley, J.L. Durell, W.R. Phillips

Nucl. Phys. **A567**, 495(1994)

1. *Opposite-parity bands in* 153Eu

Authors: C.J. Pearson, W.R. Phillips, J.L. Durell, B.J. Varley, W.J.

Vermeer, W.Urban, **M.K. Khan**

Phys. Rev. C, **49**, R1239(1994)

1. *Gamma-decays of* 151Eu *levels populated in the 150Nd(6Li,5n) reaction*,

Authors: W.J. Vermeer, W. Urban, **M.K. Khan**, C.J. Pearson, A.B. Wiseman, B.J. Varley, J.L. Durell, W.R. Phillips

Nucl. Phys. **A559**, 422(1993)

1. *Octupole Correlation effects in* 151Pm,

Authors: W.J. Vermeer, **M.K. Khan**, A.S. Mowbray, J.B. Fitzgerald, J.A.

Cizewski, B.J. Varley, J.L. Durell, W.R. Phillips

Phys. Rev. C, **42**, R1183(1990)

1. *Limits on Equal Energy Back-to-Back gamma-Rays in* 252Cf *Decay*,

Authors: B.J. Varley, **M.K. Khan** and W.R. Phillips

Z. Phys. A, Atomic Nuclei, **333**, 313(1989),

1. *Current Algebra and Non-Leptonic Weak Decays of Charmed Baryons*,

Authors: F. Hussain, **M.K. Khan**

Il Nuovo Cimento, **88A**, 2, 213(1985).

1. *Inclusive* F(cs) *Hadroproduction*,

Authors: F. Hussain, **K. Khan**, Sajjad Mahmood and K. Rashid

Phys. Rev. D, **30**, 570(1984)

**Conference Proceedings**

1. *Chaotic Behavior of Electron-positron Dusty magnetoplasma with*

*Equilibrium flows*

Authors: Arshad M. Mirza, M. Shafiq, Michael A. Raadu and **Khalid Khan**

AIP Conference Proceedings, 2002, Volume 649, pp. 426-429, ISSN 0094-243X CODEN APCPCS Third International Conference on the Physics of Dusty Plasmas, 20-24 May 2002, Durban South Africa, Publisher AIP, USA

1. *Octupole-Correlation Effects in* 151Sm*,*

Authors: **M.K. Khan**, W.J. Vermeer, A.S. Mowbray, J.B. Fitzgerald, B.J.

Varley, J.L. Durell, W.R. Phillips

Page 29, Abstracts, Proceedings, Conference on Nuclear and Particle Physics,

University of Liverpool,U.K. 9-11 April 1991

1. *Yrast Structures in* 151Pm,

Authors: W.J. Vermeer, **M.K. Khan**, A.S. Mowbray, J.B. Fitzgerald, B.J.

Varley, J.L. Durell, W.R. Phillips

Proceedings, European Physical Society Meeting of Nuclear Physics Section,

Spring 1990, Strasbourg, France, (Verhandlungen der Deutschen Physiklischen

Gesellschaft, 5/1990, G7.5, page 1588

1. *A Search for Equal-Energy Back-to-Back gamma-rays in* 252Cf *Decay*,

Authors: B.J. Varley, **M.K. Khan** and W.R. Phillips

Page 110, Manchester Nuclear Physics Report, 1987-1988, Manchester, UK.

1. *Octupole Deformations in* 151Sm,

Authors: **M.K. Khan**, B.J. Varley, J.Cizewski, J.B. Fitzgerald, J.L. Durell,

W.J. Vermeer, W.R. Phillips

Annual Report 1989-1990, Nuclear Structure Facility, Daresbury, UK.

1. *Parity Doublet Structure of* 151Pm,

Authors: W.J. Vermeer, **M.K. Khan**, A.S. Mowbray, J.B. Fitzgerald, B.J.

Varley, J.L. Durell, W.R. Phillips

Annual Report 1989-1990, Nuclear Structure Facility, Daresbury,UK

1. *Reflection Asymmetric Properties in* 151Pm,

Authors: W.J. Vermeer, **M.K. Khan**, A.S. Mowbray, J.B Fitzgerald, B.J.

Varley, J.L. Durell, W.R. Phillips

Bi-annual Report 1989-1991, Manchester University Nuclear Physics,