Personal Information:

Name: Professor Dr. Rahmat Ali Khan
Designation: Dean of Sciences / Director Quality Enhancement Cell
Father's Name: Mr. Mohammad Qasim
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Academic Qualification:

1. **Major Field of Research:** Nonlinear Analysis, Nonlinear Differential Equations, Dynamical systems on time scales, Computational Mathematics, Fluid Mechanices, Bio-Mathematics.

2. **Post Doctorate** (Oct 2008 to May 2009) University of Dayton, Ohio, USA
   Post Doctorate: Boundary value problems, Engineering Mathematics.

3. **Ph.D.** (Oct 2002- June 2005) University of Glasgow UK.
   Ph.D. Thesis: Existence and approximation of solutions of nonlinear boundary value problems.

4. **M.Phil.** (2001): Quaid-I-Azam University Islamabad Pakistan, (4.7/5.0 CGPA=91%).
   M.Phil. Thesis: Generalized Quasilinearization Technique for Nonlinear Problems with Robin Boundary Conditions.

5. **M.Sc.** (1991) Peshawar University, N.-W. F. P. Pakistan, (Marks Obtained 996/1100=91%).

6. **B.Sc.** (1989) Peshawar University, N.-W. F. P. Pakistan, (Marks Obtained 403/550=73%).

Distinctions

1. Best University Teacher Award (2010).
2. **HEC** scholarship award for Post-Doctorate at USA
3. **TROSS** scholarship award for Ph. D at UK
4. Merit Scholarship throughout M.SC and M.Phil
5. **1st Position** (first class first) in M.Sc. At the University of Peshawar, Pakistan.
6. **Gold medal** from the University of Peshawar for M.Sc.
7. Gold medal for M.SC
8. **1st Position** (first class first) in B.Sc. At Govt. P.G.Jahanzeb College Swat, Pakistan.
9. Many financial awards for publications from NUST

Experience: I-Teaching/Research Experience [From 1993-to date]

1. Professor, University of Malakand, Chakdara Dir (L), from 27th October 2010 till date.
2. Associate Professor, National University of Sciences and Technology (NUST-CAMP), August 2007 to October 2010.
3. Assistant Professor, National University of Sciences and Technology (NUST), August 2005 to August 2007.
4. Lecturer in Mathematics, Govt. P.G Jahan Zeb College Swat, Pakistan (June 2005 to August 2005).
5. Research Scholar (Ph.D) at the University of Glasgow UK, October 2002 to June 2005.
6. Lecturer, Govt. P.G Jahan Zeb College Swat, October 2002 to June 2005.
7. Lecturer in Mathematics, Govt. P.G Jahan Zeb College Swat, April 1995 to October 2002.
8. Lecturer in Mathematics, Govt. College Chakesar, Swat, December 1993 to March.1995.

II-Administrative experience/work:

1. Dean Faculty of Sciences, University of Malakand.
2. Director Quality Enhancement Cell, University of Malakand.
3. Member of the Syndicate University of Malakand
4. Member of Advance Studies and research Board, Islamia College University Peshawar.
5. Member of Advance Studies and Research Board, University of Malakand.
6. Member of Selection Board, University of Malakand
7. Seminar Coordinator NUST-CAMP from 2005 to 2008.
8. Incharge Computer lab NUST-CAMP from December 2005 to Oct 2008
9. Controller of Examination NUST-CAMP from August 2005 to Oct 2010;
10. In-charge of rules for implementation at CAMP from 2009 to 2010.
11. Representative for CAMP building at H-12 from Jan 2009 till the shifting 2010;
12. Twice Acted as A/DG in the absence of DG at NUST-CAMP in 2009 and 2010

Research activities:

Research Guidance: Research students supervised:

Ph. D

1. Naseer Ahmad Asif: Thesis Title: Existence and multiplicity results for singular boundary value problems (2010)
2. Mujeeb-Ur-Rehman: 2010, Thesis Title: Boundary Value Problems for Fractional Differential Equations: Existence Theory and Numerical Solutions
3. Hina Muneer Datt (in progress)

M. Phil

1. Muhammad Yasin (Four point problems at resonance)(2007)
2. Tanzeel-ur-Rehman Tahir (nonlinear three point BVPs) (2007)
3. Faizullah (Dynamical system on time scales)(2007)

4. Amjad Khan (Traveling wave solutions of biological reaction diffusion equations) (2008)
5. Sajid Hussian (Heat flow problems) (2010)

Recent Seminars list:

1. Approximations and rapid convergence of solutions of some three-point BVPs (NUST-CAMP) 15th March 2006.
2. Existence of Multiple solutions of some BVPs (Department of Mathematics, Quaid-I- Azam University, Islamabad) (2005).
3. On the existence of at least three solutions of some three point boundary value problems (NUST-CAMP) (2005).
4. Generalized approximations and rapid convergence of solutions of nonlinear nonlocal three point BVP (COMSATS Aboutabad) 9th May 2006.
5. Generalized approximations and rapid convergence of solutions of nonlinear three point BVP (QAU 14th September 14, 2006).
6. Existence and Approximations of solutions of nonlinear three point BVP on time scale (NUST-CAMP) 2007
7. Approximations of solutions of nonlinear m- point BVP on time scale (COMSATS Aboutabad) 9th May 2007.
8. Generalized approximations of solutions of nonlinear problems arising in heat radiation (NUST-CAMP) 22nd March 2008
9. Generalized approximations of solutions of nonlinear heat flow problems (COMSATS Aboutabad) 13th May 2008.
10. Uniqueness Conditions for a Class of Nonlocal Boundary value Problems, NUST-CAMP 2009

International

1. Analytical techniques to nonlinear problems arising in heat transfer, on 23rd Oct 2008 , at University of Dayton. Dayton Ohio USA
2. Existence of Positivity Solutions some four-point Boundary Value Problems, on, 30th Oct 2008, at University of Dayton. Dayton Ohio USA
3. 28th annual southeastern-Atlantic regional conference on differential equations, on Oct 10-12, 2008**,** University of Arkansas at little Rock , USA
4. Positive solutions of nonlocal four-point boundary value problems, on 8th January 2009, at University of Cincinnati Ohio USA
5. Positive solutions of nonlocal multi-point boundary value problems, on 3rd of April 2009 at Wright State university, USA

International Journal publications

Research Papers

1. Thin film flow of a third grade fluid down an inclined plane, Journal of Informatics and Mathematical Sciences, (accepted 2011)
2. Existence and approximation of solutions to three-point boundary value problems for fractional differential equations, Elect. Journal of qualitative theory of Differential equations, 58(2011), 1-8.

3. Eventual Periodicity of Forced Oscillations of the Korteweg-de Vries type Equation (coauthor M. Usman), Applied Mathematical Modeling (accepted 2011, available on line, doi:10.1016/j.apm.2011.07.010),
4. A numerical Method for solving boundary value problems for fractional differential equations (coauthor: Mujeeb Ur Rehman) , Applied Mathematical Modeling (accepted 2011, available on line, doi:10.1016/j.apm.2011.07.045).
5. Singular System with Four point coupled boundary conditions (coauthor: Naseer Asif), Journal of Mathematical Analysis and Applications (accepted 2011, available on line, doi:10.1016/j.jmaa.2011.08.039),
6. Existence and uniqueness of solutions for fractional order differential equations with nonlocal boundary conditions(with Mujeeb Ur Rehman) International Journal of Mathematical Analysis (accepted 2010).
7. Positive solutions of nonlocal boundary value problem for higher order fractional differential system (with Mujeeb and Paul), Dynamic systems and applications 20(2011),169-182.
8. Existence and Uniqueness Conditions for a Class of (k + 4j) Point nth Order Boundary Value Problems (Paul Eleo and J. Henderson), Nonlinear Dynamics and Systems Theory, (accepted 2011)
9. The Legendre wavelet method for solving fractional differential equations(with Mujeeb ur Rehman), Communications in nonlinear Sciences and numerical Simulations, 16(2011)11,4163-4173.
10. Generalized approximation method for a Johnson-Segalman fluid in a pipe, Applied Mathematical Sciences, (accepted 2011)
11. Multi-point boundary value problems for fractional differential equations, Communications on Applied Nonlinear Analysis, 18(2011)3, 31-40.
12. Existence of positive solutions to a singular system of boundary value problems, (with N.Asif and Paul Eleo), Dynamic of Cont. Discr. Impulsive System 18 (2011) 353-361
13. Heat transfer analysis for the Falkner–Skan wedge flow problem (with M. Usman), Antarctica Journal of Mathematics (accepted 2010)
14. Archimedean Journal of Mathematics (accepted 2010)
15. Uniqueness Implies Existence and Uniqueness Conditions for a Class of (k+j)-Point Boundary Value Problems for nth Order Differential Equations (with Paul W. Eleo and Johnny Henderson), Canadian Mathematical Bulletin (2011) doi:10.4153/CMB-2011-117-0.
16. Three point boundary value problems for nonlinear fractional differential equations (with Mujeeb Ur Rehman), Acta Mathematica Scientia, 2011, 31B4.
17. A note on boundary value problems for a coupled system of fractional differential equations (with Mujeeb ur Rehman), Computers and Mathematics with Applications, 61 (2011), 2630-2637.
18. Existence and uniqueness of solutions for nonlinear fractional differential equations with integral boundary conditions(with Mujeeb Ur Rehman and J. Henderson), Fractional Dynamical Systems, Volume 1, Number 1 (2011), 29–43.
19. Existence of multiple positive solutions for a general system of fractional differential equations (with Mujeeb Ur Rehman), Communication in Applied Nonlinear Analysis, Volume 18(2011), Number 1, 25–35.

20. Long time dynamics of forced oscillations of the Korteweg-de Vries Equation using homotopy perturbation method (with M. Usman), Studies in Nonlinear Sciences, 1 (3): 57-62, 2010.
21. Iterative Scheme for Solution to the Falkner-Skan Boundary Layer Wedge Flow Problem, General Mathematics Notes, Vol. 1, No. 2,(2010), 1-10.
22. Existence of positive solutions to a system of singular boundary value problems, (with N.Asif and J.Henderson), Dynamic Systems and Applications, 19(2010), 395-404.
23. Positive Solutions to Three-point Boundary Value Problems for Fractional Differential Equations (with Mujeeb), Abstract and Applied Analysis, Volume 2010, Article ID 501230, 15 pages doi:10.1155/2010/501230.
24. Approximation of solutions of m- point boundary value problems on time (M.Rafique), Advances in difference equations Vol 2010 (2010), P-12.
25. Multiplicity results for positive solutions of a system of singular two-point boundary value problems (With Asif Naseer), Communications in Applied Nonlinear Analysis, 17(2010),53-68.
26. Existence of multiple positive solutions for a general system of fractional differential equations (with Mujeeb Ur Rehman), Applied Math Letter 23(2010), 1038-1044.
27. Uniqueness conditions for a class of nonlocal boundary value problems (with Paul W Eleo), Pan American Mathematical Journal, 20(2010), 51-57.
28. Positive solutions for a system of singular second order nonlocal boundary value problems (with Naseer Asif and Paul Eleo), Journal of the Korean Mathematical Society, 47(2010), 1-16.
29. Generalized approximation method and a thin film flow of a third grade fluid on a moving belt, Computational Mathematics and Modeling 21(2010)
30. Positive solutions to coupled systems of fractional differential equations(with Mujeeb Ur Rehman), International journal of nonlinear Sciences, Vol 10 (2010) , No. 1, PP-96-104.
31. Generalized approximation method for heat radiation equations, Applied Mathematics and Computation, 212 (2009) 287—295.
32. Positive solutions for a class of coupled systems of singular three-point boundary value problemsm(with Asif Naseer), Boundary Value Problems, 2009 (2009), Article ID 273063, 18 pages doi:10.1155/2009/273063.
33. Positive solutions for a class of singular two point boundary value problems (with Asif Naseer), The J. Nonlinear Science and Applications, 2 (2009), 126-135.
34. Existence and approximation of solutions of nonlinear problems with nonlinear boundary conditions, Communications in Applied Nonlinear Analysis, 16(2009), 67-80.
35. The generalized approximation method and nonlinear heat transfer equations, E. J. Qualitative theory of differential Equations, 2(2009), 1—15.
36. Approximation of solutions of nonlinear heat transfer problems, E. J. Qualitative Theory of Differential Equations, 52 (2009), 1-13.
37. Quasilinearization method and nonlocal singular three point boundary value problems, E. J. Qualitative Theory of Differential Equations, Spec. Ed. 17(2009), 1-13.

38. Couette flows of an Oldroyd 8-constant fluid with magnetic field, Int. J. Neural, Parallel and Scientific Computation, 17(2009), 433-444
39. Existence and approximation of solutions of boundary value problems on time scales (with Faizullah and M. Rafique) Advances in Dynamical Systems and Applications, 4(2009)2, 197–209 .
40. Approximation and rapid convergence of solutions for periodic nonlinear problems (with Nieto, Juan J.; Torres, Angela), Dynamic Systems and Applications, 17 (2008), 121—137.
41. Existence and approximation of solution of three-point boundary value problems on time scales (with Nieto, Juan J.; Otero-Espinar, V.) J. Difference Equ. Appl., 14(2008) 723—736.
42. Positive solutions of four-point singular boundary value problems. Applied Mathematics and Computations, 201(2008), 762—773.
43. Generalized approximations for nonlinear three-point boundary value problems. Applied Mathematics and Computations, 197(2008), 111—120.
44. A note on generalized approximation of solutions of four point boundary value problems, J. Nonlinear Functional Analysis and Differential Equations (2008).
45. Generalized quasilinearization for periodic problems, Dyn. Contin. Discrete Impuls. Syst. Ser. A Math.Anal, 14(2007), 497—507.
46. Multiplicity results for second order nonlinear boundary value problems via Leggett-Williams fixed-point theorem (with Juan J. Nieto and M. Rafique). Applied Mathematical Sciences (Hikari),1(2007), 371—382.
47. Existence and approximations of solutions of m-point nonlinear boundary value problem, Proc. Aplimat Bratislva 2007.
48. Generalized approximations and rapid convergence of solutions of m-point boundary value problems, Applied Mathematics and Computations, 188(2007), 1878—1890.
49. Improved generalized quasilinearization method for Dirichlet boundary value problems (with Bashir Ahmad and Shazia Rana). Int. J. Math. Game Theory Algebra, 16(2007), 3--9 .
50. Approximations and rapid convergence of solutions of nonlinear three point boundary value problems. Applied Mathematics and Computations, 186(2007), 957—968.
51. Existence and multiplicity results for some three-point boundary value problems (M. Rafique). Nonlinear Analysis, 66(2007), 1686—1697.
52. Existence of at least three solutions of nonlinear three point boundary value problems with super-quadratic growth (with J. R. L. Webb). J. Math. Anal. Appl., 328(2007), 690—698.

53. Upper and lower solutions method for second order nonlinear four point boundary value problems (with J. J. Nieto, R. Lopez) J. Korean Math. Soc. , 43(2006), 1253—1268.

54. Generalized quasilinearization technique for the second order differential equations with general mixed boundary conditions (with Bashir Ahmad). J. Concr. Appl. Math, 4(2006), 267--276.

55. The generalized quasilinearization technique for a second order differential equation with separated boundary conditions. Math. Comput. Modelling, 42(2006),727—742.

56. Existence of at least three solutions of a second-order three-point boundary value problem (with J. R. L. Webb). Nonlinear Anal., 64(2006), 1356—1366,

57. Existence of at least two solutions of second order nonlinear three point boundary value problems(with J. R. L. Webb). Dynam. Systems Appl, 15(2006), 119—132.

58. Existence and approximation of solutions of second-order nonlinear four point boundary value problems (with R. Lopez). Nonlinear Anal.,63(2005), 1094—1115.

59. Generalized quasilinearization method for a first order differential equation with integral boundary condition (with Bashir Ahmad and S. Sivasundaram). Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal,12(2005), 289—296.

60. K-th order monotone iterative scheme for boundary value problems associated with second order nonlinear functional differential equations (with Bashir Ahmad and S. Sivasundaram). Commun. Appl. Anal, 9(2005), 317--325.

61. A note on rapid convergence of approximate solutions for second order periodic boundary value problems (with Bashir Ahmad). Arch. Math. (Brno), 41(2005), 135—143.

62. A higher order monotone iterative scheme for nonlinear Neumann boundary value problems (Bashir Ahmad, Uzma Naz). Bull. Korean Math. Soc., 42(2005), 17—22.

63. Generalized quasilinearization method for a first order differential equation with integral boundary condition (withBashir Ahmad and S. Sivasundaram). Dyn. Contin. Discrete Impuls. Syst. Ser. A Math. Anal,12(2005), 289—296.

64. Existence and approximation of solutions of nonlinear problems with integral boundary conditions. Dynam. Systems Appl. 14(2005), 281—296.

65. Existence and approximation of solutions of second order nonlinear Neumann problems. Electron. J. Differential Equations, 3(2005), 1—10.

66. Generalized quasilinearization method for nonlinear terminal value problems (with Bashir Ahmad), Southeast Asian Bull. Math,27(2004), 953--958.

67. Generalized quasilinearization technique for a three-point nonlinear boundary value problem (with J.R.L.Webb). Dynam. Systems Appl,13(2004), 187—202.

68. The generalized method of quasilinearization and nonlinear boundary value problems with integral boundary conditions. Electron. J. Qual. Theory Differ. Equ. 19(2003), 1—15.

69. Generalized quasilinearization method for nonlinear functional differential equations(with Bashir Ahmad and S. Sivasundaram). J. Appl. Math. Stochastic Anal., 16(2003), 33—43.

70. Generalized quasilinearization method for nonlinear boundary value problems (with Ahmad, Bashir and S. Sivasundaram). Dynam. Systems Appl., 11(2002), 359—370.

71. Generalized quasilinearization method for a second order three point boundary-value problem with nonlinear boundary conditions (with Bashir Ahmad, Paul, W. Eleo). Electron. J. Differential Equations, 90(2002), 1—12.

72. Generalized quasilinearization method for integro-differential equations(with Bashir Ahmad and S. Sivasundaram). Nonlinear Studies, 8(2001), 331—341.