**Resumé of Rizwan Butt**

**Present Rank**: Associate Professor of Mathematics.

**Research Publications**: Twenty Five (25), see attached list.

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***Marital Status:*** *Married*

**ACADEMIC QUALIFICATIONS**

* Institute Degrees Subject Distinction Year
* University of Leeds, U.K. Ph.D. Mathematics By Research 1988
* Islamia University, Pakistan M.Sc. Mathematics First Class 1982
* (BahawalPur) First Position
* Islamia, Pakistan B.Sc. Mathematics First Class 1979

**THESES TITLES**

Ph.D. (University of Leeds, West Yorkshire, United Kingdom, 1988) - Optimal Shape Design for Differential Inequalities"

**DISTINCTIONS**

* Pakistan Government Merit Scholarship. 1985-88
* British Council Research Fellowship. 1994-95
* First Position with First Class in M.Sc. 1982 (Islamia University, Mathematics).
* Third Position in B.Sc. (Islamia University Pakistan - Mathematics), 1979.

**FIELD OF SPECIALIZATION**

* Optimization, Optimal Control Theory
* Partial Differential Equations,
* Numerical Analysis,
* Variational Inequalities.

**POSITIONS HELD**

* January 1983 - October 1985 Lecturer, Islamia University, Bahawalpur, Pakistan.
* August. 1989 - November 1989 Pakistan Science Foundation Scientists, Punjab University, Pakistan.
* November. 1989 - January 1995 Assistant Professor, BZ University, Multan, Pakistan.
* January 1995 - June 1999 Assistant Professor, King Saud University, Riyadh, Saudi Arabia.
* July 1999 - to date Associate Professor, King Saud University, Riyadh, Saudi Arabia.

**COURSES TAUGHT**

* **UNDERGRADUATE COURSES**
* Differential Calculus,
* Vector analysis,
* Linear algebra,
* Vectors and Matrices,
* Differential Equations for Engineering Students,
* Integral Calculus, Mathematics for Pharmacy,
* Mathematics for Education,
* Algebra and Analytic Geometry,
* Integral Calculus for Computer Science,
* Numerical Analysis

* **GRADUATE COURSES (M.Sc. & M.Phil)**
* Numerical Analysis, Partial and Ordinary Differential Equations,
* Functional Analysis,
* Linear and Nonlinear Optimization,
* Methods for Mathematical Physics,
* Integral Equations,
* Operational Research,
* Advanced Numerical Analysis,
* Applied Numerical Linear Algebra,
* Real Analysis, Complex Analysis,
* Mathematical Physics.
* **PROGRAMMING COURSES (LANGUAGES)**
* Basic programming
* Fortran programming
* Pascal programming
* MATLAB programming

**FELLOWSHIP AND MEMBERSHIP OF SCIENTIFIC SOCIETIES**

* Member, American Mathematical Society, U.S.A.
* Member, Punjab Mathematical Society, Pakistan.

**OTHER ACTIVITIES (Evaluation, Curriculum Development & Research)**

* Member, Committee responsible for the curriculum development for Computer Centre, Bz University, Multan, Pakistan, 1990-95.
* Student Advisor, BZ University, Multan, Pakistan, 1994-95.
* Incharge of Guest House, BZ University, Multan, Pakistan, 1990-94.
* Member, Examination Committee, BZ University, Multan, Pakistan, 1992-94.

**MATHEMATICAL REVIEWER**

* Reviewer and referee for Arab journal of Mathematical Sciences. KSA.
* Reviewer for Mathematical Reviews, Amer. Math. Soc. U.S.A.

**THESES SUPERVISION (M.Sc)**

* Some Aspects of Fourth-order Elliptic Variational Inequalities, KSU, (2010) (Yahya Ahmad Al-Nashri)

**THESES SUPERVISION (M.Phil.)**

* Optimal Shape design Governed by Variational Inequalities, (1992) (M. Guftar Ahmad)
* Optimal Shape Design problem with Finite Elements, (1993) (Malik Zawwar Hussain)
* Variational Inequalities, (1994) (Noureen Ara)

**GRADUATE THESIS EXAMINER**

I have been on the panel as an external examiner for many M.Sc and M.Thesis of Faculties Mathematics, Engineering, and Computer Sciences at BZ University (Pakistan) and the King Saud University (KSA).

**CONFERENCES ATTENDED / PARTICIPATED**

* Read a paper on "Optimal Shape Design for Differential Inequalities" in the 5th International Conference of IMA on Control Theory, held in Scotland, UK., 1988.
* Read a paper on "Optimal Shape Design Problems" in the UNESCO regional workshop on Application of the Mathematics to Operational research and mathematical Optimization, held in Islamia University, Bahawalpur, Pakistan, 1989.
* Attended a Workshop on Computational Methods, held in NAHE, University Grants Commission, Islamabad, Pakistan, 1992.
* Mathematics Seminar on Mathematics and applications, Prince Sultan University (Riyadh), 2004.
* Workshop on Partial Differential Equations in Modern Mathematical Physics and Applied Mathematics, KACST, Riyadh, 2007.
* Workshop on "Orthogonal Polynomial" supervised by Prof. Dr Mourad Ismail of Florida University. March 2009.
* Two days Workshop on "Template for Program Assessment" supervised by Prof Taj O Mohieldin held at in KSU on March 2009.
* Participated in all SMATH conferences held in Riyadh.
* Gave a Workshop on Numerical Analysis and Numerical Methods using MATLAB, held in KACST, Saudi Mathematical Society, KSU, Riyadh, Saudi Arabia, 2012.
* SMD 2012, Second Mathematics days, organized by the Department of Mathematics, KING SAUD UNIVERSITY, Riyadh, 14-15 March, 2012.
* Special Functions and Its Applications organized by Saudi Association of Mathematical Sciences, Riyadh, 20-21 February, 2013.
* Workshop on Equilibrium and Optimization Methodology in Finance and Economic, King Saud University on November, 9-11, 2015.
* Generally attended Lectures and Seminars organized by the Department of Mathematics, KING SAUD UNIVERSITY, Riyadh.

**EXTRA ASSIGNMENTS IN THE DEPARTMENT & THE UNIVERSITY**

* Coordinated M-105 in the Department of Mathematics, KSU (2000-to-2002).
* Coordinated M-254 in the Department of Mathematics, KSU (1999-to-date).
* Coordinated M-505 in the Department of Mathematics, KSU (2002-to-date).
* Member of Numerical Analysis group in the Department of Mathematics, KSU (1995-To-date).
* Member of Computer Labs in the Department of Mathematics, KSU (2010-to-date).
* Coordinated e-learning in the Department of Mathematics, KSU (2013-to-date).

**RESEARCH PUBLICATIONS**

* R. Butt and J. E. Rubio; Optimal shape design for heat control problem, J. Franklin Institute, 327, No. 1 (1990), 151-163.
* R. Butt and J.E. Rubio; Optimal shape design for a friction-less contact problem, J.Comp. And Appl. math., 40 (ISI Journal)(1992), 1-17.
* R. Butt and J. E. Rubio; Optimal shapes for systems described by variational Inequalities, Proceedings of the 1988 IMA conference on control, Strathelyde, D.Owens & N.Nichols (eds.), Oxford University press, (1992), 421-440.
* R. Butt; An existence theory for a minimum energy problem, J. comp. and applied math. 40, (ISI Journal) (1992)253-257.
* R. Butt; Optimum shape design: An electrochemical machining problem, J. Comp.and Applied. math., 47 (ISI Journal) (1993), 1-15.
* R. Butt; Optimal shape design for Nozzle problem, J. Austr. Math. Soc. Ser. B 0 (ISI Journal)(1993), 1-16.
* R. Butt; Shapes problems and Differential Inequalities, J. Franklin Inst. 333(B), No. (1996), 257-281.
* R. Butt; Penalty method for variational inequalities, J. Advances in Applied mathematics, (ISI Journal)(1996).
* R. Butt; The material derivative method for shape optimization problem in electrochemical machining, Japan J. Indust. Applied Math., (ISI Journal)(1997).
* R. Butt; Design problem solved by optimal control theory,Korean J. comp. Applied math., (ISI Journal)(1997).
* R. Butt; Optimal shape design governed by variational inequalities, Int. J. Math computer model.,(ISI Journal) (1997). 5
* R. Butt; Finite element approximation for variational inequalities, Punjab J. math. (1997).
* R. Butt; Some aspects of elliptic variational inequalities, Korean J. comp. applied math. 4, No. 2, (ISI Journal) (1997).
* R. Butt; Some aspects of optimal shape design problems,J. of Vibration and Control,5:401-419,(1997).
* R. Butt and Yahya Ahmad Alnashri; Approximation of fourth-order variational inequalities, IJPAM: Volume 59, No. 4 (2011).
* R. Butt; Numerical Solution of variational inequalities, Punjab J. math.,(2012).
* R. Butt; Domain variational formulation for free boundary value problem, Punjab J. math., (2.13).
* R. Butt; An Optimization problem described by a fourth-order variational inequalities, J. of Advanced Mathematics and Application, Vol. 4, No. 1, pp.55-60, (2015).
* R. Butt; Implementation of some methods of shape design for a fourth-order variational inequalities, J. Part. Diff. Eq., Vol. 26, No. 2, pp. 122-137, (2013).
* R. Butt; An existence theory of a fourth-order variational inequality by a penalty method (Accepted), Applied Mathematical Sciences, (2016).
* R. Butt; Local convergence and optimal shape design, *Indian J. Pure Appl. Math.,* (Submitted), (2016).
* R. Butt; The Material Derivative Method for Shape Optimization of Nozzle Problem; *Indian J. Pure Appl. Math.,* (Submitted), (2016).

**BOOKS PUBLISHED**

* R. Butt and Yacine Benhadid; Introduction to Numerical Analysis with MATLAB, Pages: 345, Adwaa Al Muntada Press, (2005).
* R. Butt; Introduction to Numerical Analysis using MATLAB, Pages: 618, Jones and Bartlett Learning, (2007).
* R. Butt; Applied Linear Algebra using MATLAB, Pages: 518, Heldermann Verlag Press, (2008)
* R. Butt; Numerical Linear Algebra and Optimization using MATLAB, Pages: 1160, Mercury Learning and Information, (2011).
* R. Butt; An Introduction to Applied Numerical Linear Algebra Using MATLAB; Pages: 642, Alpha Science International Ltd., Oxford, United Kingdom, (2015).
* R. Butt; An Introduction to Differential Equations Using MATLAB; Pages: 592, Alpha Science International Ltd., Oxford, United Kingdom, (2016).