

Curriculum Vitae

Dr. M. Tahir Mustafa

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1.0 RESUME

1.1 Contact

Mailing address: Coordinator of the Mathematics Program
Department of Mathematics, Statistics & Physics,
College of Arts & Sciences, Qatar University, Doha 2713, Qatar
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Email: tahir.mustafa@qu.edu.qa
<https://scholar.google.com/citations?hl=en&user=kGL9r0kAAAAJ>

1.2 Education

1992-1996 Doctor of Philosophy (Ph.D.)

Subject: Mathematics
From: University of Leeds, Leeds, U.K.
Area of specialization: Differential Geometry
Supervisor: Prof. John C. Wood
Thesis title: Integral formulae for harmonic morphisms

1989-1992 Master of Philosophy (M.Phil.)

Subject: Mathematics
From: Quaid-i-Azam University, Islamabad, Pakistan
Area of specialization: Differential Geometry
Supervisors: Prof. Hassan Azad, Prof. Asghar Qadir
Thesis title: The uniqueness of invariant Ricci-flat Kaehlerian metrics on Q^n

1987-1989 Master of Science (M.Sc.)

Subject: Mathematics
From: Quaid-i-Azam University, Islamabad, Pakistan

1984-1986 Bachelor of Science (B.Sc.)

Subject: Mathematics
From: Punjab University, Lahore, Pakistan

1.3 Research Interests

- Differential Geometry and Mathematical Physics
 - with particular interest in harmonic maps and harmonic morphisms.
- Geometric and algebraic methods for differential equations
 - with particular interest in Lie symmetry and group theoretic methods.
- Engineering applications of mathematical methods

* Section 3.1.2 gives a breakdown of publications according to research interests

1.4 Teaching Interests

- Calculus sequence courses* for Mathematics majors as well as for students from other disciplines
- Differential Equations courses* (basic and advanced undergraduate)
- Linear Algebra courses* (undergraduate and graduate)
- Advanced Engineering Mathematics courses*
- Discrete Mathematics*
- Wavelets*
- Engineering Statistics*
- Differential Geometry courses* (undergraduate and graduate)
Including self contained tailored course on “Differential Geometry of Curves & Surfaces” for engineering and computer science students
- Complex Variables*
- Lie Symmetry Method for ODEs and PDEs* (undergraduate and graduate)
Also as interdisciplinary course for engineering graduate students
- Symmetries and Conservation Laws (graduate)
- Any other undergraduate mathematics service course for Engineering or Management or Business students

* Indicates taught one or more times (fully or as part of another course)

1.5 Employment History

2016 (April) – Present	Professor , Department of Mathematics, Statistics & Physics, Qatar University, Doha 2713, Qatar
2013 – 2016 (March)	Associate Professor , Department of Mathematics, Statistics & Physics, Qatar University, Doha 2713, Qatar
2008 – 2013	Associate Professor , Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals (KFUPM), Dhahran 31261, Saudi Arabia.
2003 – 2008	Assistant Professor , Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals (KFUPM), Dhahran 31261, Saudi Arabia.
2002 – 2002	Associate Professor , Department of Mathematics, Lahore University of Management Sciences (LUMS), Lahore, Pakistan.
1997 – 2002	Assistant Professor , Faculty of Engineering Sciences, GIK Institute of Engineering Sciences & Technology, Topi, Pakistan.
1996 – 1997	Post-doctoral Research Fellow , Mathematics Section, The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy.

1.6 Honors and Awards

- **KFUPM Excellence in Teaching Award** for the year 2012-2013.
- **KFUPM Excellence in Advising Award** for the year 2010-2011.
- **KFUPM Excellence in Teaching Award** for the year 2008-2009.
- Nominated by the College of Science for KFUPM Excellence in Teaching Award for the year 2007-2008.
- **KFUPM Excellence in Instructional Technology Award** for the year 2007-2008.
- Nominated by the Department of Mathematics & Statistics for KFUPM Excellence in Teaching Award in the year 2006-2007.
- **Regular Associate Member** of The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy. (1999-2004)
- The **AS-ICTP Post-Doctoral Fellowship**, 1996-1997.
- **Joint Editor** of The Atlas of Harmonic Morphisms available online
<http://www.matematik.lu.se/matematiklu/personal/sigma/harmonic/atlas.html>

1.7 Technology Expertise

- Extensive experience of integration of technology in enhancing teaching, via utilization of
 - Learning Management System like Blackboard 9 or WebCT CE 8
 - Online homework systems
 - Other instructional technology software like Centra, Articulate, Camtasia.
 - Symbolic algebra software: Maple, Mathematica, Matlab.
- Fully experienced in utilizing Maple and Mathematica at advanced mathematical research level.

1.8 Memberships

- American Mathematical Society
- Society for Industrial and Applied Mathematics

1.9 References

1. Professor John C. Wood
School of Mathematics,
University of Leeds,
Leeds, LS2 9JT, UK
Email: J.C.Wood@leeds.ac.uk
2. Professor Hassan Azad
Department of Mathematics & Statistics,
King Fahd University of Petroleum & Minerals,
Dhahran 31261, Saudi Arabia
Email: hassanaz@kfupm.edu.sa
3. Professor Fazal M. Mahomed
School of Computational and Applied Mathematics
University of the Witwatersrand,
Wits 2050, South Africa
Email: fazal.mahomed@wits.ac.za
4. Dr. Ryad Ghanam
Associate Professor of Mathematics,
124 Faculty Office Building,
University of Pittsburgh at Greensburg,
Greensburg, PA 15601, USA
Email: ghanam@pitt.edu
and
Associate Professor of Mathematics
Virginia Commonwealth University in Qatar
Doha, Qatar
Email: raghanam@vcu.edu

2.0 RESEARCH

2.1 List of Publications

2.1.1 Research Papers

1	M. T. Mustafa: A Bochner technique for harmonic morphisms, Journal of the London Mathematical Society, vol. 57, issue 3, pp. 746-756, 1998.
2	M. T. Mustafa and J. C. Wood: Harmonic morphisms from three-dimensional Euclidean and spherical space forms, Algebras, Groups, Geometry, vol. 15, pp. 155-172, 1998.
3	M. T. Mustafa: Restrictions on harmonic morphisms, Conformal Geometry & Dynamics: An Electronic Journal of the American Mathematical Society, vol. 3, pp. 102-115, 1999.
4	M. T. Mustafa: Totally geodesic horizontally conformal maps, Rendiconti dell'Istituto di Matematica dell'Università di Trieste, vol. 30, pp. 45-55, 1999.
5	M. T. Mustafa: Applications of Bochner technique to harmonic morphisms between simply connected space forms, Harmonic morphisms, harmonic maps and related topics, CRC Research Notes in Mathematics 413 (Chapman & Hall/CRC, Boca Raton, FL, 2000), pp. 39-45, 2000.
6	M. T. Mustafa: Applications of harmonic morphisms to gravity, Journal of Mathematical Physics, vol. 41, issue 10, pp. 6918-6929, 2000.
7	M. T. Mustafa: A remark on harmonic maps to a surface, International Journal of Mathematics, Game Theory, and Algebra, vol. 13, issue 3, pp. 209-226, 2003.
8	M. T. Mustafa: The structure of harmonic morphisms with totally geodesic fibres, Communications in Contemporary Mathematics, vol. 6, issue 3, pp. 419-430, 2004.
9	M. T. Mustafa: A non-existence result for compact Einstein warped products, Journal of Physics A: Mathematical and General, vol. 38, issue 47, pp. L791-L793, 2005.
10	M. T. Mustafa: Warped products of constant curvature, Differential Geometry--Dynamical Systems, vol. 8, pp. 181-183, 2006.
11	H. Azad and M. T. Mustafa: Why do certain limacons have a dimple, Teaching Mathematics and its Applications, Oxford University Press, vol. 25, pp. 196-204, 2006.
12	Azad A. Siddiqui and M. T. Mustafa: Wavelet optimized finite difference method with non-static regriding, Applied. Mathematics and Computation, vol. 186, pp. 203-211, 2007.
13	H. Azad and M. T. Mustafa: Harmonic morphisms of warped product type from Einstein manifolds, Archiv der Mathematik, vol. 88, issue 4, pp. 368-377, 2007.
14	H. Azad and M. T. Mustafa: Symmetry analysis of wave equation on sphere, Journal of Mathematical Analysis and Applications, vol. 333, pp.1180-1188, 2007.
15	Khalid Masood and M. T. Mustafa: Stabilizing of an ill-posed inverse problem by using smoothing splines and hyperbolic heat equation, Inverse Problems in Science & Engineering, vol. 16, pp.233-247, 2008.
16	Ashfaq H. Bokhari, M. T. Mustafa and F. D. Zaman: "An exact solution of a quasilinear Fisher equation in cylindrical coordinates", Nonlinear Analysis-Theory Methods & Applications, vol. 69, pp.4803-4805, 2008.

17	Ashfaque H. Bokhari, Ghulam Muhammad, M. T. Mustafa and F. D. Zaman: Adomian decomposition method for a nonlinear heat equation with temperature dependent thermal properties, <i>Mathematical Problems in Engineering</i> , Article Number: 926086, 2009.
18	Ashfaque H. Bokhari, Ghulam Muhammad, M. T. Mustafa and F. D. Zaman: Solution of Heat Equation with Nonlocal Boundary Conditions, <i>International Journal of Mathematics & Computation</i> , vol. 3, pp. 100-113, 2009.
19	Khalid Masood and M. T. Mustafa : A smoothing spline-based regularization of initial inverse problem in two dimensional heat equation, <i>Proceedings of the Institution of Mechanical Engineers, Part C-Journal of Mechanical Engineering Science</i> , vol. 223, pp.439-449, 2009.
20	M. T. Mustafa and Khalid Masood: Symmetry solutions of a non-linear elastic wave equation with third order anharmonic corrections, <i>Applied Mathematics and Mechanics</i> , vol. 30, pp. 1017-1026, 2009.
21	H. Azad, M. T. Mustafa and A. F. M. Arif: Analytic solutions of initial-boundary-value problems of transient conduction using symmetries, <i>Applied. Mathematics and Computation</i> , vol. 215, pp. 4132-4140, 2010.
22	H. Azad, M. T. Mustafa and M. Ziad: Group classification, optimal system and optimal reductions of a class of Klein Gordon equations, <i>Communications in Nonlinear Science and Numerical Simulation</i> , vol. 15, pp. 1132-1147, 2010.
23	H. Azad, A. Laradji and M. T. Mustafa : Polynomial solutions of differential equations, <i>Advances in Difference Equations</i> , Article Number: 58, 2011.
24	M. T. Mustafa , S. M. Zubair and A. F. M. Arif: Thermal analysis of orthotropic annular fins with contact resistance: A closed-form analytical solution, <i>Applied Thermal Engineering</i> , vol. 31, pp. 937-945, 2011.
25	M. T. Mustafa : Comments on "Similarity variables and reduction of the heat equation on torus" [<i>Commun Nonlinear Sci Numer Simulat</i> 2012;17:1251-57], <i>Communications in Nonlinear Science and Numerical Simulation</i> , vol. 17, pp. 4515-4516, 2012.
26	S. Pashah, A. F. M. Arif, S. M. Zubair and M. T. Mustafa : The effect of coating and interface resistance on thermal performance of variable thickness annular composite fins, <i>Energy Conversion and Management</i> , vol. 54, pp. 152-161, 2012.
27	S. M. Zubair, M. T. Mustafa and A. F. M. Arif: Letter to the Editor, <i>Applied Thermal Engineering</i> , vol. 37, pp. 438-439, 2012.
28	M. T. Mustafa : Harmonic morphisms projecting harmonic functions to harmonic functions, <i>Abstract and Applied Analysis</i> , Article Number: 315757, 2012.
29	S. M. Zubair, M. T. Mustafa and A. F. M. Arif: Thermal analysis of orthotropic pin fins with contact resistance: A closed-form analytical solution, <i>Heat Transfer Engineering</i> , vol. 34, pp. 349-360, 2013.
30	H. Azad, A. Laradji and M. T. Mustafa : Polynomial solutions of certain differential equations arising in physics, <i>Mathematical Methods in The Applied Sciences</i> , vol. 36, pp. 1615–1624, 2013.
31	H. Azad, A. Y. Al-Dweik, R. A. Ghanam and M. T. Mustafa : Symmetry analysis of wave equation on static spherically symmetric spacetimes with higher symmetries, <i>Journal of Mathematical Physics</i> , vol. 54, 063509, 2013.

32	M. T. Mustafa , A. Y. Al-Dweik and R. A. Marabeh: On the linearization of second order ordinary differential equations to the Laguerre form via generalized Sundman transformations, <i>Symmetry, Integrability and Geometry: Methods and Applications (SIGMA)</i> , vol. 9, 2013.
33	Mazhar Iqbal, M. T. Mustafa and Azad A. Siddiqui: A Method for Generating Approximate Similarity Solutions of Nonlinear Partial Differential Equations, <i>Abstract and Applied Analysis</i> , Article ID 105414, 2014.
34	M. T. Mustafa , A. F. M. Arif and Khalid Masood: Approximate Analytic Solutions of Transient Nonlinear Heat Conduction with Temperature-Dependent Thermal Diffusivity, <i>Abstract and Applied Analysis</i> , Article ID 423421, 2014.
35	M. T. Mustafa and A. Y. Al-Dweik: Noether symmetries and conservation laws of wave equation on static spherically symmetric spacetimes with higher symmetries, <i>Communications in Nonlinear Science and Numerical Simulation</i> , vol. 23, pp. 141-152, 2015.
36	A. Paliathanasis, M. Tsamparlis and M. T. Mustafa : Symmetry analysis of the Klein-Gordon equation in Bianchi I spacetimes, <i>International Journal of Geometric Methods in Modern Physics</i> , vol. 12, 1550033, 2015.
37	Ahmad Y. Al-Dweik, M. T. Mustafa , Raed A. Mara'beh and F. M. Mahomed: An alternative proof of Lie's linearization theorem using a new λ -symmetry criterion, <i>Communications in Nonlinear Science and Numerical Simulation</i> , vol. 26, pp. 45-51, 2015.
38	Noreen Sher Akbar and M. T. Mustafa : Ferromagnetic effects for nanofluid venture through composite permeable stenosed arteries with different nanosize particles, <i>AIP Advances</i> vol. 5, 077102, 2015. (doi: 10.1063/1.4926342)
39	Ahmad Y. Al-Dweik, M. T. Mustafa , H. Azad and F. M. Mahomed: Invariants of third-order ordinary differential equations $y''' = f(x, y, y', y'')$ via point transformations, <i>Mathematical Methods in The Applied Sciences</i> , (published online), DOI: 10.1002/mma.3544, 2015.
40	H. Azad, I. Biswas, R. A. Ghanam and M. T. Mustafa : On computing joint invariants of vector fields, <i>Journal of Geometry and Physics</i> , vol. 97, pp. 69-76, 2015.
41	H. Azad , Ahmad Y. Al-Dweik, F. M. Mahomed and M. T. Mustafa : A point symmetry based method for transforming ODEs with three-dimensional symmetry algebras to their canonical forms, <i>Applied Mathematics and Computation</i> , vol. 289, pp. 444-463, 2016.

2.1.2 Break down of Papers by Research Interests

- Differential Geometry and Mathematical Physics
Paper # 1-11, 13, 14, 28, 31, 32, 36, 37.
- Geometric and algebraic methods for differential equations
Paper # 14, 16, 20, 21, 22, 23, 25, 30, 31, 32, 33, 34, 36, 37, 38, 40, 41.
- Engineering applications of mathematical methods
Paper # 12, 15, 17, 19, 24, 26, 27, 29, 33, 34, 35, 39.

2.2 Graduate Advising & Research Supervision

2.2.1 Theses Supervision as Advisor

- [1] "A Weitzenbock formula for Riemannian foliations", Mathematics Diploma thesis, the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, 1996.
- [2] Abdul Sattar Al-Kubaish, "Group Classification and symmetry Reductions for a Class of Nonlinear Poisson Equations on the Line and certain Surfaces", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2011.
- [3] Kassimu Mpungu, "Symmetry analysis of heat and wave equations on surfaces of revolution", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2012.
- [4] Usama Sadeq Al-Ali, "Symmetry analysis of the wave equation on two spherically symmetric spacetimes", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2012.
- [5] Khalid Ali Al-Anezy, "Group classification and similarity solutions of Klein Gordon equations on a sphere", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2012.
- [6] Basim F. Mustafa, "Matrix Representations for seven-dimensional nilpotent Lie algebras", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2013. Co-supervision with Dr. Ghanam, University of Pittsburgh at Greenburg, USA.
- [7] Waled Ahmed Al-Khulaifi, "Algorithmic procedure for investigating polynomial solutions of differential equations", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2013. Co-supervision with Prof. A. Laradji.
- [8] M. Aminu Nass, "Group classification of Poisson equation on surfaces of revolution", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2013. Co-supervision with Prof. Hassan Azad
- [9] Raed Ali Mara'Beh, "Local and non-local linearization of scalar second order ODEs in the normal form", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2014. Co-supervision with Dr. Ahmad Y. Al-Dweik.

2.2.2 Doctoral Dissertations & M.S. Theses Committee Member

- [1] Basim Jamil Muhammad Al-Minshawy, "Heat conduction from two spheres", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2010.
- [2] Bader Ahmed Alhumaidi, "Various mathematical properties of the generalized incomplete gamma functions with applications", Ph.D. Dissertation, Department of

- Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2011.
- [3] Mohammed Abdullah Salman, "Preconditioning techniques for saddle point problems", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2011.
- [4] Mohammed D. Kassim, "Well-posedness for a Cauchy factorial differential problem with Hilfer type fractional derivative", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2011.
- [5] Abdul-Khaleg Ali Al-Baiyat, "Extended Bessel functions with application to engineering problems", Ph.D. Dissertation, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2012.
- [6] Mohammed A Abushoshah, "Three problems in nonconventional coordinate systems (Conduction in a spheroid, Conduction from a torus, Flow in a semi-elliptic tube)", M.S. thesis, Department of Mathematics & Statistics, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, 2013.

2.3 Funded Research Projects

- Title: Investigation of the constraints on harmonic morphisms of warped product type from Einstein manifolds (FT/2004-14)
 Investigators: M. T. Mustafa and H. Azad
 Funded by: KFUPM Role: Principal Investigator
 Duration: 6/2004-5/2005 Status: Completed
- Title: Investigation and regularization of initial inverse heat conduction problem in two dimensions by total variation and spline methods (SB07008)
 Investigators: Khalid Masood and M. T. Mustafa
 Funded by: KFUPM/SABIC Role: Co-Investigator
 Duration: 5/2007-4/2008 Status: Completed
- Group classification, optimal system and optimal symmetry reductions of a class of Klein -Gordon equations (IN080397)
 Investigators: M. T. Mustafa and H. Azad
 Funded by: KFUPM Role: Principal Investigator
 Duration: 4/2008-3/2009 Status: Completed
- Title: Group classification and optimal system for a class of nonlinear Poisson equation on some surfaces (FT100005)
 Investigators: M. T. Mustafa and H. Azad
 Funded by: KFUPM Role: Principal Investigator
 Duration: 3/2010-2/2011 Status: Completed
- Title: Group classification, optimal system and optimal symmetry reductions of a class of nonlinear Poisson equation in 1 dimension (SB100013)
 Investigators: M. T. Mustafa and H. Azad
 Funded by: KFUPM/SABIC Role: Principal Investigator
 Duration: 3/2010-2/2011 Status: Completed
- Title: Performance enhancement of fins used in electronic packaging (FT100016)

- Investigators: S.M. Zubair, A.F.M. Arif, M. T. Mustafa and M. Inam
 Funded by: KFUPM Role: Co-Investigator
 Duration: 3/2010-2/2011 Status: Completed
- Title: Investigation of Lie symmetries, subalgebras classification, Noether symmetries, conservation laws, reductions and solutions of wave equation on static spherically symmetric spacetimes (IN101026)
 Investigators: Ahmed Al-Dweik, H. Azad, Ryad Ghanam, M. T. Mustafa
 Funded by: KFUPM Role: Principal Investigator
 Duration: 5/2011-4/2013 Status: Completed
 - Title: Symmetry analysis of heat equation on surfaces of revolution (QUUG-CAS-DMSP-13/14-6)
 Investigator: M. T. Mustafa
 Funded by: Qatar University Role: Principal Investigator
 Duration: 4/2014-3/2015 Status: Completed
 - Title: Group classification and exact solutions of wave equation on surfaces of revolution (QUUG-CAS-DMSP-14/15-6)
 Investigator: M. T. Mustafa
 Funded by: Qatar University Role: Principal Investigator
 Duration: 4/2015-3/2016 Status: In Progress

2.4 Technical Reports

- T01** M. T. Mustafa: “On harmonic morphisms projecting harmonic functions to harmonic functions”, TR333, Mathematical Sciences, KFUPM, Dhahran, 2005.
- T02** Khalid Masood and M. T. Mustafa: “Investigation of an Initial Inverse Problem by using Hyperbolic Heat Equation with Bessel Operator and a Total Variation Method”, TR360, Mathematical Sciences, KFUPM, Dhahran, 2006.
- T03** Khalid Masood and M. T. Mustafa: “Regularization of an Initial Inverse Problem by using Smoothing Splines and Hyperbolic Heat Equation with Bessel Operator”, TR361, Mathematical Sciences, KFUPM, Dhahran, 2006.
- T04** Ashfaque H. Bokhari, Ghulam Mohammad, M. T. Mustafa and F. D. Zaman, “Adomian decomposition method for a nonlinear heat equation with temperature dependent thermal properties”, TR395, Mathematical Sciences, KFUPM, Dhahran, 2008.
- T05** H. Azad, A. Laradji and M. T. Mustafa, “On some applications of complex numbers to polar equations and cycloidal curves”, TR427, Mathematical Sciences, KFUPM, Dhahran, 2012.

2.5 Conferences and Workshops Attended

- 1995 School on several complex variables
 ICMS, Edinburgh, U.K.
- 1996 Non-linear functional analysis and differential equations
 The AS-ICTP, Trieste, Italy.

- 1997 Harmonic morphisms, harmonic maps & related topics
Université de Bretagne Occidentale, Brest, France.
- 1999 School on algebraic groups
The AS-ICTP, Trieste, Italy.
- 2002 School and conference on algebraic K-theory and its applications
The AS-ICTP, Trieste, Italy
- 2002 DAAD workshop “Dialogue of Cultures: Impact of Culture on Science”, University of Kaiserslautern, Kaiserslautern , Germany
- 2004 Industrial mathematics workshop
KFUPM, Dhahran, Saudi Arabia
- 2006 Summer conference in Mathematics
Centre for Advanced Mathematics, LUMS, Lahore, Pakistan
- 2007 International Conference MOGRAN11: Lie group analysis in education & research.
Blekinge Institute of Technology, Karlskrona, Sweden
- 2011 Mathematics and its Applications
Al-Imam Mohammed Ibn Saud Islamic University, Riyadh.
- 2012 International Conference MOGRAN15: Modern group analysis
Antalya, Turkey
- 2013 International Conference on Mathematical Sciences and Statistics 2013 (ICMSS2013), Kuala Lumpur, Malaysia
- 2014 International Conference on Symmetries, Differential Equations and Applications, Islamabad, Pakistan
- 2015 Spring 2015 Eastern Sectional Meeting of the American Mathematical Society, Georgetown University in Washington DC, USA

2.6 Conference and Seminar Presentations

Date	Title of Presentation	Organizer / Place
October 9, 1996	Restrictions on harmonic morphisms	Math Seminar Series, AS-ICTP, Trieste, Italy.
July, 1997	Applications of Bochner technique to harmonic morphisms between simply connected space forms	Conference “Harmonic morphisms, harmonic maps and related topics”. 7-11 July, Brest, France.
December, 1997	Non-existence results for harmonic morphisms	Mathematics Department, Quaid-i-Azam University, Islamabad, Pakistan.
February, 1998	On harmonic maps to a surface	Mathematics Department, Quaid-i-Azam University, Islamabad, Pakistan.

December, 1999	Applications of harmonic morphisms to gravity	Mathematics Department, Quaid-i-Azam University, Islamabad, Pakistan.
November 13, 2001	Harmonic morphisms from compact domains	LUMS Mathematics Colloquia, LUMS, Lahore, Pakistan.
February 12, 2002	Surface Inspection: An illustration of industrial mathematics	LUMS Mathematics Colloquia, LUMS, Lahore, Pakistan.
November 5, 2002	Science in Pakistan: The real realities	DAAD Workshop on “Dialogue of Cultures: Impact of Culture on Science”, Kaiserslautern, Germany
April 5, 2003	A Bochner technique for harmonic morphisms	Mathematics Seminar Series, KFUPM, Dhahran, Saudi Arabia
November 5, 2003	Defect detection using smoothing splines	Mathematics Seminar Series, KFUPM, Dhahran, Saudi Arabia
March 2, 2004	Defect detection on unpainted car body	Workshop on Industrial Mathematics, KFUPM, Dhahran, Saudi Arabia
October 23, 2005	Restrictions on harmonic morphisms of warped type and their applications	Mathematics Seminar Series, KFUPM, Dhahran, Saudi Arabia
July, 2006	Harmonic morphisms of warped type	Summer Conference in Mathematics, LUMS, Lahore, Pakistan
November, 2006	Surface defects detection	Mechanical Engineering Seminar Series, KFUPM, Dhahran, Saudi Arabia
December, 2008	Why and how do I do 'IT' in my teaching?	Mathematics Education Seminar Series, KFUPM, Dhahran, Saudi Arabia
May, 2010	Awareness about safe Web-2-ing	Workshop on Enhancing learning and teaching through using Web2 technology, KFUPM, Dhahran
October, 2012	Symmetry classification of heat equation on surfaces of revolution	Conference MOGRAN 15, Antalya, Turkey
February, 2013	Group classification of a class of quasi-linear second order ordinary differential equations and applications to Abel's equations	International Conference on Mathematical Sciences and Statistics 2013 (ICMSS2013), Kuala Lumpur, Malaysia
January, 2014	Group classification of heat, wave and Poisson equations on surfaces of revolution	International Conference on Symmetries, Differential Equations and Applications, Islamabad, Pakistan
March, 2015	Symmetry classification of heat, wave and Poisson equations on surfaces of revolution	Spring 2015 Eastern Sectional Meeting of the American Mathematical Society, Georgetown University in Washington DC, USA

3.0 TEACHING

3.1 Courses Taught and Course Evaluations

3.1.1 Courses Taught at Qatar University, Doha, Qatar

Semester	Course Number- Title	Student Evaluation/100
Fall 2013	Math 101-L03 Calculus I	94.26
	Math 101-L71 Calculus I	91.76
	Math 217-L51 Mathematics-Engineering	100
Spring 2014	Math 101-L02 Calculus I	96.87
	Math 101-L55 Calculus I	92.67
Fall 2014	Math 101-L02 Calculus I	93.18
	Math 101-L56 Calculus I	88.24
	Math 385-L51 Advanced Mathematics	88.47
Spring 2015	Math 101-L02 Calculus I	96.47
	Math 101-L55 Calculus I	99.12

3.1.2 Courses Taught at KFUPM, Dhahran, Saudi Arabia.

Semester	Course Number- Title	Student Evaluation/10
2002-03 022	Math 101-02 Calculus I	9.43
	Math 101-09 Calculus I	9.49
2003-04 031	Math 101-03 Calculus I	9.10
	Math 101-04 Calculus I	8.76
	Math 101-26 Calculus I	9.39
032	Math 102-17 Calculus II	8.90
	Math 102-20 Calculus II	9.52
2004-05 041	Math 260-04 Introduction to Differential Equations & Linear Algebra	9.21
	Math 260-05 Introduction to Differential Equations & Linear Algebra	9.43
042	Math 260-06 Introduction to Differential Equations & Linear Algebra	9.48
	Math 260-07 Introduction to Differential Equations & Linear Algebra	9.11

043	Math 260-02 Introduction to Differential Equations & Linear Algebra Math 260-03 Introduction to Differential Equations & Linear Algebra	9.0 9.53
2005-06 051	Math 102-11 Calculus II Math 201-14 Calculus III	9.58 9.20
052	Math 102-12 Calculus II Math 102-16 Calculus II	8.78 8.98
2006-07 061	Math 102-06 Calculus II Math 102-10 Calculus II Math 102-12 Calculus II	9.43 9.50 9.63
062	Math 132-04 Applied Calculus Math 202-08 Elements of Differential Equations	9.44 9.42
063	Math 101-02 Calculus I Math 101-03 Calculus I	9.26 9.55
2007-08 071	Math102.07 Calculus II Math102.09 Calculus II	9.46 9.47
072	Math101.13 Calculus I Math527.01 Differential Geometry	9.31 9.38
2008-09 081	Math101.23 Calculus I Math101.25 Calculus I	9.35 9.33
082	Math595.03 Reading & Research: (Lie symmetry method for differential equations I) Math 202-08 Elements of Differential Equations Math 202-10 Elements of Differential Equations Math 202-13 Elements of Differential Equations	N/A 9.36 9.35 9.75
2009-10 091	Math101.09 Calculus I Math101.13 Calculus I Math101.20 Calculus I Math599.01 Seminar	9.46 8.57 9.57 N/A
092	Math527.01 Differential Geometry Math102.33 Calculus II Math599.01 Seminar	8.98 9.23 N/A
2010-11 101	Math440.01 Differential Geometry Math102.09 Calculus II Math599.01 Seminar	9.48 8.99 N/A

102	Math302.03 Engineering Mathematics Math595.03 Reading & Research: (Lie symmetry method for differential equations I) Math599.01 Seminar	8.92 N/A N/A
2011-12 111	Math101.33 Calculus I Math102.03 Calculus II	8.93 8.87
112	Math440.01 Differential Geometry Math302.03 Engineering Mathematics Math599.01 Seminar	9.9 9.33 N/A

3.1.3 Courses Taught at Other Institutions

Semester	Course Number- Title	Name of the Institution
Fall'97	Calculus I (Two Sections)	GIKI, Pakistan
Spring'98	Calculus II (Two Sections)	GIKI, Pakistan
Fall'98	Discrete Mathematics Calculus I	GIKI, Pakistan
Spring'99	Engineering Statistics (Two Sections)	GIKI, Pakistan
Fall'99	Calculus I (Two Sections)	GIKI, Pakistan
Spring 2000	Engineering Statistics (Two Sections)	GIKI, Pakistan
Fall 2001	Numerical Analysis Discrete Mathematics	GIKI, Pakistan
Spring 2002	Dynamical Systems Numerical Analysis	GIKI, Pakistan
Fall 2002	Calculus I Introduction to Wavelets	LUMS, Pakistan

3.2 Program and Curriculum Development Responsibilities

- As member of “Curriculum and Study plans Committee” in year 2013-2014, I was responsible for updating of the courses Math 213, Math 324 and Math 341 at Qatar University.
- As Chairman of the Math Minor Committee in the year 2011-12, I led the development and the introduction of the Minor in Mathematics Program at KFUPM.
- As Chairman of the Double Major Committee in the year 2010-11, I played a leading role in setting up the “Math Double Major” curriculum requirements for Computer Science, Computer Engineering, Electrical Engineering and Mechanical Engineering students.
- Proposed, developed and offered new graduate level course “Lie symmetry method for differential equations”
- As a member of “Actuarial Sciences Program Development Committee” in the year 2005-06, I contributed in the development of the proposal for the Actuarial Sciences Program proposed by the Department. The program was approved and introduced later.
- Significantly contributed in several relevant committees like selection of textbooks, review of course contents, setting of course learning outcomes, development of program brochures etc.

3.3 Academic Advising and Course Coordination

3.3.1 Academic Advising

- Undergraduate Academic Advisor to all Math BS students at KFUPM (2006-2008).
- Double Major Advisor to all students from other disciplines completing Mathematics as double major at KFUPM (2006 to date).
- Graduate Academic Advisor to Mathematics MS students at KFUPM (2008 to date).
- Supervision of senior design projects at the GIK Institute of Engineering Sciences & Technology, Topi, Pakistan (2001-2002)
 - Project Title: Defect detection of scanned images through wavelets
 - Project Title: Network optimization and management

3.3.2 Course Coordination

- **Coordination**

	Semester	Course Number	Course Title
At KFUPM	2005-06 (Spring)	Math 102	Calculus II
	2006-07 (Summer)	Math 101	Calculus I
	2009-10 (Both)	Math 599	Seminar
	2010-11 (Both)	Math 599	Seminar
	2011-12 (Both)	Math 599	Seminar
	2011-12 (Spring)	Math 302	Engineering Mathematics
At Qatar University	2013-14 (Both)	Math 101	Calculus I
	2014-15 (Both)	Math 101	Calculus I

3.4 Teaching Related Publications

- T01** H. Azad and **M. T. Mustafa**: "Why do certain limacons have a dimple", Teaching Mathematics and its Applications, Oxford University Press, vol. 25, pp. 196-204, 2006.
- T02** H. Azad, A. Laradji and **M. T. Mustafa**: "On some applications of complex numbers to polar equations and cycloidal curves", arXiv:1211.0178 [math.HO].

3.5 Technology Integrated Teaching

- Instructional designer and joint content developer of "Linear Algebra & Differential Equations" online course completed as KFUPM funded project.
- Developed WebCT/Blackboard course material for Differential Equation, Engineering Mathematics, Differential Geometry and Calculus courses, and have blended my face to face teaching with WebCT component in effective manner for teaching these courses since 2004.
- Developed a web-enhanced WebCT course pack for Calculus II which included online course material, graphics, applets, animations, quick time movies, video lecture along with implementation of web 2.0 technologies like Wiki page.
- Developed MATLAB/Maple handouts with assignments and have integrated software in the Multivariable Calculus, Differential Equations and Differential Geometry courses.

4.0 SERVICES TO DEPARTMENT, COLLEGE AND UNIVERSITY

4.1 Committee Services

4.1.1 Committee Services at Qatar University

Name of Committee	Year	Formed by	Position
Scientific Research Committee	2013/2014	Department	Member
Curriculum and Study plans Committee	2013/2014	Department	Member
Grade Inflation Committee	2013	Department	Member
Committee for “Tier classification of English publications”	2014	Department	Chairman
Scientific Research Committee	2014/2015	Department	Member
Curriculum and Study plans Committee	2014/2015	Department	Member
Placement Exam Committee	2015	Department	Member
Math101 Review Committee	2015	Department	Member
CAS online course policy committee	2015	College	Member
New Math BS program proposal subcommittee	2015	Department	Member

4.1.2 Committee Services at KFUPM

Name of Committee	Year	Formed by	Position
Mathematics Awareness Committee	2002/2003	Department	Member
Teaching Committee	2003/2004	Department	Chairman
Mathematics Awareness Committee	2003/2004	Department	Member
Planning Committee	2003/2004	Department	Member
Industrial Mathematics Committee	2003/2004	Department	Member
Web Resources Committee	2004/2005	College	Chairman
IT in Teaching Committee	2004/2005	Department	Chairman
Planning Committee	2004/2005	Department	Member
Teaching Committee	2004/2005	Department	Member
Measures & Targets for College Plan	2004/2005	Department	Member
Revision of syllabi of calculus courses	2004/2005	Department	Member
Teaching Committee	2005/2006	Department	Chairman
Planning Committee	2005/2006	Department	Member
Actuarial Science Program Establishment Committee	2005/2006	Department	Member
Task Force for Strengthening Basic Science Programs	2006/2007	University	Member
Teaching Committee	2006/2007	Department	Chairman
Calculus Coordination Committee	2006/2007	Department	Member
Web Committee	2006/2007	Department	Chairman

Undergraduate Committee	2007/2008	Department	Member
Calculus Coordination Committee	2007/2008	Department	Member
Selection of Instructional Technology Award	2008/2009	University	Member
Graduate Committee	2008/2009	Department	Member
Undergraduate Committee	2008/2009	Department	Member
Calculus II Coordinated Exam Committee	2008/2009	Department	Member
Graduate Committee	2009/2010	Department	Member
Recitation Committee	2009/2010	Department	Chairman
Undergraduate Committee	2009/2010	Department	Member
Use of Technology Committee	2009/2010	Department	Member
Book Review & Selection Committee for Math260	2009/2010	Department	Chairman
MS Program Specification for NCAAA			
Accreditation	2009/2010	Department	Member
Committee for Double Major Math Electives	2010/2011	Department	Chairman
Graduate Committee	2010/2011	Department	Member
Advisory Committee to Chairman	2010/2011	Department	Member
Undergraduate Committee	2010/2011	Department	Member
Committee for Second Saudi Student Conference	2010/2011	University	Member
SWOT Analysis Committee	2010/2011	Department	Member
Academic Textbook Committee	2011/2012	University	Member
E-books Sub-Committee	2011/2012	University	Member
Committee for Math Minor Program	2011/2012	Department	Chairman
Excellence Teaching & Advising Award Committee	2011/2012	Department	Member
Graduate Committee	2011/2012	Department	Member
Advisory Committee to Chairman	2011/2012	Department	Member
Book Review & Selection for Differential Geometry	2012/2013	Department	Member
Advisory Committee to Chairman	2012/2013	Department	Member
Graduate Committee	2012/2013	Department	Member

4.1.3 Committee Services at GIK Institute

Besides actively contributing in the administrative affairs like faculty planning, budgeting and setting up the teaching schedules, I served the following committees during my stay at GIK Institute, Topi, Pakistan.

Name of Committee	Position	Formed By
Graduate Admission Committee	M	Department
Faculty Selection Committee	M	Department
Graduate Committee	M	Institute
Undergraduate Curriculum Committee	M	Institute
Undergraduate Admission Committee	M	Institute

Industrial Open House Committee	M	Institute
Prospectus Committee	M	Institute

4.2 Other Groups and Services

- 1) Contributor in Academic Hub activities related to students-at-risk in Math101 at Qatar University.
- 2) Served as Chairman of the M.S. Admissions Sub-Committee for last 5 years at KFUPM, Dhahran, Saudi Arabia
- 3) Served as Coordinator to Geometry, Topology and Graph Theory Group at KFUPM, Dhahran, Saudi Arabia
- 4) Member of Applied Mathematics and Differential Equations Group at KFUPM, Dhahran, Saudi Arabia
- 5) Active participation in the organization of several departmental events and activities
- 6) Students' mentoring for summer training, seminars, presentations or participation in conferences