

AMER RASHEED

DEPARTMENT OF MATHEMATICS, SCHOOL OF SCIENCE AND ENGINEERING, LAHORE UNIVERSITY OF MANAGEMENT SCIENCES

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RESEARCH INTERESTS

Finite Element Methods, Numerical Solution of Partial Differential Equations, Existence and uniqueness of solutions, Regularity and stability of PDEs, Dendritic Solidification, Phase-Field Method, Heat Transfer, Non-Newtonian Fluid Flows and Wave Mechanics.

TEACHING & EMPLOYMENT

Director, CASM Since Jan. 2016
Centre for Advanced Studies in Mathematics (CASM), School of Science and Engineering, Lahore University of Management Sciences. Lahore, Pakistan

Assistant Professor (Tenure Track) Since Jan. 2015
Department of Mathematics, School of Science and Engineering, Lahore University of Management Sciences. Lahore, Pakistan

- Approved Ph.D. Supervisor by Higher Education Commission of Pakistan.

Assistant Professor(Tenure Track) Sept. 2011 – Jan. 2015
Department of Mathematics, COMSATS Institute of Information Technology Wah Cantt, Pakistan

- **Courses Taught:** Numerical Solutions of Partial differential equations (M.S. Math), Advanced Numerical Analysis (M.S. Math), Advanced Partial Differential Equations (M.S. Math), Calculus and Analytical Geometry (B.S. Civil & Engineering), Numerical Computations (B.S. Computer Science), Ordinary Differential Equations (B.S. Engineering).

Assistant Professor (adjunct) Spring 2012–48hrs
Virtual Campus, COMSATS Institute of Information Technology. Islamabad, Pakistan

- **Courses Taught:** Discrete Mathematics (video lectures for B.S. Computer Science).

Attache Temporaire de l'Enseignement Rechercheur (Contract Lecturer) Sept. 2009–Aug. 2011
Institut nationale des Sciences et Appliquees (INSA) de Rennes. Rennes, France

- **Courses Taught:** Analyse-I & II, Algebre I & II, Geometrie.

Doctoral Fellow Sept. 2006–Oct. 2010
Equipe de Analyse, IRMAR, Institut national des Sciences Appliquee (INSA) de Rennes. Rennes, France

Lecturer Jan. 2003–Jun. 2006
Department of Mathematics, COMSATS Institute of Information Technology Wah Cantt, Pakistan

- **Courses Taught(B.S. Engineering):** Numerical Computations, Ordinary Differential Equations, Calculus & Analytic Geometry, Linear algebra, Discrete Mathematics.

EDUCATION

Ph.D. Applied Mathematics Sept. 2006–Oct. 2010
Centre de Mathématiques Appliquées, INSA de Rennes, European University of Bretagne Rennes, France

- **Dissertation:** Dendritic Solidification of Binary Mixtures of Metal under the action of Magnetic Field: Modeling, Mathematical and Numerical Analysis.

- **Advisor:** Prof. Abdel Aziz Belmiloudi, INSA de Rennes, Rennes, France.

- **Thesis Review Committee:** Prof. Alan Miranville (President), Prof. Jan Sokolowski (Reviewer), Prof. Rachid Touzani (Reviewer), Prof. Arnaud Debussche (Examiner), Prof. Olivier Ley (Examiner).
- **Mention:** Very honorable.

M.S. Applied Mathematics (PDE's and Fluid Dynamics) Sep. 2001–Sep. 2003
Quaid-e-Azam University (QAU) Islamabad, Pakistan

- **Thesis:** Homotopy Analysis Method and its Applications
- **Advisor:** Prof. Dr. Muhammad Ayub, Department of Methodmatics, QAU Islamabad.

M.Sc. Mathematics Sep. 1998–Sep. 2000
Punjab University Lahore Lahore, Pakistan

B.Sc. Mathematics & Statistics Sep. 1995–Aug. 1997
Punjab University Lahore Lahore, Pakistan

AWARDS & FELLOWSHIPS

Research Productivity Award Mar. 22, 2014
From COMSATS Institute of Information Technology, Islamabad–Pakistan.

Doctoral Fellowship July. 2006–March. 2010
From Higher Education Commission–Pakistan for Ph.D. in France.

Merit Scholarship Sept. 2001–Aug. 2003
From Quaid-e-Azam University Islamabad for M.Phil. in Applied Mathematics.

PROJECTS/FUNDINGS

- **Funds 1,158,900 Rupees to organize International Conference on Applied Mathematics (May. 22-24, 2017), Higher Education Pakistan.**
- **Funds 0.453 Million Rupees to organize CASM Workshop on Algebra and Applications (December 9-10, 2016), Higher Education Pakistan.**
- **Funds 984,400 Rupees to organize CASM Conference on Differential Equations and Applications (May 26-28, 2016), Higher Education Pakistan.**
- **Funds 0.5 Million Rupees; Project (Co-PI): Some Operators and Commutators on Function Spaces, (Sept. 2011 - Sept. 2012), Higher Education Pakistan.**
- **Amer Rasheed (PI) and Naveed Ahmed (Co-PI), Numerical Simulations of Heat Transfer in Exhaust/Intake Valves of a Two Stroke Engine, Submitted to Pakistan Science Foundation**
- **Ali Ashher Zaidi (PI), Amer Rasheed (Co-PI), Numerical Simulations of Heat Transfer in Exhaust/Intake Valves of a Two Stroke Engine, Submitted to Higher Education Pakistan**

MOUs SIGNED

- **Between Lahore University of Management Sciences and Kazan Aviation Institute Russia (2015-2018)**
- **Between Lahore University of Management Sciences and Heavy Industries Taxila, Pakistan (In progress)**

CONFERENCES & WORKSHOPS ORGANIZED BY CASM

- International Conference on Applied Mathematics** May. 22-24, 2017
Center for Advanced Studies in Mathematics, Lahore University of Management Sciences. Director, Organizer
- Workshop on Financial Mathematics: Teaching the Teachers** Dec. 19-24, 2016
Center for Advanced Studies in Mathematics, Lahore University of Management Sciences. Director, Organizer
 Webpage: <https://sbasse.lums.edu.pk/department/mathematics/workshop-teaching-the-teachers>
- CASM Workshop on Algebra and Applications** Dec. 09-10, 2016
Center for Advanced Studies in Mathematics, Lahore University of Management Sciences. Director, Organizer
 Webpage: <https://sbasse.lums.edu.pk/department/mathematics/casm-workshop-algebra-and-applications>
- International Conference on Differential Equations and Applications** May 26-28, 2016
Center for Advanced Studies in Mathematics, Lahore University of Management Sciences. Director, Organizer
- International Conference on Qualitative and Quantitative Techniques for Differential Equations and Applications** June 4-6, 2015
Center for Advanced Studies in Mathematics, Lahore University of Management Sciences. Member, Organizer

ACADEMIC SUPERVISION

- Muhammad Shuaib Anwar,** In progress
Registered since Sept. 2015, Lahore University of Management Sciences, Pakistan Ph.D. Thesis
- Abdul Qayyum Khan,** In progress
Registered since Sept. 2016, Lahore University of Management Sciences, Pakistan Ph.D. Thesis
- Bilal Jamil,** In progress
Lahore University of Management Sciences, Pakistan M.S. Thesis
- Syeda Fiza Zehra,** In progress
Lahore University of Management Sciences, Pakistan M.S. Thesis
- Nasir Ali, Numerical simulations of unsteady fractional fluid flow under the influence of magnetic field.** Aug. 4, 2017
Lahore University of Management Sciences, Pakistan M.S. Thesis
- Fariha Ali, Numerical Simulations of Heat Transfer Flow Between Parallel Plates.** June 15, 2013
Referee: Prof. Malik Muhammad Yousaf, Quaid-i-Azam University, Pakistan M.S. Thesis
- Azka Kausar, The Flow Simulations of Third Grade Fluid past a Porous Plate.** Jan 15, 2014
Referee: Prof. Malik Muhammad Yousaf, Quaid-i-Azam University, Pakistan M.S. Thesis
- Hanifa Hanif, Flow Simulations of a Fourth Grade Fluid Using Finite Element Methods.** June 20, 2014
Referee: Prof. Muhammad Ayub, Quaid-i-Azam University, Pakistan M.S. Thesis
- S. Shahid, Unsteady Flow of Fractional Burgers Fluids: A Numerical Study.** Jan 20, 2014
Referee: Dr. Masud Ahmed, University of Sargodha, Pakistan M.S. Thesis
- Shaista Qaim Shah, Numerical Heat and Mass Transfer Analysis of a Time Fractional Oldroyd-B Fluid Between Infinite Parallel Plates.** Jan. 15, 2014
Referee: Prof. Malik Muhammad Yousaf, Quaid-i-Azam University, Pakistan M.S. Thesis
- Nazma Javaid, Numerical study of two dimensional unsteady flow of an anomalous Maxwell fluid.** June 9, 2014
Referee: Prof. Muhammad Ayub, Quaid-i-Azam University, Pakistan M.S. Thesis

SCIENTIFIC PUBLICATIONS

16. Muhammad Shoaib Anwar, Amer Rasheed, **Simulations of a fractional rate type nano fluid flow with non-integer Caputo time derivatives**, *Computers and Mathematics with Applications*, Accepted (July 2017).

15. [Amer Rasheed](#), Muhammad Kamran, Azka Kausar and Tanvir Akbar, **Stabilized Approximation of Steady Flow of Third Grade Fluid in Presence of Partial Slip**, *Results in Physics*, Accepted (August 2017).
14. Muhammad Shoaib Anwar, [Amer Rasheed](#), **A microscopic study of MHD fractional inertial flow through Forchheimer medium**, *Chinese Journal of Physics*, 55, pp. 1690 - 1703, 2017.
13. Muhammad Shoaib Anwar, [Amer Rasheed](#), **Heat transfer at microscopic level in a MHD fractional inertial flow confined between non-isothermal boundaries**, *European Physical Journal Plus*, **132**, pp. 305, 2017.
12. [Amer Rasheed](#), Abdul Wahab, Shaista Qaim Shah, Rab Nawaz, **Finite difference-finite element approach for solving fractional Oldroyd-B equation**, *Advances in Difference Equations*, **2016-(1)**, pp. 236, 2016.
11. Tanvir AKbar, Rab Nawaz, Muhammad Kamran, [Amer Rasheed](#), **Magnetohydrodynamic (MHD) flow analysis of second grade fluids in a porous medium with prescribed vorticity**, *AIP Advances*, **5**, pp. 117 - 133, 2015.
10. A. Wahab, [A. Rasheed](#), R. Nawaz and N. Javaid, **Numerical study of two dimensional unsteady flow of an anomalous Maxwell fluid**, *International Journal of Numerical Methods in Heat and Fluid Flow*, **25(5)**, pp. 1120 - 1137, 2015.
9. [A. Rasheed](#), R. Nawaz, S. A. Khan, H. Hanif and A. Wahab, **Numerical study of a thin film flow of fourth grade fluid**, *International Journal of Numerical Methods in Heat and Fluid Flow*, **25(4)**, pp. 929 - 940, 2015.
8. [A. Rasheed](#), A. Wahab, **Numerical Analysis of an Isotropic Phase Field Model with Magnetic Field Effect**, *CR Math, Academy of Sciences Paris Series I, France*, **353** (3), pp. 219-224, 2015.
7. A. Wahab, [A. Rasheed](#), T. Hayat and R. Nawaz, **Electromagnetic time reversal algorithms and source localization in lossy dielectric media**, *Communications in Theoretical Physics*, **62(6)**, pp. 779 - 789, 2014.
6. R. Nawaz, A. Wahab and [A. Rasheed](#), **An intermediate range solution to a diffraction problem with impedance conditions**, *Journal of Modern Optics*, 61(16), pp. 1324-1332, 2014.
5. A. Wahab, [A. Rasheed](#), R. Nawaz and S. Anjum, **Localization of extended current source with finite frequencies**, *Comptes Rendus Mathematique*, 352(11), pp. 917 - 921, 2014.
4. [A. Rasheed](#), A. Belmiloudi, **Mathematical modelling of numerical simulations of dendrite growth using phase-field method with a magnetic field effect**, *Communications in Computational Physics*, 14(2), pp. 477-508, 2013.
3. [A. Rasheed](#), A. Belmiloudi, **An analysis of the phase-field model for isothermal binary alloy solidification with convection under the influence of magnetic field**, *Journal of Mathematical Analysis and Applications*, 390(1), pp. 244-274, 2012.
2. [A. Rasheed](#), A. Belmiloudi and F. Mah, **Dynamics of dendrite growth in a binary alloy with magnetic field affect**, *Discrete Contin. Dyn. Syst.*, Special Issue, pp. 12241233, 2011.
1. M. Ayub, [A. Rasheed](#) and T. Hayat, **Exact flow of a third grade fluid past a porous plate using homotopy analysis method**, *Int. J. Eng. Sci.*, 41, pp. 2091-2103, 2003.

Preprints

1. Muhammad Shoaib Anwar, [Amer Rasheed](#), **Transport phenomena in a fractional nanofluid flow using finite element framework with non-linear convection and flux conditions**, *Journal of Computational and Applied Mathematics*, submitted, (June 2017).
2. [A. Rasheed](#), Fariha Ali, Muhammad Kamran, Sohail Ahmed Khan, **Numerical simulations of a third grade heat transfer flow between two parallel plates**, *Canadian Journal of Physics*, Under Review (August 2017).
3. [A. Rasheed](#), A. Belmiloudi, **Convergence and stability of the Phase-field model with magnetic-field effect**, *Journal of Crystal Growth*, Submitted (March 2017).
4. [A. Rasheed](#), M. Kamran and T. Akbar, **A study on heat transfer in post-treatment analysis of wire coating process by laminar flow**, Submitted (August 2017).

TALKS IN CONFERENCES (SELECTED)

- **Numerical Analysis of an Anisotropic Phase Field Model in the Presence of Magnetic Field**, *The Tenth IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory*, University of Georgia, Athens, GA, USA, **March 29– April 1, 2017**.
- **Dendritic solidification of binary alloys**, *Recent advances in computational fluid dynamics*, Invited Speaker at a workshop organized by Mathematics department COMSATS Islamabad (**May 28–29, 2015**).
- **Effect of Magnetic Field on Dendrites during the solidification of binary alloys**, *Mathematical and Statistical Models in Economics, Finance and Applied Sciences: Analysis and Methods*, Invited Speaker at a Conference organized by Centre for Mathematics and Statistical Sciences (CMSS), Lahore School of Economics (LSE) (**Feb. 6–7, 2015**).
- **Dendritic solidification of binary alloys under the action of variable magnetic field**, *Computational Methods in Mathematics*, Invited speaker at Workshop organized by COMSTECH Islamabad (**May 7–9, 2012**).
- **Phase-field method for computationally efficient modeling of the solidification of binary alloy with magnetic field affect**, *Conference in Numerical Analysis*, NumAn2010, Chania Greece, **September 2010**.
- **Dynamics of dendrite growth in a binary alloy with magnetic field effect**, *The 8th American Institute of Mathematical Sciences*, (AIMS) Conference on Dynamical Systems, Differential Equations and Applications, , Dresden Germany, **May 2010**.
- **Solidification of binary mixtures under the action of magnetic field**, *Journee Scientifique des Jeunes Chercheurs: Modeling and Simulations*, Institut National des Sciences Appliquees Rennes, France (**June 24, 2010**).
- **Modeling and numerical analysis of the solidification of binary mixtures under the action of magnetic fields**, *Journee d'equipe d'analyse*, Institut de Recherche Mathematique de Rennes (IRMAR), France (**Nov. 12, 2009**).

SELECTED SYNERGETIC ACTIVITIES

- **Member**, *University Faculty Housing Committee*, Lahore University of Management Sciences, Pakistan (**July 2016 – June 2017**)
- **Member**, *University Sar-Sabz Committee*, Lahore University of Management Sciences, Pakistan (**July 2016 – June 2017**)
- **Member**, *Department Graduate Committee*, Lahore University of Management Sciences, Pakistan (**July 2016 – June 2017**)
- **Member**, *Department Faculty Search Committee*, Lahore University of Management Sciences, Pakistan (**July 2016 – present**)
- **Member**, *University Convocation Committee*, Lahore University of Management Sciences, Pakistan (**July 2015 – June 2016**)
- **Convener**, *Department Research Committee*, Lahore University of Management Sciences, Pakistan (**July 2015 – June 2016**.)
- **Member**, *Department Communication Committee*, Lahore University of Management Sciences, Pakistan (**Jan. 2015 – June 2016**)
- **Head**, *Department of Mathematics*, COMSATS Institute of Information Technology, Pakistan (**Jan. 2014 – Jan. 2015**)
- **Coordinator MS Mathematics**, *Department of Mathematics*, COMSATS Institute of Information Technology, Pakistan, (**Sept. 2011 – Jan. 2014**).
- **Organizer**, **Weekly Seminar Series on Mathematics & Applications**, at the premises of COMSATS Institute of Information Technology, Pakistan, Wah Campus, (**Sept. 2012 – Jan. 2015**).
- **Convener**, **COMSATS Mathematical Olympiad** Series organized every year in the month of March, COMSATS Institute of Information Technology, Wah Campus, (**Sept. 2012 – Jan. 2015**).
- **Convener**, *Departmental Thesis Advisory Committee*, COMSATS Institute of Information Technology, Wah Campus.

PERSONALIA

Date/Place of Birth: June 12, 1977/ Rawalpindi, PAKISTAN.
Nationality: Pakistani.
Marital Status: Married (2 kids).
NICP No.: 37405 – 5128748 – 5.

HOBBIES

Traveling, Photography & Cooking.

REFERENCES

- **Dr. Aziz Belmiloudi**, Senior Associate Professor, *Institut de Recherche Mathmatique de Rennes (IRMAR)*, *Institut National des Sciences Appliquees (INSA)*, Rennes France.
Email: aziz.belmiloudi@math.cnrs.fr
Web: <http://belmiloudi.perso.math.cnrs.fr/>
- **Prof. Dr. Muhammad Ayub**, Department of Mathematics, *Quaid-e-Azam University Islamabad, Pakistan*.
Email: mayub59@yahoo.com
Web: <https://www.qau.edu.pk/profile.php?id=814001>
- **Prof. Dr. Saleem Asghar**, Department of Mathematics, *COMSATS Institute of Information Technology Islamabad, Pakistan*.
Email: sasghar@comsats.edu.pk
Web: <http://ww3.comsats.edu.pk/faculty/FacultyDetails.aspx?Uid=464>