

PERSONAL INFORMATION

Razi Khan

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🌐 <https://sites.google.com/view/khanrazi>

📅 **Date of birth** 1 March 1992 | **Nationality** Pakistan

WORK EXPERIENCE

March 2024 – Present

Post-Doctoral Research Fellowship

Center for Computational and Stochastic Mathematics (CEMAT), Instituto Superior Técnico, Av. Rovisco Pais 1, 1049-001 Lisboa (Portugal)

- Mathematical and Numerical Modeling in Fluid Mechanics
- Mathematical and Numerical Modeling in Biomedicine

December 2020 – November 2023

Doctoral Researcher

University of Campania Luigi Vanvitelli, Viale Abramo Lincoln, 5, 81100 Caserta CE, (Italy)

- Analysis of Polymeric Fluid and Boundary Value Problems
- Flow and Heat Transfer Characteristics

January 2023 – May 2023

Visiting Graduate and Erasmus Fellowship

Center for Computational and Stochastic Mathematics (CEMAT), Instituto Superior Técnico, Av. Rovisco Pais 1, 1049-001 Lisboa (Portugal)

- Non-Newtonian Fluid Dynamics in Cavities
- Buoyancy-driven Flow
- Finite Element Analysis

August 2019 – April 2020

Lecturer in Mathematics

The Quaid-e-Azam College for Boys Islamabad, Park Road Chak Shahzad 4500 (Pakistan)

- Undergraduate Mathematics Courses
- Controller of Examination

EDUCATION AND TRAINING

2020–2023

PhD - Thesis Title: “Numerical Study of The Behavior of Polymeric Fluid in Different Geometries”

PhD in Mathematics, Physics and Engineering Applications, University of Campania Luigi Vanvitelli, Italy

- Flow and Heat Transfer
- Polymeric Fluid Dynamics
- Nanoparticles Concentration
- Entropy Generation
- MHD Flow

2016–2018

Master - Thesis Title : “Similar and Non-similar Solutions of Powell-Eyring Fluid Over a Power-law Stretching Sheet”

Master of Science in Mathematics, COMSATS University Islamabad, Pakistan

- Flow and Heat Transfer
- MHD and Dual Solutions

2011–2015

Bachelor's Studies in Mathematics

Department of Mathematics, University of Peshawar, Pakistan

- Pure and Applied Subjects
- Analytical and Numerical Methods

CONFERENCE PRESENTATIONS

- Speaker**
- Lisbon Young Mathematicians Conference (LYMC2025), Lisbon, Portugal, April 2025: *Numerical analysis of sheardependent unsteady non-Newtonian fluid flow and heat transfer in open-ended cavities.*
 - International Conference on Computational Heat and Mass Transfer (ICCHMT), Düsseldorf, Germany, Sept 2023: *Shear thinning and thickening influences on the buoyancy-driven flow of a viscous incompressible Reiner-Philippoff fluid in a rectangular open-ended cavity with permeable horizontal surfaces.*
 - International Conference on Non-Linear Science and Complexity, Istanbul, Turkey, Jul 2023: *Entropy Generation and Heat Transfer Analysis of a FENE-P non-Newtonian Polymeric Fluid with Soret and Dufour Effects.*

PERSONAL SKILLS

Mother tongue Pashto

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	Excellent	Excellent	Excellent	Excellent	Excellent
Italian	Good	Elementary	Elementary	Elementary	Elementary

- Communication skills**
- Teamwork: I have collaborated in diverse teams ranging from academic research groups to sports teams, including university-level cricket teams.
 - Mediation and leadership: I have actively worked at the intersection of students, faculty, and administration. I served on the Proctoral Board and was a departmental proctor. I also held the position of class representative for four years, managed departmental events, and served as president of the student society.
 - Intercultural communication: I have experience working with multicultural teams, particularly in performing arts. I participated in university drama societies and theatre groups, enhancing my ability to engage with people from different cultural backgrounds.

- Computer skills**
- FreeFem++: Extensive experience in simulation, modeling, and applying FreeFem++ to analyze and study fluid behavior.
 - MATLAB: Proficient in solving boundary value problems (BVPs) and in analyzing and interpreting numerical results.
 - FORTRAN: Proficient in using FORTRAN for solving BVPs with significant experience in numerical modeling and data analysis.

- Other skills**
- Proficient in Microsoft Office Suite (Word, Excel, PowerPoint), with experience in preparing technical reports, data analysis, and professional presentations.
 - Strong organizational and multitasking skills gained through academic project management and event coordination.
 - Creative mindset with a passion for visual arts; enjoy creating pieces of art and visiting modern art galleries.
 - Enthusiastic about sports, particularly cricket, hiking, and cooking.
 - Keen traveler with a strong interest in exploring different cultures and environments.

PUBLICATIONS

- [1] Razi Khan. "Numerical study on the behavior of a polymeric MHD nanofluid: entropy optimization and thermal analysis". In: *International Journal of Numerical Methods for Heat & Fluid Flow* 34.10 (2024), pp. 3882–3903.

- [2] Razi Khan, Eugenia Rossi di Schio, and Paolo Valdiserri. "Entropy optimization of a FENE-P viscoelastic model: a numerically guided comprehensive analysis". In: *Journal of Thermal Analysis and Calorimetry* (2024), pp. 1–13.
- [3] R Khan, A Alameer, M Afraz, A Ahmad, R Nawaz, and Y Khan. "Exploring the enigmatic interplay between polymers and nanoparticles in a non-Newtonian viscoelastic fluid". In: *Chinese Journal of Chemical Engineering* 75 (2024), pp. 161–169.
- [4] A Ahmad, S Murtaza, and R Khan. "Application of Laplace transform technique of variable order to the generalized Caputo fractional model of second grade nanofluid". In: *Acadlore Trans. Appl. Math. Stat* 2 (2024), pp. 133–149.
- [5] Saqib Murtaza, Emad AA Ismail, Fuad A Awwad, Ebenezer Bonyah, Ahmed M Hassan, Muhammad Saad Khan, Razi Khan, and Zubair Ahmad. "Parametric simulations of fractal-fractional non-linear viscoelastic fluid model with finite difference scheme". In: *AIP Advances* 14.4 (2024).
- [6] Razi Khan and Adeel Ahmad. "Influence of nanoparticles on the electromagnetic hydrodynamic mixed convection flow and heat transfer of a polymeric FENE-P fluid past a Riga plate in the presence of Arrhenius chemical reaction". In: *Journal of Magnetism and Magnetic Materials* 567 (2023), p. 170352.
- [7] Razi Khan, Adeel Ahmad, and Rab Nawaz. "Effects of polymer and dust particles inclusion on drag and heat transfer characteristics in Non-Newtonian dusty fluids". In: *Numerical Heat Transfer, Part A: Applications* (2023), pp. 1–17.
- [8] Razi Khan, Adeel Ahmad, Mehwish Afraz, and Yasir Khan. "Flow and heat transfer analysis of polymeric fluid in the presence of nanoparticles and microorganisms". In: *Journal of Central South University* 30.4 (2023), pp. 1246–1261.
- [9] Ayesha Sahreen, Adeel Ahmad, Razi Khan, and Rab Nawaz. "Polymer dispersion effects on drag, heat transfer, and mass transfer in non-Newtonian based nanofluids". In: *Lubricants* 11.8 (2023), p. 339.
- [10] Naqash Azeem, Abdul Qaisar, Abdul Rab Asary, and Razi Khan. *Analysis of the Thermodynamic Effects of a Plate Based on Numerical Simulations*. Tech. rep. SAE Technical Paper, 2023.
- [11] Razi Khan, M Zaydan, Abderrahim Wakif, B Ahmed, RL Monaedi, Isaac Lare Animasaun, and Adeel Ahmad. "A note on the similar and non-similar solutions of powell-eyring fluid flow model and heat transfer over a horizontal stretchable surface". In: *Defect and Diffusion Forum*. Vol. 401. Trans Tech Publ. 2020, pp. 25–35.
- [12] Adeel Ahmad and Razi Khan. "A new family of unsteady boundary layer flow over a magnetized plate". In: *Journal of Magnetism* 24.1 (2019), pp. 75–80.

ADDITIONAL INFORMATION

References

- Prof. Jorge Tiago – CEMAT, Instituto Superior Técnico, Lisbon
Email: jorge.tiago@tecnico.ulisboa.pt
- Prof. Adeel Ahmad, Department of Mathematics, COMSATS University Islamabad
Email: adeelahmed@comsats.edu.pk
- Prof. Francesca Crispo, Department of Mathematics and Physics, University of Campania Luigi Vanvitelli, Caserta
Email: francesca.crispo@unicampania.it

Almada, May 8, 2025

Signature

