*Department of Mathematics*
*School of Sciences*
*Maulana Azad National Urdu University (Central University)*
*Gachibowli, Hyderabad, Telangana-500032, India*
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✉ *afroz.ahmad@manuu.edu.in*

# Dr. Afroz | Associate Professor

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| CURRENT DESIGNATION/ INVOLVEMENT | Currently working as an **Associate Professor** in the Department of Mathematics, School of Sciences, Maulana Azad National Urdu University (Central University), Hyderabad, Telangana-500032, India. |
| AREA OF SPECIALIZATION | Wavelets Applications in Biomedical Signal Processing, Image Processing and Solving Differential Equations using wavelets. |
| RESEARCH PROJECTS AWARDED/DONE | 1. **PROJECT ENTITLED "APPLICATIONS OF WAVELETS IN BIOMEDICAL SIGNAL PROCESSING" AWARDED FROM UNIVERSITY GRANT COMMISSION, GOVT. OF INDIA OF AMOUNT 6 LAKHS FOR THE DURATION OF 2016-18.**<br><br>2. **PROJECT ENTITLED "APPLICATIONS OF WAVELETS PACKET IN ECG SIGNAL PROCESSING" AWARDED FROM MANUU OF AMOUNT 1 LAKH FOR THE DURATION OF DECEMBER 2023- DECEMBER 2024.** |
| BOOKS /BOOK CHAPTERS PUBLISHED | 1. Afroz, (2019). Emerging Security Algorithms and Techniques (Ch– 1 Modular Arithmetic). CRC Press Taylor and Francis Group. 1,1-10.<br>2. Afroz, (2019). Emerging Security Algorithms and Techniques (Ch-2Modular Arithmetic). CRC Press Taylor and Francis Group. 1,11-26.<br>3. Afroz and Basharat Hussain (2020). Machine Learning an Data Ch - 1Mathematical Foundation). Wiley.<br>4. Afroz and Basharat Hussain (2020). Machine Learning and Big Data (Ch-2 Theory of Probability). Wiley.<br>5. Afroz (2021). Higherbolic Functions (Ch-1 Calculus).DDE, MANUU.<br>6. Afroz (2021). Higher Order Derivatives (Ch-2 Calculus).DDE, MANUU |
| ACADEMIC AND ADMINISTRATIVE EXPERIENCE | 5. **HEAD & ASSOCIATE PROFESSOR, DEPARTMENT OF MATHEMATICS, MANUU HYDERABAD FROM 15-05-2020 to 14-05023**<br>6. **ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, MANUU HYDERABAD FROM 25-09-2014 TO 26-02-2020.**<br>7. **ASSISTANT PROFESSOR, ZAKIR HUSAIN DELHI COLLEGE, DELHI UNIVERSITY FROM 03-03-2011 TO 21-09-2014. DYAL SINGH COLLEGE, DELHI UNIVERSITY**<br>8. **ASSISTANT PROFESSOR, DYAL SINGH COLLEGE, DELHI UNIVERSITY FROM AUGUST, 2009 TO APRIL, 2010.**<br>9. **LECTURER, ALFALAH SCHOOL OF ENGINEERING AND TECHNOLOGY, FARIDABAD, HARYANA FROM 2006 TO 2007.**<br>10. **C AND C++ -PROGRAMMING DURING M.SC. (MATHEMATICS). MATLAB, MATHEMATICA, MS-OFFICE, WINDOWS.** |

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| EDUCATIONAL QUALIFICATION | - **DOCTOR OF PHILOSOPHY (Ph.D.), 2011**<br>Department of Mathematics, Jamia Millia Islamia, New Delhi.<br>- **M. PHIL MATHEMATICS, 2007.**<br>Alagappa University, Karaikudi, Tamilnaidu.<br>- **M.SC. MATHEMATICS WITH COMPUTER SCIENCES, 2002.**<br>Department of Mathematics, Jamia Millia Islamia, New Delhi-110025.<br>- **B.SC., 2000.**<br>Department of Mathematics, Jamia Millia Islamia, New Delhi-110025. |

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| TEACHING PROFICIENCY | **Algebra, linear algebra, differential equations, complex analysis, calculus, numerical analysis, co-ordinate geometry, operations research, advanced calculus, probability and statistics.** |

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| RESEARCH PUBLICATION DETAILS | |

- Dynamical Analysis of Generalised Tumor Model with Caputo Fractional – Order Derivative. International Journal of Fractal and Fractional.  MDPI, 13, 1-20
- **Afroz**, Ausif Padder (2022). Dynamical Analysis of Tumor-Immune Interaction Model with Nonlinear Activation Rate. Palestine Journal of Mathematics. 12, 57-72
- **Afroz**, Basharat Malik (2022). A Collection Method for Solving Proportional Delay Riccati Differential Equations of Fractional Order. Springer Proceedings in Mathematics and Statistics. 216, 203-226
- **Afroz**, Ausif Padder (2022). Stability and Bifurcation of Tumor-Macrophases Response Model and Inhibitory Role Treg Cells. Iranian Journal of Science and Technology. 8, 1-15
- **Afroz**, Ausif Padder (2022). Stability and Bifurcation Analysis of Generalized Discrete-Time Tumor Model. Journal of Xi'an University of Architecture and  Technology. 14, 447-457
- **Afroz**, Basharat Malik (2022). Haar wavelet based numerical method for solving proportional delay of Dirichlet  boundary value problem. International Journal of Non Linear Analysis and Applications.1, 1-14.
- **Afroz,** Imtiyaz Ahmad Wani, (2022). Detection of R- Peaks in Electrocardiogram based on Wavelet Transform and Wavelet Approximation. Punjab University of Mathematics. 7, 441-453
- **Afroz**, Basharat Malik (2022).Haar Wavelet Series Method for solving Simultaneous proportional delay Differential Equations. Lecture Notes in Networks and Systems ,Springer. 1, 413-415
- **Afroz**, Ausif Padder (2022). Solving and Analysing Tumor-immune interaction Model by Generalized Differential Transformation Method, Int . J. Appl. Computer Math. 8, 1-14.
- **Afroz**, Basharat Malik (2022). An Efficient Haar Wavelet Series Method to solve Higher Order Multi pantograph equations Arising in Electrodynamics. Jourdan Journal Math. And Stat. 15, 787-805.
- **Afroz**, Parveze Ahmad Dar, (2022). A New Wavelet Thresholding

Technique For Denoising of Digital Images by Using Wavelet Packet Transformation. International Journal of Mechanical engineering. 7 (4363-4372).

- **Afroz**, Ausif Padder (2022). Analysis of Tumor-Immune Response Model by Differential Transformation Method. Journal of Scientific Research.14, 243-256

- **Afroz**, Ausif Padder (2022). Analysis Of tumor Immune Response Model By Using Conformable Fractional Order Derivative. South East Asian j. of Mathematics And Mathematical Sciences. 8, 393-413.

- **Afroz**, Basharat Malik (2021). Approximation solution for proportional Delay Riccati differential equations by Haar Wavelet Method. Poincare Journal of Analysis and Applications. 8 ,157-170.

- **Afroz**, Parveze Ahmad Dar, (2021). Performance Comparision of Different Filters for Denoising the digital Noisy Images through Wavelet Transformation. Design Engineering. 8, 15789-15800.

- **Afroz**, Imtiyaz Ahmad Wani, (2019). Comparison of SNR Values for Different Wavelet Functions using Wavelet Packet Transformation. International Journal of Research in Advent Technology. 7, 1436-1442.

- Abdullah, **Afroz**, (2019). Sufficient Condition for Wavelet Frame on Positive Half-Line. International Journal for Research in Applied Science & Engineering Technology. 7, 2503-2507.

- **Afroz,** Imtiyaz Ahmad Wani, (2018). Comparison of ECG Denoising Threshold Estimators through Wavelet Packet Analysis. International Journal of Advance Research in Science and Engineering. 7, 103-108.

- Abdullah, **Afroz** (2018). Semi- orthogonal wavelet frames on positive half-line using the Walsh Fourier Transform. New Trends in Mathematical Sciences. 6, 175 -183.

- Abdullah, **Afroz,** (2017). Detection of ECG R- Waves using Wavelet Transform. European Journal of Scientific Research. 145, 181-187.

- **Afroz**, (2016). Selection of Best Wavelet Filter for Denoising of ECG Signal. Journal of Applied Mathematics in Science and Technology, 31-39.

- **Afroz,** Jaffery Z.A., Khalil Ahmad (2014). ECG Baseline Drift Elimination Using Wavelet Packets Transform. Australian Journal of Basic and Applied Sciences, 8, 459-466.

- **Afroz,** Jaffery Z.A., Khalil Ahmad (2013).Applications of Wavelet Packets in ECG Signal Denoising. Journal of Wavelet Theory and Applications.1, 35-44.

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| | • Khalil Ahmad, Jaffery Z. A. and **Afroz** (2011). Denoising of ECG Signal using Wavelet Transform. JMI International Journal of Mathematical Sciences. 2, 26- 33.<br>• M. Ausif Padder, **Afroz,** Ayub Khan. Analysis of Tumor-Immune Response Model by Differential Transformation Method. J. Sci. Res. **14** (1), 243-256 (2022). |
| DETAILS OF CONFERENCE/SEMINAR /WORKSHOP/ FDP (ATTENDED/PRESENTED ) | 1. Participated in the International Conference on Modelling of Engineering and Technological Problems (ICMETP-2009) held at BMAS Engineering College, Keetham, Agra during 14-16 January, 2009.<br>2. Participated and presented a paper entitled "Denoising of ECG Signal using Wavelet Transform using Wavelets" in the International Conference on Recent Trends in Mathematics and its Applications (ICRTMA-09) held at Jamia Millia Islamia, New Delhi during 30-31 March, 2009.<br>3. Participated and presented a paper entitled "Performance Comparison of Wavelet Threshold Estimators for ECG Signal Denoising" in the International Conference on Advances in Recent Technologies in Communication and Computing, (IEEE2010) held at Kottayam, Karla, India, oct 15-16, 2010.<br><br>**FDP/Workshops:**<br><br>(1) "Fourth Online One Month Faculty Induction Program" Organized by UGC-HRDC, Jamia Millia Islamia, New Delhi, from 10th February to 11th March, 2021. |
| DETAILS OF KEYNOTE SPEAKER/RESOURCE PERSON/ SESSION CHAIR ETC. | Delivered lectures in CSE- UGC as Resource person in MANUU |
| ACHIVEMENTS | 1. First Position in B. Sc. (JMI, New Delhi). |
| DETAILS OF SUPERVISION (M.PHIL/M.TECH/P.HD.) | 1. Guided four Ph.D. Student |
| PROFESSIONAL MEMBERSHIPS | ▪ **LIFE MEMBER OF INDIAN SOCIETY OF INDUSTRIAL & APPLIED MATHEMATICS** |

| PERSONAL DETAILS | **Father's Name** | : Fakhruddin |
| | **Date of Birth** | : |
| | **Gender** | : Male |
| | **Marital Status** | : Married |
| | **Nationality** | : Indian |
| | **Language Known** | : English, Urdu, Hindi |
| | Etc.. | |

Date: 25.03.2024
Place: Hyderabad

(Dr. Afroz)