

CURRICULUM VITAE FOR ALİ AKGÜL

January 2023

BIOGRAPHICAL INFORMATION

Name: Ali Akgül

Address: Department of Mathematics
Siirt University
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Date/Place of Birth: March 17, 1983; Savur, Mardin, TURKEY.

Degrees Attained: Doctor of Philosophy (Firat University - Elazığ, 2014)
Master of Arts (Dicle University - Diyarbakır, 2010)
Bachelor of Science (Dicle University - Diyarbakır, 2005)

Positions Held: Assistant (2015-2016) and Associate (2016-2021) Professor of Mathematics at
Siirt University

Current Position: Full Professor of Mathematics at the Siirt University (2021-present)

Research Areas: Fractional Differential Equations, Numerical Methods,
Partial Differential Equations, Mathematical Modeling, Functional Analysis.

ALL PAPERS: 350

SCI PAPERS: 278

H INDEX : 33 (Google Scholar)

Citations : 4576 (Google Scholar)

H INDEX : 28 (Web of Science)

Citations : 3110 (Web of Science)

Citations : 2719 (Web of Science, Without self-citations)

HONORS/AWARDS

OBADA PRIZE (2022)

Wen Chen AWARD (2020)

AD Ranking for Scientist (In Siirt University, Turkey, Ali Akgül's position in Siirt University is 1)

Plenary speaker at more than 10 international conferences.

TÜBİTAK Scientific Awards (40 times)

Siirt University Scientific Awards (6 times)

%2 Top Scientist in the world (2021)

%2 Top Scientist in the world (2022)

Special Issue Editors of More than 20 Journals

TEACHING/ADVISING

Doctoral Students: Elif Nuray (2021)

Master Students: Zehra Gökkaya (2023), Gamze Öztürk (2022), Mehmet Kar (2022), Metin Araz (2021), Tuba Macit (2021), Rebwar Faisal Mohammed (2019), Awder Sardar Abdalrahman (2018), Barış Örcan (2018), Idrees Sedeeq Mustafa (2018), Salar Ameen Raheem Raheem (2017), Wali Hassan Mohammed Mohammed (2017)

Served on 5 Doctoral Degree committees - 5 mathematics and 5 out-of-department (2014-present).

Served on 16 Master Degree committees - 16 mathematics and 10 out-of-department (2014-present).

Served as academic advisor to 100 undergraduate mathematics majors and 50 graduate mathematics students (2014-present).

Courses taught, with frequency in parentheses, at Siirt University from 2015 to the present:

PhD Courses

Fractal-Fractional Differential Equations

Applications of Reproducing Kernel Methods

General Integral Transforms

Master Courses

Applied Mathematics

Mathematical Modelling and Applications to Engineering Problems

Advanced nonlinear differential equations II

Advanced Engineering Mathematics II

Numerical Analysis II

Using Software Programs

Fractional Differential Equations I

Initial Boundary Value Problems I

Undergraduate Courses

Differential Equations

Calculus

Theory of Ordinary Differential Equations

Partial Differential Equations

PUBLICATIONS

Articles in Refereed Journals

1. Iqbal, M. S., Yasin, M. W., Ahmed, N., Akgül, A., Rafiq, M., & Raza, A. (2023). Numerical simulations of nonlinear stochastic Newell-Whitehead-Segel equation and its measurable properties. *Journal of Computational and Applied Mathematics*, 418, 114618.
2. S Ahmad, A Ullah, S Ahmad, A Akgül, (2023). Bright, dark and hybrid multistrip optical soliton solutions of a non-linear Schrödinger equation using modified

- extended tanh technique with new Riccati solutions, *Optical and Quantum Electronics* 55 (3), 236
3. M Qayyum, Q Fatima, ST Saeed, A Akgül, W Weera, WR Alharbi, (2023). A reliable algorithm for higher order boundary value problems, *Alexandria Engineering Journal* 66, 315-328
 4. M Farman, A Hasan, M Sultan, A Ahmad, A Akgül, F Chaudhry, M Zakarya, (2023). Yellow virus epidemiological analysis in red chili plants using Mittag-Leffler kernel, *Alexandria Engineering Journal* 66, 811-825.
 5. FK Iyanda, H Rezazadeh, M Inc, A Akgül, IM Bashiru, MB Hafeez, (2023). Numerical simulation of temperature distribution of heat flow on reservoir tanks connected in a series, *Alexandria Engineering Journal* 66, 785-795
 6. Z Shoukat, MH Zubair, M Farman, A Akgül, M Sultan, SS Sharipov, (2023). Impacts of joule heating with Cattaneo-Christove heat flux model in a MHD flow of Eyring-Powell fluid on a Riga plate, *Alexandria Engineering Journal* 64, 741-748.
 7. MA ur Rehman, M Kazim, N Ahmed, A Raza, M Rafiq, A Akgül, M Inc, (2023). Positivity preserving numerical method for epidemic model of hepatitis B disease dynamic with delay factor, *Alexandria Engineering Journal* 64, 505-515.
 8. NZ Khan, R Mahmood, S Bilal, A Akgül, S Abdullaev, EE Mahmoud, (2023). Mixed convective thermal transport in a lid-driven square enclosure with square obstacle, *Alexandria Engineering Journal* 64, 981-998.
 9. A Khan, J Iqbal, A Akgül, R Ali, Y Du, A Hussain, KS Nisar, V Vijayakumar, (2023). A Newton-type technique for solving absolute value equations, *Alexandria Engineering Journal* 64, 291-296.
 10. N Ahmed, A Akgül, AM Satti, Z Iqbal, A Raza, M Rafiq, R Anjum, (2023). Analysis of the fractional polio model with the Mittag-Leffler kernels, *Alexandria Engineering Journal* 64, 957-967.
 11. MI Liaqat, A Akgül, H Abu-Zinadah, (2023). Analytical Investigation of Some Time-Fractional Black-Scholes Models by the Aboodh Residual Power Series Method, *Mathematics* 11 (2), 276.

12. N Bibi, T Rana, A Maqbool, F Afzal, A Akgül, M De la Sen, (2023). An Intelligent Platform for Software Component Mining and Retrieval, *Sensors* 23 (1), 525.
13. TS Shaikh, A Akgül, N Ahmed, MS Iqbal, N Shahid, M Rafiq, M De la Sen, (2023). Analysis of a Modified System of Infectious Disease in a Closed and Convex Subset of a Function Space with Numerical Study, *Axioms* 12 (1), 79.
14. N Attia, A Akgül, D Seba, A Nour, MD la Sen, M Bayram, (2023). An Efficient Approach for Solving Differential Equations in the Frame of a New Fractional Derivative Operator, *Symmetry* 15 (1), 144.
15. A Sarwar, M Arshad, M Farman, A Akgül, I Ahmed, M Bayram, S Rezapour, (2023). Construction of Novel Bright-Dark Solitons and Breather Waves of Unstable Nonlinear Schrödinger Equations with Applications, *Symmetry* 15 (1), 99.
16. M Partohaghighi, A Akgül, EK Akgül, N Attia, M De la Sen, M Bayram, (2023). Analysis of the Fractional Differential Equations Using Two Different Methods, *Symmetry* 15 (1), 65.
17. TS Shaikh, A Akgül, MA Rehman, N Ahmed, MS Iqbal, N Shahid, M Rafiq, (2023). A Nonlinear Structure of a Chemical Reaction Model and Numerical Modeling with the New Aspect of Existence and Uniqueness, *Mathematics* 11 (1), 37.
18. Z Bouazza, S Souhila, S Etemad, MS Soud, A Akgül, S Rezapour, (2023). On the Caputo-Hadamard fractional IVP with variable order using the upper-lower solutions technique, *AIMS Mathematics* 8 (3), 5484-5501.
19. P Li, R Gao, C Xu, Y Li, A Akgül, D Baleanu, Dynamics exploration for a fractional-order delayed zooplankton–phytoplankton system, *Chaos, Solitons & Fractals* 166, 112975.
20. J Kayalvizhi, AGV Kumar, N Sene, A Akgül, M Inc, H Abu-Zinadah, (2023). An exact solution of heat and mass transfer analysis on hydrodynamic magneto nanofluid over an infinite inclined plate using Caputo fractional derivative model, *AIMS Mathematics* 8 (2), 3542-3560.

21. N Muhammad, A Asghar, S Irum, A Akgül, EM Khalil, M Inc, (2023). Approximation of fixed point of generalized non-expansive mapping via new faster iterative scheme in metric domain, *AIMS Mathematics* 8 (2), 2856-2870.
22. B Ahmad, MO Ahmad, M Farman, A Akgül, MB Riaz, (2023). A significance of multi slip condition for inclined MHD nano-fluid flow with non linear thermal radiations, Dufuor and Sorrot, and chemically reactive bio-convection effect, *South African Journal of Chemical Engineering* 43, 135-145.
23. Z Iqbal, MA Rehman, M Imran, N Ahmed, U Fatima, A Akgül, M Rafiq, (2023). A finite difference scheme to solve a fractional order epidemic model of computer virus, *AIMS Math* 8, 2337-2359.
24. MZ Baber, N Ahmed, MW Yasin, MS Iqbal, A Akgül, MB Riaz, M Rafiq, (2023). Comparative analysis of numerical with optical soliton solutions of stochastic Gross–Pitaevskii equation in dispersive media, *Results in Physics* 44, 106175.
25. A Akgül, (2023). On Solutions of Fractional Klein-Gordon Equations, *Applications of Fractional Calculus to Modeling in Dynamics and Chaos*, 155-172.
26. A Akgül, (2023). Reproducing Kernel Method for Solutions of Fractal-Fractional Differential Equations, *Applications of Fractional Calculus to Modeling in Dynamics and Chaos*, 173-186
27. A Shahzad, M Imran, M Tahir, SA Khan, A Akgül, S Abdullaev, C Park, (2023). Brownian motion and thermophoretic diffusion impact on Darcy-Forchheimer flow of bioconvective micropolar nanofluid between double disks with Cattaneo-Christov heat flux, *Alexandria Engineering Journal* 62, 1-15.
28. A Akgül et al. (2022). Comparative Analysis Of Solar Air Channels, Z-Shaped Obstacles Added To Improve Flow Structure, *THERMAL SCIENCE: Year 2022*, Vol. 26, Special Issue 1, pp. S201-S210.
29. A Akgül et al. (2022). Turbulent Flows Around Rectangular And Triangular Turbulators In Baffled Channels A Computational Analysis, *THERMAL SCIENCE: Year 2022*, Vol. 26, Special Issue 1, pp. S191-S199.

30. A Akgül et al. (2022). Three-Dimensional Assessment Of Thermal-Hydraulic Behaviour In Heat Exchangers Fitted By Wavy Annular Fins, *THERMAL SCIENCE: Year 2022*, Vol. 26, Special Issue 1, pp. S485-S493.
31. A Akgül et al. (2022). Using Obstacle Perforation, Reconfiguration, And Inclination Techniques To Enhance The Dynamic And Thermal Structure Of A Top-Entry Channel, *THERMAL SCIENCE: Year 2022*, Vol. 26, Special Issue 1, pp. S475-S484.
32. Attia, N., Akgül, A., Seba, D., Nour, A., & Asad, J. (2022). A novel method for fractal-fractional differential equations. *Alexandria Engineering Journal*, 61(12), 9733-9748.
33. Bilal, S., Shah, I. A., Akgül, A., Tekin, M. T., Botmart, T., & Yahia, I. S. (2022). A comprehensive mathematical structuring of magnetically effected Sutterby fluid flow immersed in dually stratified medium under boundary layer approximations over a linearly stretched surface. *Alexandria Engineering Journal*, 61(12), 11889-11898.
34. Farman, M., Akgül, A., Tekin, M. T., Akram, M. M., Ahmad, A., Mahmoud, E. E., & Yahia, I. S. (2022). Fractal fractional-order derivative for HIV/AIDS model with Mittag-Leffler kernel. *Alexandria Engineering Journal*, 61(12), 10965-10980.
35. Modanli, M., Göktepe, E., Akgül, A., Alsallami, S. A., & Khalil, E. M. (2022). Two approximation methods for fractional order Pseudo-Parabolic differential equations. *Alexandria Engineering Journal*, 61(12), 10333-10339.
36. Qureshi, Z. A., Bilal, S., Khan, U., Akgül, A., Sultana, M., Botmart, T., Zahran H. Y. & Yahia, I. S. (2022). Mathematical analysis about influence of Lorentz force and interfacial nano layers on nanofluids flow through orthogonal porous surfaces with injection of SWCNTs. *Alexandria Engineering Journal*, 61(12), 12925-12941.
37. Shah, I. A., Bilal, S., Akgül, A., Tekin, M. T., Botmart, T., Zahran, H. Y., & Yahia, I. S. (2022). On analysis of magnetized viscous fluid flow in permeable channel with single wall carbon nano tubes dispersion by executing nano-layer approach. *Alexandria Engineering Journal*, 61(12), 11737-11751.

38. Xu, C., Farman, M., Hasan, A., Akgül, A., Zakarya, M., Albalawi, W., & Park, C. (2022). Lyapunov Stability and Wave Analysis of Covid-19 Omicron Variant of Real Data with Fractional Operator. *Alexandria Engineering Journal*, 61(12), 11787-11802.
39. Ali, S., Ullah, A., Ahmad, S., Nonlaopon, K., & Akgül, A. (2022). Analysis of Kink Behaviour of KdV-mKdV Equation under Caputo Fractional Operator with Non-Singular Kernel. *Symmetry-Basel*, 14(11).
40. Partohaghighi, M., Mirtalebi, Z., Akgül, A., & Riaz, M. B. (2022). Fractal–fractional Klein–Gordon equation: A numerical study. *Results in Physics*, 42.
41. Qayyum, M., Abbas, T., Afzal, S., Saeed, S. T., Akgül, A., Inc, M., Mahmoud, K. H., & Alsubaie, A. S. (2022). Heat Transfer Analysis of Unsteady MHD Carreau Fluid Flow over a Stretching/Shrinking Sheet. *Coatings*, 12(11).
42. Asjad, M. I., Usman, M., Kaleem, M. M., & Akgül, A. (2022). Numerical solutions of fractional Oldroyd-B hybrid nanofluid through a porous medium for a vertical surface. *Waves in Random and Complex Media*.
43. Attia, N., & Akgül, A. (2022). A reproducing kernel Hilbert space method for nonlinear partial differential equations: applications to physical equations. *Physica Scripta*, 97(10).
44. Guran, L., Akgül, E. K., Akgül, A., & Bota, M. F. (2022). Remarks on Fractal-Fractional Malkus Waterwheel Model with Computational Analysis. *Symmetry*, 14(10).
45. Jamil, M., Afzal, F., Akgül, A., Abdullah, S., Maqbool, A., Razzaque, A., Riaz, M. B. & Awrejcewicz, J. (2022). Einstein Aggregation Operators under Bipolar Neutrosophic Environment with Applications in Multi-Criteria Decision-Making. *Applied Sciences*, 12(19).
46. Sadiq, G., Ali, A., Ahmad, S., Nonlaopon, K., & Akgül, A. (2022). Bright Soliton Behaviours of Fractal Fractional Nonlinear Good Boussinesq Equation with Nonsingular Kernels. *Symmetry*, 14(10).
47. Haq, I. U., Yavuz, M., Ali, N., & Akgül, A. (2022). A SARS-CoV-2 Fractional-Order Mathematical Model via the Modified Euler Method. *Mathematical and Computational Applications*, 27(5).

48. Farman, M., Akgül, A., Aldosary, S. F., Nisar, K. S., & Ahmad, A. (2022). Fractional order model for complex layla and majnun love story with chaotic behaviour. *Alexandria Engineering Journal*, 61(9), 6725-6738.
49. Liaqat, M. I., & Akgül, A. (2022). A novel approach for solving linear and nonlinear time-fractional Schrödinger equations. *Chaos, Solitons & Fractals*, 162.
50. Shah, I. A., Bilal, S., Akgül, A., Omri, M., Bouslimi, J., & Khan, N. Z. (2022). Significance of cold cylinder in heat control in power law fluid enclosed in isosceles triangular cavity generated by natural convection: A computational approach. *Alexandria Engineering Journal*, 61(9), 7277-7290.
51. Sultana, M., Arshad, U., Abdel-Aty, A. H., Akgül, A., Mahmoud, M., & Eleuch, H. (2022). New Numerical Approach of Solving Highly Nonlinear Fractional Partial Differential Equations via Fractional Novel Analytical Method. *Fractal and Fractional*, 6(9).
52. Akgul, A. (2022). Symmetric and Asymmetric Causality Analysis of the Relationship between Inflation and Tax Revenues in Turkey. *ESKISEHIR OSMANGAZI UNIVERSITESI IIBF DERGISI-ESKISEHIR OSMANGAZI UNIVERSITY JOURNAL OF ECONOMICS AND ADMINISTRATIVE SCIENCES*, 17(2), 455-478.
53. Bilal, S., Shah, M. I., Khan, N. Z., Akgül, A., & Nisar, K. S. (2022). Onset about non-isothermal flow of Williamson liquid over exponential surface by computing numerical simulation in perspective of Cattaneo Christov heat flux theory. *Alexandria Engineering Journal*, 61(8), 6139-6150.
54. Rizwan, M., Farman, M., Akgül, A., Ayub, A., & Usman, Z. (2022). Effect of Sc and Zn doping on structure and electro-optical behavior in c-BiAlO₃: A DFT trial. *Materials Science in Semiconductor Processing*, 146.
55. Yao, S. W., Ahmad, A., Inc, M., Farman, M., Ghaffar, A., & Akgul, A. (2022). Analysis of fractional order diarrhea model using fractal fractional operator. *Fractals-Complex Geometry Patterns and Scaling in Nature and Society*. 30(05).
56. Zhang, L., Ahmad, S., Ullah, A., Akgul, A., & Akgul, E. K. (2017). Analysis of Hidden Attractors of Non-Equilibrium Fractal Fractional. *Stanford Encyclopedia of Philosophy*. 30(05).

57. Feroze, N., Akgul, A., Jawa, T. M., Sayed-Ahmed, N., & Ali, R. (2022). An improved estimation for heterogeneous datasets with lower detection limits regarding environmental health. *Computational and Mathematical Methods in Medicine*, 2022.
58. Liaqat, M. I., Khan, A., Akgül, A., & Ali, M. (2022). A novel numerical technique for fractional ordinary differential equations with proportional delay. *Journal of Function Spaces*, 2022.
59. Akgül, E. K., Akgül, A., Jamshed, W., Rehman, Z., Nisar, K. S., Alqahtani, M. S., & Abbas, M. (2022). Analysis of respiratory mechanics models with different kernels. *Open Physics*, 20(1), 609-615.
60. Farman, M., Aslam, M., Akgül, A., & Jarad, F. (2022). On Solutions of the Stiff Differential Equations in Chemistry Kinetics With Fractal-Fractional Derivatives. *Journal of Computational and Nonlinear Dynamics*, 17(7).
61. Ahmad, S., Ullah, A., & Akgul, A. (2022). Study of a fractional system of predator-prey with uncertain initial conditions. *Mathematical Problems in Engineering*, 2022.
62. Shah, N. A., El-Zahar, E. R., Akgül, A., Khan, A., & Kafle, J. (2022). Analysis of Fractional-Order Regularized Long-Wave Models via a Novel Transform. *Journal of Function Spaces*, 2022.
63. Fang, J., Nadeem, M., Habib, M., & Akgül, A. (2022). Numerical Investigation of Nonlinear Shock Wave Equations with Fractional Order in Propagating Disturbance. *Symmetry*, 14(6).
64. Partohaghighi, M., Akgül, A., Guran, L., & Bota, M. F. (2022). Novel Mathematical Modelling of Platelet-Poor Plasma Arising in a Blood Coagulation System with the Fractional Caputo–Fabrizio Derivative. *Symmetry*, 14(6).
65. Safdar, R., Jawad, M., Hussain, S., Imran, M., Akgül, A., & Jamshed, W. (2022). Thermal radiative mixed convection flow of MHD Maxwell nanofluid: Implementation of buongiorno's model. *Chinese Journal of Physics*, 77, 1465-1478.
66. Khoshaim, A. B., Naeem, M., Akgul, A., Ghanmi, N., & Zaland, S. (2022). Novel Analysis of Fractional-Order Fifth-Order Korteweg–de Vries Equations. *Journal of Mathematics*, 2022.

67. Farooq, M. M., Mohsin, M., Farman, M., Akgül, A., & Saleem, M. U. (2022). Generalization method of generating the continuous nested distributions. *International Journal of Nonlinear Sciences and Numerical Simulation*, 2022.
68. Siddique, I., Nadeem, M., Khan, I., Jamil, R. N., Shamseldin, M. A., & Akgül, A. (2022). Analysis of fuzzified boundary value problems for MHD Couette and Poiseuille flow. *Scientific Reports*, 12(1), 1-28.
69. Akgül, A., & Partohaghighi, M. (2022). New fractional modelling and control analysis of the circumscribed self-excited spherical strange attractor. *Chaos, Solitons & Fractals*, 158.
70. Liu, J., Nadeem, M., Habib, M., & Akgül, A. (2022). Approximate Solution of Nonlinear Time-Fractional Klein-Gordon Equations Using Yang Transform. *Symmetry*, 14(5).
71. Liu, X., Ahmad, S., ur Rahman, M., Nadeem, Y., & Akgül, A. (2022). Analysis of a TB and HIV co-infection model under Mittag-Leffler fractal-fractional derivative. *Physica Scripta*, 97(5).
72. Ahmad, N., Mehmood, N., & Akgül, A. (2022). Applications of some new Krasnoselskii-type fixed-point results for generalized expansive and equiexpansive mappings. *Advances in Continuous and Discrete Models*, 2022(1), 1-19.
73. Akgül, A., Hashemi, M. S., & Jarad, F. (2022). New Solutions of Nonlinear Dispersive Equation in Higher-Dimensional Space with Three Types of Local Derivatives. *Fractal and Fractional*, 6(4).
74. Alqahtani, R. T., Ahmad, S., & Akgül, A. (2022). On Numerical Analysis of Bio-Ethanol Production Model with the Effect of Recycling and Death Rates under Fractal Fractional Operators with Three Different Kernels. *Mathematics*, 10(7).
75. Attia, N., Akgül, A., Seba, D., Nour, A., & Riaz, M. B. (2022). Reproducing kernel Hilbert space method for solving fractal fractional differential equations. *Results in Physics*, 35.
76. Liaqat, M. I., Khan, A., & Akgül, A. (2022). Adaptation on power series method with conformable operator for solving fractional order systems of nonlinear partial differential equations. *Chaos, Solitons & Fractals*, 157.

77. Ullah, N., Asjad, M. I., Rehman, H. U., & Akgül, A. (2022). Construction of optical solitons of Radhakrishnan–Kundu–Lakshmanan equation in birefringent fibers. *Nonlinear Engineering*, 11(1), 80-91.
78. Ahmed, N., Rehman, M. A. U., Adel, W., Jarad, F., Ali, M., Rafiq, M., & Akgül, A. (2022). Structure Preserving Numerical Analysis of Reaction-Diffusion Models. *Journal of Function Spaces*, 2022.
79. Iqbal, N., Akgül, A., Shah, R., Bariq, A., Mossa Al-Sawalha, M., & Ali, A. (2022). On solutions of fractional-order gas dynamics equation by effective techniques. *Journal of Function Spaces*, 2022.
80. Partohaghighi, M., Akgül, A., & Alqahtani, R. T. (2022). New Type Modelling of the Circumscribed Self-Excited Spherical Attractor. *Mathematics*, 10(5).
81. Rahman, M. U., Ahmad, S., Arfan, M., Akgül, A., & Jarad, F. (2022). Fractional Order Mathematical Model of Serial Killing with Different Choices of Control Strategy. *Fractal and Fractional*, 6(3).
82. Aljahdaly, N. H., Akgül, A., Shah, R., Mahariq, I., & Kafle, J. (2022). A comparative analysis of the fractional-order coupled Korteweg–De Vries equations with the Mittag–Leffler law. *Journal of Mathematics*, 2022.
83. Ahmad, S., Ullah, A., Akgül, A., & Abdeljawad, T. (2022). Chaotic behavior of Bhalekar–Gejji dynamical system under Atangana–Baleanu fractal fractional operator. *Fractals*, 30(01).
84. Akgül, A., & Modanli, M. (2022). On Solutions of Fractional Telegraph Model With Mittag–Leffler Kernel. *Journal of Computational and Nonlinear Dynamics*, 17(2).
85. Bilal, S., Khan, N. Z., Shah, I. A., Awrejcewicz, J., Akgül, A., & Riaz, M. B. (2022). Numerical Study of Natural Convection of Power Law Fluid in a Square Cavity Fitted with a Uniformly Heated T-Fin. *Mathematics*, 10(3).
86. Sultana, M., Arshad, U., Khalid, M., Akgül, A., Albalawi, W., & Zahran, H. Y. (2022). A New Iterative Predictor-Corrector Algorithm for Solving a System of Nuclear Magnetic Resonance Flow Equations of Fractional Order. *Fractal and Fractional*, 6(2).

87. Zarin, R., Khaliq, H., Khan, A., Khan, D., Akgül, A., & Humphries, U. W. (2022). Deterministic and fractional modeling of a computer virus propagation. *Results in Physics*, 33.
88. Ahmad, S., Ullah, A., Partohaghighi, M., Saifullah, S., Akgül, A., & Jarad, F. (2021). Oscillatory and complex behaviour of Caputo-Fabrizio fractional order HIV-1 infection model. *AIMS Math*, 7(3), 4778-4792.
89. Ahmad, S., Ullah, A., Akgül, A., & Jarad, F. (2022). A hybrid analytical technique for solving nonlinear fractional order PDEs of power law kernel: Application to KdV and Fornberg-Witham equations. *AIMS Mathematics*, 7(5), 9389-9404.
90. Ahmed, N., Raza, A., Akgül, A., Iqbal, Z., Rafiq, M., Ahmad, M. O., & Jarad, F. (2022). New applications related to hepatitis C model. *AIMS Mathematics*, 7(6), 11362-11381.
91. Akram, M. M., Farman, M., Akgül, A., Saleem, M. U., Ahmad, A., Partohaghighi, M., & Jarad, F. (2022). Analysis of HIV/AIDS model with Mittag-Leffler kernel. *AIMS Mathematics*, 7(7), 13383-13401.
92. Amin, M., Farman, M., Akgül, A., Partohaghighi, M., & Jarad, F. (2022). Computational analysis of COVID-19 model outbreak with singular and nonlocal operator. *AIMS Mathematics*, 7(9), 16741-16759.
93. Atangana, A., & Akgül, A. (2022). Analysis of a derivative with two variable orders. *AIMS Mathematics*, 7(5), 7274-7293.
94. Dayan, F., Ahmed, N., Rafiq, M., Akgül, A., Raza, A., Ahmad, M. O., & Jarad, F. (2022). Construction and numerical analysis of a fuzzy non-standard computational method for the solution of an SEIQR model of COVID-19 dynamics. *AIMS Mathematics*, 7(5), 8449-8470.
95. Farman, M., Akgül, A., Nisar, K. S., Ahmad, D., Ahmad, A., Kamangar, S., & Saleel, C. A. (2022). Epidemiological analysis of fractional order COVID-19 model with Mittag-Leffler kernel. *AIMS Mathematics*, 7(1), 756-783.
96. Farman, M., Akgül, A., Askar, S., Botmart, T., Ahmad, A., & Ahmad, H. (2021). Modeling and analysis of fractional order Zika model. *virus*, 3, 4.

97. Farman, M., Ahmad, A., Akgül, A., Saleem, M. U., Nisar, K. S., & Vijayakumar, V. (2022). Dynamical behavior of tumor-immune system with fractal-fractional operator. *AIMS Mathematics*, 7(5), 8751-8773.
98. Foroutan, M. R., Hashemi, M. S., Gholizadeh, L., Akgül, A., & Jarad, F. (2022). A new application of the Legendre reproducing kernel method. *AIMS Mathematics*, 7(6), 10651-10670.
99. Gulalai, S. A., Rihan, F. A., Ahmad, S., Rihan, F. A., Ullah, A., Al-Mdallal, Q. M., & Akgül, A. (2022). Nonlinear analysis of a nonlinear modified KdV equation under Atangana Baleanu Caputo derivative. *AIMS Mathematics*, 7(5), 7847-7865.
100. Ikram, M. D., Imran, M. A., Chu, Y. M., & Akgül, A. (2022). MHD flow of a Newtonian fluid in symmetric channel with ABC fractional model containing hybrid nanoparticles. *Combinatorial Chemistry & High Throughput Screening*, 25(7), 1087-1102.
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Invited Speaker in International Conferences

- 1) **The 2023 Conference on Nonlinear Science and Complexity is hosted hybrid by the Biruni University, Turkey, for five days (10-15, July 2023).**
- 2) ICAMCS-2022 at DIT University
- 3) IROP 2022

- 4) Two-Days International Workshop on Recent Developments in Pure and Applied Mathematics, on October 09-10, 2022, STC Hall, Government College University Faisalabad, New Campus, Jhang Road, Faisalabad Pakistan
- 5) 2nd Garrison International Conference on Pure and Applied Mathematics.
[#GICPAM](#) 2022
- 6) **ICRTAM 2022**
- 7) Cost Training School CA15225
- 8) 5th day of IWRTMIA 2022
- 9) Virtual Seminar on Applied and Pure Mathematics
- 10) **3rd International Webinar on Recent Trends in Applications of Mathematics**
- 11) **First International Alumni's Mathematics UET Conference**
- 12) International Workshop on "Fractional Calculus and Computational Intelligence
- 13) 3rd International Conference on Applied and Engineering Mathematics.
- 14) UMT international conference 2020

Announcements published in international scientific conferences

1. **Ali Akgül** and Mustafa Inc. Numerical solutions of linear and nonlinear Klein-Gordon equations using reproducing kernel Hilbert space method, **International Conference on Applied Analysis and Algebra**, *Yildiz Technical University, İstanbul/TURKEY*, June 20-24, 2012.
2. **Ali Akgül** and Mustafa Inc. Numerical solution of the second—order onedimensional

telegraph equation based on reproducing kernel Hilbert space

method, **The 11th International Workshop on Dynamical Systems and Applications**, *Çankaya University, Ankara/TURKEY*, June 26-28, 2012.

3. Ali Akgül. A novel method for solving KdV equation based on reproducing kernel Hilbert space method, **70th Midwest PDE Seminar Program**, *University of Memphis/USA*, November 3-4, 2012.

4. Ali Akgül. Reproducing kernel Hilbert space method for solving Bratu's problem, **The fifth Symposium on Biomathematics and Ecology Education and Research**, *St. Louis, Missouri/USA*, November 9-11, 2012.

5. Ali Akgül. The reproducing kernel Hilbert space method for solving Troesch's problem, **The International Conference on the Theory, Methods and Applications of Nonlinear Equations**, *Texas A-M, Kingsville, TX,/USA*, December 17-21, 2012.

6. Ali Akgül. A new application of the reproducing kernel Hilbert space method to solve MHD Jeffery-Hamel flows problems in non-parallel walls, **Joint Mathematics Meetings**, *San Diego Convention Center/USA*, January 9-12, 2013.

7. Ali Akgül and Mustafa Inc. *Numerical solution of MHD squeezing fluid flow in reproducing kernel Hilbert space*, **The Sixth Symposium on Biomathematics and Ecology Education and Research**, *Marymount University, Missouri/USA*, October 11-13, VA, 2013.

8. Ali Akgül, Mustafa Inc and Adem Kılıçman. New Method for solving the onedimensional

Sine-Gordon equations, **AMS Sectional Meeting Program**, *Washington University, St. Louis, MO/USA*, October 18-20, 2013.

9. Ali Akgül. On solution of the Fornberg--Whitham type equation, **Peterson Conference**, *Lincoln, Nebraska/USA*, October 25-27, 2013.

10. Ali Akgül and Mustafa Inc. Reproducing kernel Hilbert space Method for solving the Fornberg—Whitham type Equation **International Boundary Value Problems Workshop**, *Dicle University, Diyarbakır/TURKEY*, March 11-13, 2014.

11. Ali Akgül. *Approximate solutions of fractional order boundary value problems*

by a novel method, International Congress in Honour of Professor Ravi P. Agarwal, Bursa, Turkey, June 23-26, 2014.

12. Ali Akgül. Approximate solutions of delay differential equations by reproducing kernel Hilbert space method (RKHSM), **the Regional Fundamental Science Congress 2014 (FSC2014)**, 19 – 20 August (2014).

13. Ali Akgül, David E. Grow, Mustafa Inc. *Numerical Solutions of the Variable Order Fractional Partial Differential Equation by Reproducing Kernel Method*, **International Conference On Applied Analysis And Mathematical Modeling**, ICAAMM 2015 İSTANBUL (8-12 Haziran 2015).

14. Ali Akgül, Multiple solutions of second order differential equations, *The international conference mathematical and computational modeling in science and technology*, August 02-07, 2015, İzmir/Turkey.

15. Ali Akgül, Numerical Results of Extended Lane–Emden Type Equations, 4th INTERNATIONAL EURASIAN CONFERENCE ON MATHEMATICAL SCIENCES AND APPLICATIONS, August 31--September 3, 2015.

16. Ali Akgül and David E. Grow, Existence of Solutions to the Telegraph Equation in Reproducing Kernel Hilbert Space, **International Conference on Advancements in Mathematical Sciences (AMS 2015)**” Antalya, Turkey on November 5-7, 2015.

17. Ali Akgül and Mustafa Inc, New Approach for White–Dwarf And Thomas–Fermi Equations, **International Conference on Mathematics and Mathematics Education (ICMME-2016)**.

18. Mustafa Inc, Tuncay Gençoğlu and Ali Akgül, Application of Eadm and Evim to Hirota-Satsuma Coupled Kdv Equation, **International Conference on Mathematics and Mathematics Education (ICMME-2016)**.

19. Ali Akgül, Mustafa Inc and Dumitru Baleanu, **On solutions of variable-order fractional differential equations** , International Conference on Applied Mathematics and Analysis (ICAMA2016).

20. Ali, Akgül and Yasir Khan, A Novel Simulation Methodology of Fractional Order Nuclear Science Model, **ICNAAM 2016, 19-25 September 2016, Rodos Palace Hotel, Rhodes, Greece.**

21. Ali Akgül and Yasir Khan, On Solutions of Higher-Order Boundary Value

Problems, **ICNAAM 2016, 19-25 September 2016, Rodos Palace Hotel, Rhodes, Greece.**

22. Ali Akgül, Esra Karataş Akgül, Reproducing Kernel Method for Nonlinear Systems of Higher–Order Boundary Value Problems, 22th seminar on mathematical analysis and its applications during, **25-26 January, 2017 in Bonab University.**

23. Ali Akgül, Esra Karataş Akgül and Salar Ameen Raheem, *Solutions of Nonlinear Differential Equations by Reproducing Kernel Method and Group Preserving Scheme*, International Workshop On Mathematical Methods In Engineering Cankaya University, Ankara, **TURKEY**, April 27-29, 2017.

24. Mir Sajjad Hashem, Mustafa Inc, Esra Karataş Akgül and **Ali Akgül**, *A Numerical Investigation on Burgers Equation by MOL-GPS Method*, International Workshop On Mathematical Methods In Engineering Cankaya University, Ankara, **TURKEY**, April 27-29, 2017.

25. Mehmet Gıyas Sakar, **Ali Akgül** and Onur Saldır, *A New Technique for Numerical Solution of Fractional BVP's*, International Workshop On Mathematical Methods In Engineering Cankaya University, Ankara, **TURKEY**, April 27-29, 2017.

26. Mehmet Gıyas Sakar, **Ali Akgül** and Onur Saldır, *Numerical Solution of Fractional Bratu Type Equation by Legendre-Reproducing Kernel Method*, International Workshop On Mathematical Methods In Engineering Cankaya University, Ankara, **TURKEY**, April 27-29, 2017.

27. Ali Akgül, Esra Karataş Akgül and Idrees Sedeeq Mustafa, *Solutions of Initial Value Problems by Reproducing Kernel Method and Group Preserving Scheme*, International Workshop On Mathematical Methods In Engineering Cankaya University, Ankara, **TURKEY**, April 27-29, 2017.

28. Ali Akgül, Yasir Khan and Esra Karatas, Comparison on Solving a Class of Nonlinear Systems of Partial Differential Equations, *International Conference On Mathematics And Mathematics Education (ICMME-2017) Harran University 11–13 May 2017.*

29. Ali Akgül and Yasir Khan, An Accurate Technique for Nonlinear Systems of Higher–Order Boundary Value Problems, *International Conference On*

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30. Ali Akgül and Esra Karatas, International Conference on Mathematical Modelling in Applied Sciences, ICMMAS'17 Some Open Problems in the Reproducing Kernel Method, **SPbPU, Saint Petersburg-Russia**, during **July 24-28, 2017**.

31. Esra Karatas and Ali Akgül, International Conference on Mathematical Modelling in Applied Sciences, ICMMAS'17A Novel Method for the Solution of Blasius Equation in Semi-Infinite Domains, **SPbPU, Saint Petersburg-Russia**, during **July 24-28, 2017**.

32. Ali, Akgül and Esra Karatas Akgül, Some new applications of reproducing kernel method, Caucasian Mathematics Conference (CMC-II), **Van, Turkey**, **August 22-24, 2017**.

33. Esra Karatas Akgül and Ali, Akgül, A novel method for nonlinear systems of higher-order boundary value problems, Caucasian Mathematics Conference (CMC-II), **Van, Turkey, August 22-24, 2017**.

34. Ali, Akgül, Dumitru Baleanu and Esra Karatas Akgül, Reproducing kernel method for strongly non-linear equation **ICNAAM 2017, 25-30 September 2017, The MET Hotel, Thessaloniki, Greece**.

35. M.S. Hashemi, D. Baleanu, Z. Balmeh and E Kartas, Ali, Akgül, Invariant investigation on the system of Hirota-Satsuma Coupled KdV equation, **ICNAAM 2017, 25-30 September 2017, The MET Hotel, Thessaloniki, Greece**.

36. Yasir Khan, Ali Akgül, Dumitru, Esra, Naeem Faraz, Mustafa Inc, A homotopy perturbation solution for solving highly nonlinear fluid flow problem arising in mechanical engineering, **ICNAAM 2017, 25-30 September 2017, The MET Hotel, Thessaloniki, Greece**.

37. Ali Akgül, Esra Karatas Akgül and Barış Örcan, A New Method for a Nonlinear System of Differential Equations, CMES 2018.

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39. Ali Akgül, Esra Karatas Akgül and Barış Örcan On Solutions of Higher-Order

Fractional Differential Equations, CMES 2018.

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44. International Conference on Computational Methods in Applied Sciences IC2MAS 2019 Istanbul

BOOKS

Abdon Atangana and Ali Akgül, Integral Transforms and Engineering: Theory, Methods, and Applications, Taylor and Francis, 2023.

BOOKS CHAPTERS

- 1. Ali Akgül, Esra Karatas Akgül, Yasir Khan and Dumitru Baleanu, Comparison on Solving a Class of Nonlinear Systems of Partial Differential Equations and Multiple Solutions of Second Order Differential Equations, Springer, 2019.**
- 2. Ali Akgül, Esra Karatas Akgül, Yasir Khan and Dumitru Baleanu, Solving the Nonlinear System of Third Order Boundary Value Problems, Springer, 2019.**
- 3. Ali Akgül, Reproducing Kernel Method for Fractional Derivative with Non-local and Non-singular Kernel, Springer, 2019.**
- 4. Ali Akgül, Esra Karatas Akgül, Reproducing kernel functions, Intechopen, 2018.**
- 5. A Akgül, Solutions of Integral Equations by Reproducing Kernel Hilbert Space Method, Topics in Integral and Integro-Differential Equations: Theory and Applications, Springer, 2021.**
- 6. Fractional order analysis, Wiley, 2021.**
- 7. A Novel Method for Solving Nonlinear Jerk Equations, Springer, 2021.**
- 8. Solving a New Type of Fractional Differential Equation by Reproducing Kernel Method, Springer, 2021.**