

**Ümit Aksoy, Ph.D.**

Atılım University  
Department of Mathematics  
06830 İncek, Gölbaşı, Ankara/TURKEY  
umit.aksoy@atilim.edu.tr

**EDUCATION**

2000-2006	Middle East Technical University, Mathematics, Ph.D.
1997-2000	Middle East Technical University, Mathematics, M.S.
1991-1996	Middle East Technical University, Mathematics, B.S.

**ACADEMIC POSITIONS**

12/2021-	Professor, Department of Mathematics, Atılım University
02/2015-12/2021	Associate Professor, Department of Mathematics, Atılım University
11/2007-02/2015	Assistant Professor, Department of Mathematics, Atılım University
09/2004-11/2007	Instructor, Department of Mathematics, Atılım University
06/1998-09/2004	Research Assistant, Department of Mathematics, Middle East Technical University

**ADMINISTRATIVE DUTIES**

07/2023-	Member of the Faculty Board, Atılım University
04/2019-04/2021	Vice Chair of the Department of Mathematics, Atılım University

**HONORS&AWARDS**

1	(2008) "Best PhD. Thesis Award of the Year 2006-2007", Middle East Technical University
2	(2007) Best Scientific Paper Award, Ministry of Education and Science of Georgia and Georgia National Science Foundation, Tbilisi, Georgia

**RESEARCH INTERESTS**

1	Complex partial differential equations, boundary value problems
2	Mathematical Finance
3	Applications in fixed point theory

## PUBLICATIONS

1	E. Karapınar, R.S. Adigüzel, Ü. Aksoy and I.M. Erhan, A new approach to the existence and uniqueness of solutions for a class of nonlinear q-fractional boundary value problems, Appl. Comput. Math., 24(2025), 235-249.
2	E. Karapınar, K. Kadioğlu, M.G. Türkmenel, Ü. Aksoy, Several outcomes of fixed-point theory in interpolative metric spaces, Appl. Gen. Topol. 26(2025), 871-880.
3	R.S. Adigüzel, Ü. Aksoy, E. Karapınar and I.M. Erhan, On the solution of a boundary value problem associated with a fractional differential equation, Mathematical Methods in the Applied Sciences, 47(2024), 10928-10939.
4	Burcu Aydoğan, Ömür Uğur, Ümit Aksoy, Optimal limit order book trading strategies with stochastic volatility in the underlying asset, 62(2023), 289-324.
5	Ümit Aksoy, A Okay Çelebi, Dirichlet-type problems for n-Poisson equation in Clifford analysis, Applicable Analysis, 101(2022), 3925-3933.
6	Erdal Karapınar, Ümit Aksoy, Andreea Fulga, İnci M Erhan, Fixed point theorems for mappings with a contractive iterate at a point in modular metric spaces, Fixed Point Theory, 23(2022), 519.
7	Ümit Aksoy, Tom Cuchta, Svetlin Georgiev, Yeliz Yolcu Okur, A normal distribution on time scales, Filomat, 36(2022), 5391-5404.
8	Ü. Aksoy, A.O. Çelebi, Dirichlet problem for inhomogeneous biharmonic equation in Clifford analysis, Current Trends in Analysis, its Applications and Computation: Proceedings of the 12th ISAAC Congress, Aveiro, Portugal, 2019, Springer International Publishing, 2021, 21-29.
9	Ümit Aksoy, Heinrich Begehr and A. Okay Çelebi, A.V. Bitsadze's observation on bianalytic functions and the Schwarz problem revisited, Complex Var. Elliptic Equations, 66(2021), 583–585.
10	Rezan Sevinik-Adigüzel, Ümit Aksoy, Erdal Karapınar and İnci M. Erhan, Uniqueness of solution for higher-order nonlinear fractional differential equations with multi-point and integral boundary conditions, RACSAM, 115(2021), 155.
11	Ü. Aksoy, I.M. Erhan, A. Fulga and E. Karapınar, On the fixed points of iterative contractive mappings defined via implicit relation, Optimization, 70(2021), 1009–1027.
12	Rezan Sevinik-Adigüzel, Ümit Aksoy, Erdal Karapınar and İnci M. Erhan, On the Solutions of Fractional Differential Equations via Geraghty Type Hybrid Contractions, Applied and Computational Mathematics An International Journal, 20(2021), 313–333.
13	Ü. Aksoy, H. Begehr, A. Çelebi, B. Shupeyeva, Complex partial differential equations, Itogi Nauki i Tekhniki. Ser. Sovrem. Mat. Pril. Temat. Obz., 188(2020), 54–69.
14	R.P. Agarwal, Ü. Aksoy, E. Karapınar and I.M. Erhan, F-contraction mappings on metric-like spaces in connection with integral equations on time scales, RACSAM 114(2020), 147.
15	Ü. Aksoy, H. Begehr, A.O. Celebi, Schwarz problem for higher-order complex partial differential equations in the upper half plane, Mathematische Nachrichten, 292(2019), 1183-1193.
16	Ü. Aksoy, H. Begehr, A.O. Çelebi, A.V. Bitsadze's observation on bianalytic functions and the Schwarz problem, Complex Var. Elliptic Equ., 64(2019), 1257-1274.
17	U. Aksoy, Dirichlet Problem for Poisson and bi-Poisson equations in Clifford analysis, In: Rogosin S. A. Çelebi (eds), Analysis as a Life. Trends in Mathematics, Birkhauser, Cham, 2019, 19-37.
18	Ü. Aksoy, E. Karapınar, İ. M. Erhan, Vladimir Rakocevic, Meir-Keeler type contractions on modular metric spaces", Filomat, 32, no.10 (2018).
19	B. Aydoğan, Ü. Aksoy, Ö. Uğur, On the methods of pricing American options: case study, Ann. Oper. Res. 260, no.1-2 (2018), 79-94.
20	Ü. Aksoy, A.O. Çelebi, Schwarz problem for higher order linear equations in a polydisc, Complex Var. Elliptic Equ., 62, no.10 (2017), 1558-1569.
21	Ü. Aksoy, S. Ostrovska, A.Y. Özban, Polynomial logistic distribution associated with a cubic polynomial, Comm. Statist. Theory Methods, 46, no:14, (2017), 7007-7019.
22	Ü. Aksoy, E. Karapınar, İ. M. Erhan, Fixed point theorems in complete modular metric spaces and an application to anti-periodic boundary value problems, 31, no.17 (2017), 5475-5488.
23	E. Karapınar, İ. M. Erhan, Ü. Aksoy, Fixed points of generalized alpha-admissible contractions on b-metric spaces with an application to boundary value problems, J. Nonlinear Convex Analysis, 17 6 (2016), 1095-1108.

24	Ü. Aksoy, A.O. Çelebi, Polyharmonic Robin problem for complex linear partial differential equations, <i>Complex Var. Elliptic Equ.</i> , 59, no.12 (2014), 1679-1695.
25	Ü. Aksoy, A.O. Çelebi, Dirichlet problem for a generalized inhomogeneous polyharmonic equation in an annular domain, <i>Complex Variables and Elliptic Equations</i> , 57(2012), 229-241.
26	Ü. Aksoy, A.O. Çelebi, A hierarchy of singular integral operators for mixed boundary value problems, <i>Proceedings of A. Razmadze Mathematical Institute</i> , 156(2011), 1-15.
27	Ü. Aksoy, A.O. Çelebi, Mixed boundary value problems for higher-order complex partial differential equations, <i>Analysis (Munich)</i> , 30(2010), 157-169.
28	Ü. Aksoy, A.O. Çelebi, A survey on boundary value problems for complex partial differential equations, <i>Advances in Dynamical Systems and Applications</i> , 5(2010), 133-158.
29	Ü. Aksoy, A.O. Çelebi, Neumann problem for generalized n-Poisson equation, <i>J. Math. Anal Appl.</i> 357(2009), 438–446.
30	Ü. Aksoy, A.O. Çelebi, Calderon-Zygmund type singular integral operators and the Schwarz problem for higher order partial complex differential equations, <i>Appl. Math. Inform. Mech.</i> 13(2008) 3-12.
31	Ü. Aksoy, A.O. Çelebi, Schwarz problem for higher-order elliptic complex partial differential equations, <i>Integral Transforms and Special Functions</i> , 19(2008), 413-428.
32	Ü. Aksoy, A.O. Çelebi, Norm estimates of a class of Calderon-Zygmund type strongly singular integral operators, <i>Integral Transforms and Special Functions</i> , 18(2007), 87-93.

## CONFERENCE PRESENTATIONS

1	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, Existence and uniqueness of solutions for a class of nonlinear q-fractional boundary value problems, 9th European Congress of Mathematics, University of Seville, Seville, Spain, July 15-19, 2024.
2	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, On time-scale compartmental epidemic models, International Workshop on Nonlinear Analysis and its Applications Sridev Suman Uttarakhand University, Rishikesh (Uttarakhand) India December 14-16, 2023. (Online)
3	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, On an SIR model on time scales, 14th International Conference on Fixed Point Theory and its Applications Faculty of Mathematics and Computer Science, Transilvania University of Braşov, Romania, July 10-14, 2023
4	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, Fractional q-difference Schrödinger equations with integral and multi-point boundary conditions, International Conference on Mathematics and Computer Science Faculty of Mathematics and Computer Science, Transilvania University of Brasov, Romania, September 15-17, 2022.
5	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, Fractional q-difference equations with integral and multi-point boundary conditions, International Workshop on Nonlinear Analysis and its Applications, Sakarya University of Applied Sciences and Sakarya University, Sakarya, October 12-15, 2022. (Online)
6	Ü. Aksoy, R. Sevinik Adigüzel, E. Karapınar and I.M. Erhan, Geraghty type hybrid contractions and existence and uniqueness of the solution of nonlinear fractional differential equations with integral boundary conditions, International Workshop on Nonlinear Analysis and its Applications, University of Nis, Serbia, October 13-16, 2021. (Online)
7	Ü. Aksoy, A.O. Çelebi, Neumann-type problem for higher-order Poisson equation in Clifford analysis, 13th ISAAC Congress, Ghent, Belgium, August 2-6, 2021. (Online)
8	Burcu Aydoğan, Ömür Ugur, Ümit Aksoy, Optimal Market Making Models with Stochastic Volatility for High-Frequency Trading, EPCO 2021 Portuguese Meeting on Optimal Control, NOVA School of Science and Technology, Almada, Portugal, July 28-29, 2021. (Online)
9	Burcu Aydoğan, Ömür Ugur, Ümit Aksoy, An Optimal Market Making Model where the Price Dynamics Follows a Mean-reverting Process with Stochastic Volatility, EURO 2021, University of West Attica, Athens, Greece, July 11-14, 2021. (Online)
10	Ü. Aksoy, Integral representations and some boundary value problems in Clifford analysis, 12 <sup>th</sup> ISAAC Congress, Aveiro, Portugal, July 29-August 2, 2019.
11	Ü. Aksoy, İ. M. Erhan and E. Karapınar, Contraction mappings on modular metric spaces and applications, IWNAA, Granada, Spain, July 6-9, 2018.
12	İ. M. Erhan, Ümit Aksoy, On some recent fixed point results on modular metric spaces, IWNAA, Granada, Spain, July 6-9, 2018.
13	Svetlin G. Georgiev, Y. Yolcu Okur and Ü. Aksoy, Multidimensional Brownian Motion on Time Scales, 23rd ICDEA Conference, Timisoara, Romania, July 24- 28, 2017.
14	A.O. Çelebi, Ü. Aksoy, Schwarz problem for higher-order equations in a polydisc, International Conference on Recent Advances in Pure and Applied Mathematics (ICRAPAM 2017), İzmir, Turkey, May 11-15, 2017.
15	Ü. Aksoy, Existence and uniqueness of fixed points of maps satisfying C-condition in modular metric spaces, International Workshop on Mathematical Methods in Engineering, Ankara, Turkey, April 27-29, 2017.
16	Ü. Aksoy, Y. Yolcu Okur, Generalized Feynman-Kac formula on time scales and Black Scholes Model, International Conference on Applied Mathematics and Applications in Memory of Prof. Gusein Sh. Guseinov, Ankara, Turkey, July 11-13, 2016.
17	A.O. Çelebi, Ü. Aksoy, Schwarz problem for higher-order linear equations in $C^n$ , Boundary Value Problems, Functional Equations and Applications, Rzeszow Poland, 20-23 April 2016.
18	Ü. Aksoy, İnci M. Erhan and E.Karapınar, Applications of fixed point theory results to ordinary and partial differential equations, VI Congress of Mathematicians of Macedonia, Ohrid, Macedonia, June 15-18, 2016.
19	Ü. Aksoy, B. Aydoğan, Ö. Uğur, Methods for pricing American options: Case study for comparison, 55 <sup>th</sup> Meeting of the EWGCFM, METU IAM, Ankara, 14-16 Mayıs 2015.

20	Ü. Aksoy, Dirichlet problem for higher-order Poisson equation in Clifford analysis, The 22 <sup>nd</sup> International Conference on Finite or Infinite Dimensional Complex Analysis and Applications, Gyeongju, South Korea, August 8-11, 2014.
21	Ü. Aksoy, Neumann-type boundary value problem for second order partial differential equations on the unit ball in Clifford analysis, Second International Conference: Modern Problems in Applied Mathematics, Tbilisi-Georgia, September 4-7, 2013.
22	Ü. Aksoy, A.O. Çelebi, Robin problem for linear complex partial differential equations, 12 <sup>th</sup> International Workshop on Dynamical Systems and Applications, Ankara, Turkey, August 12-15, 2013
23	Ü. Aksoy, On some boundary value problems for linear partial differential equations of second order in Clifford analysis, 9 <sup>th</sup> ISAAC Congress, Krakow-Poland, August 5-9, 2013.
24	Ü. Aksoy, A.O. Çelebi, Dirichlet problem for a generalized Poisson equation in Clifford analysis, The 20th International Conference on Finite or Infinite Dimensional Complex Analysis and Applications, Hanoi-Vietnam, 29 July-3 August 2012.
25	Ü. Aksoy, A.O. Çelebi, Dirichlet problem for a generalized inhomogeneous polyharmonic equation in an annular domain, 8 <sup>th</sup> ISAAC Congress, Moscow-Russia, August 22-27, 2011.
26	Ü. Aksoy, A.O. Çelebi, Boundary value problems for linear elliptic complex differential equations in the upper half plane, 8 <sup>th</sup> ISAAC Congress, Moscow-Russia, August 22-27, 2011.
27	Ü. Aksoy, A.O. Çelebi, On the hierarchy of polyharmonic kernels and the solvability of the iterated mixed problems, Workshop: Boundary value problems, Functional Equations and their Applications 2, Krakow-Poland, April 14-17, 2010.
28	Ü. Aksoy, A.O. Çelebi, A hierarchy of polyharmonic kernel functions and the related integral operators, 7 <sup>th</sup> ISAAC Congress, London UK, July 13-18, 2009.
29	Ü. Aksoy, A.O. Çelebi, Complex Partial Differential Equations with Mixed-Type Boundary Conditions, 7 <sup>th</sup> ISAAC Congress, London UK, July 13-18, 2009.
30	Ü. Aksoy, A.O. Çelebi, Some classes of integral operators related to mixed boundary value problems, Pre-ICM International Convention on Mathematical Sciences, Delhi-India, December 18-20, 2008.
31	Ü. Aksoy, A.O. Çelebi, Mixed boundary value problems for higher-order complex partial differential equations, Pre-ICM International Convention on Mathematical Sciences, Delhi-India, December, 18-20, 2008.
32	Ü. Aksoy, A.O. Çelebi, On a boundary value problem for higher-order elliptic complex partial differential equations, ISAAC conference for I. N. Vekua's 100 <sup>th</sup> birthday, I. Vekua Institute of Applied Mathematics, Tbilisi, Georgia, April 23-27, 2007.
33	Ü. Aksoy, A Boundary Value Problem for a Special Class of Generalized Analytic Functions and Its Applications to Second Order Differential Equations, Workshop on functional-analytic and complex methods, their interaction, and applications to partial differential equations, Graz-Austria, February 12-15, 2001.

## CITATIONS

Sum of times cited without self-citations (ISI Web of Science):	750
H-index (ISI Web of Science):	11

## COURSES GIVEN

1	Introduction to Calculus I (MATH101)
2	Calculus for Management and Economics Students (MATH102)
3	Analize Giriş I (MATH105)

4	İşletme ve Ekonomi Öğrencileri için Analiz (MATH106)
5	Ticari ve Mali Matematik (MATH110)
6	Basic Logic and Algebra (MATH111)
7	Discrete Mathematics and Combinatorics (MATH112)
8	Analytic Geometry I (MATH121)
9	Analytic Geometry II (MATH122)
10	Mathematical Analysis I (MATH135)
11	Mathematical Analysis II (MATH136)
12	Calculus I (MATH151)
13	Calculus II (MATH152)
14	Extended Calculus I (MATH157)
15	Extended Calculus II (MATH158)
16	Advanced Calculus I (MATH251)
17	Advanced Calculus II (MATH252)
18	Linear Algebra (MATH275)
19	Differential Equations (MATH276)
20	Introduction to Probability and Statistics I (MATH291)
21	Introduction to Probability and Statistics II (MATH292)
22	Olasılık ve İstatistiğe Giriş I (MATH293)
23	Olasılık ve İstatistiğe Giriş II (MATH294)
24	Introduction to Mathematical Finance (MATH313)
25	Mathematics of Financial Mathematics (MATH316)
26	Calculus on Time Scales (MATH363)
27	Partial Differential Equations (MATH378)
28	Probability Theory and Statistics (MATH392)
29	Seminar Studies (MATH411)
30	Computational Methods of Mathematical Finance (MATH417)
31	Functional Analysis (MATH557) (Graduate Course)

## THESES SUPERVISED

1	MS Thesis, B. Aydoğan, “Computational Methods for Pricing American Options”, Atılım University, 2014. (Supervisor: Ömür Ugur (METU IAM), Co-supervisor: Ümit Aksoy)
2	MS Thesis, F. Omar, “Exponential Finite Difference Methods for Nonlinear Black-Scholes Equation”, Atılım University, 2017. (Supervisor: Ümit Aksoy, Co-supervisor: Ayhan Aydın (Atılım Univ.))
3	PhD Thesis, B. Aydoğan, “Optimal Market Making Models in High-Frequency Trading”, METU, 2021. (Supervisor: Ümit Aksoy, Co-supervisor: Ömür Ugur (METU IAM))