

## Prof. MARAT AKHMET

### Personal Information

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### Education Information

Doctorate, Kiev Devlet Üniversitesi, Ukraine 1980 - 1984

Undergraduate, Aktöbe Devlet Pedagoji Enstitüsü, Kazakhstan 1974 - 1980

### Research Areas

Health Sciences, Natural Sciences, Engineering and Technology

### Academic Titles / Tasks

Professor, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Mathematics, 1998 - Continues

### Courses

PARTIAL DIFFERENTIAL EQUATIONS, Postgraduate, 2020 - 2021

ORDINARY DIFFERENTIAL EQUATIONS II, Postgraduate, 2020 - 2021

INTRODUCTION TO CHAOTIC DYNAMICAL SYSTEMS, Postgraduate, 2020 - 2021

DYNAMICAL SYSTEMS , Undergraduate, 2019 - 2020

PH.D. THESIS, Doctorate, 2019 - 2020

ORDINARY DIFFERENTIAL EQUATIONS I, Postgraduate, 2018 - 2019

CALCULUS WITH ANALYTIC GEOMETRY, Undergraduate, 2017 - 2018

PARTIAL DIFFERENTIAL EQUATIONS, Undergraduate, 2016 - 2017

IMPULSIVE DIFFERENTIAL EQUATIONS, Postgraduate, 2007 - 2008

INTRODUCTION TO DELAY DIFFERENTIAL EQUATIONS, Doctorate, 2001 - 2002

### Advising Theses

Akhmet M., Dynamics for chaos and fractals, Doctorate, E.Alejaily(Student), 2019

Akhmet M., Stability analysis of neural networks with piecewise constant argument, Doctorate,

M.KARACAÖREN(Student), 2017

AKHMET M., Chattering and singular perturbation in discontinuous dynamics, Doctorate, S.ÇAĞ(Student), 2017

Akhmet M., Nonautonomous transcritical and pitchfork bifurcations in impulsive/hybrid systems, Doctorate,

A.KASHKYNBAYEV(Student), 2016

AKHMET M., Discontinuous dynamics with grazing points, Doctorate, A.KIVILCIM(Student), 2016

AKHMET M., The input/output mechanism of chaos generation, Doctorate, M.ONUR(Student), 2013

AKHMET M., Neural networks with piecewise constant argument and impact activation, Doctorate, E.YILMAZ(Student),

2011

AKHMET M., Periodic solutions and stability of differential equations with piecewise constant argument of generalized type, Doctorate, C.BÜYÜKADALI(Student), 2009

AKHMET M., Differential equations with discontinuities and population dynamics, Doctorate, D.ARUĞASLAN(Student), 2009

AKHMET M., New classes of differential equations and bifurcation of discontinuous cycles, Doctorate, M.TURAN(Student), 2009

AKHMET M., Modelling functional dynamical systems by piecewise linear systems with delay, Postgraduate, M.KAHRAMAN(Student), 2007

AKHMET M., Extension of the logistic equation with piecewise constant arguments and population dynamics, Postgraduate, D.ALTINTAN(Student), 2006

AKHMET M., Periodic solutions and stability of linear impulsive delay differential equations, Doctorate, J.ALZABUT(Student), 2004

AKHMET M., On principles of B-smooth discontinuous flows, Postgraduate, E.ÇİĞDEM(Student), 2004

AKHMET M., Pseudo almost periodic solutions of linear difference systems, Postgraduate, A.ÇAKMAK(Student), 2003

AKHMET M., Boundary value problems for higher order linear impulsive differential equations, Doctorate, Ö.UĞUR(Student), 2003

ZAFER A., AKHMET M., Stability of the zero solution of impulsive differential equations by Lyapunov second method, Postgraduate, T.Yolcu(Student), 2002

AKHMET M., Integral manifolds of impulsive systems, Postgraduate, D.ÇELİK(Student), 2002

## Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Unpredictability in Markov chains**  
AKHMET M.  
CARPATHIAN JOURNAL OF MATHEMATICS, vol.38, no.1, pp.13-19, 2022 (Journal Indexed in SCI)
- II. **Modulo Periodic Poisson Stable Solutions of Quasilinear Differential Equations**  
AKHMET M., Tleubergenova M., Zhamanshin A.  
ENTROPY, vol.23, no.11, 2021 (Journal Indexed in SCI)
- III. **Unpredictable Oscillations for Hopfield-Type Neural Networks with Delayed and Advanced Arguments**  
AKHMET M., ARUĞASLAN ÇİNÇİN D., Tleubergenova M., Nugayeva Z.  
MATHEMATICS, vol.9, no.5, 2021 (Journal Indexed in SCI)
- IV. **Strongly Unpredictable Oscillations of Hopfield-Type Neural Networks**  
AKHMET M., Tleubergenova M., Nugayeva Z.  
MATHEMATICS, vol.8, no.10, pp.1-14, 2020 (Journal Indexed in SCI)
- V. **Shunting inhibitory cellular neural networks with strongly unpredictable oscillations**  
AKHMET M., Seilova R., Tleubergenova M., Zhamanshin A.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.89, 2020 (Journal Indexed in SCI)
- VI. **Unpredictable Solutions of Linear Impulsive Systems**  
AKHMET M., Tleubergenova M., Fen M. O. , Nugayeva Z.  
MATHEMATICS, vol.8, no.10, pp.1-16, 2020 (Journal Indexed in SCI)
- VII. **Inertial Neural Networks with Unpredictable Oscillations**  
AKHMET M., Tleubergenova M., Zhamanshin A.  
MATHEMATICS, vol.8, no.10, pp.1-11, 2020 (Journal Indexed in SCI)
- VIII. **Quasilinear differential equations with strongly unpredictable solutions**  
AKHMET M., Tleubergenova M., Zhamanshin A.  
CARPATHIAN JOURNAL OF MATHEMATICS, vol.36, no.3, pp.341-349, 2020 (Journal Indexed in SCI)
- IX. **Generation of fractals as Duffing equation orbits**  
AKHMET M., Fen M. O. , Alejaily E. M.

CHAOS, vol.29, no.5, 2019 (Journal Indexed in SCI)

- X. **Non-autonomous equations with unpredictable solutions**  
AKHMET M., Fen M. O.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.59, pp.657-670, 2018 (Journal Indexed in SCI)
- XI. **A Hopfield neural network with multi-compartmental activation**  
AKHMET M., Karacaoren M.  
NEURAL COMPUTING & APPLICATIONS, vol.29, no.10, pp.815-822, 2018 (Journal Indexed in SCI)
- XII. **Perturbed Li-Yorke homoclinic chaos**  
AKHMET M., Feckan M., Fen M. O. , Kashkynbayev A.  
ELECTRONIC JOURNAL OF QUALITATIVE THEORY OF DIFFERENTIAL EQUATIONS, no.75, pp.1-18, 2018 (Journal Indexed in SCI)
- XIII. **Chattering as a singular problem**  
AKHMET M., Cag S.  
NONLINEAR DYNAMICS, vol.90, no.4, pp.2797-2812, 2017 (Journal Indexed in SCI)
- XIV. **Periodic motions generated from non-autonomous grazing dynamics**  
AKHMET M., Kivilcim A.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.49, pp.48-62, 2017 (Journal Indexed in SCI)
- XV. **Poincare chaos and unpredictable functions**  
AKHMET M., Fen M. O.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.48, pp.85-94, 2017 (Journal Indexed in SCI)
- XVI. **VERTICAL AND HORIZONTAL GRAZING**  
AKHMET M., Kivilcim A.  
DYNAMIC SYSTEMS AND APPLICATIONS, vol.26, no.1, pp.131-145, 2017 (Journal Indexed in SCI)
- XVII. **Non-autonomous grazing phenomenon**  
AKHMET M., Kivilcim A.  
NONLINEAR DYNAMICS, vol.87, no.3, pp.1973-1984, 2017 (Journal Indexed in SCI)
- XVIII. **Existence of unpredictable solutions and chaos**  
AKHMET M., Fen M. O.  
TURKISH JOURNAL OF MATHEMATICS, vol.41, no.2, pp.254-266, 2017 (Journal Indexed in SCI)
- XIX. **Stability in non-autonomous periodic systems with grazing stationary impacts**  
AKHMET M., Kivilcim A.  
CARPATHIAN JOURNAL OF MATHEMATICS, vol.33, no.1, pp.1-8, 2017 (Journal Indexed in SCI)
- XX. **Persistence of Li-Yorke chaos in systems with relay**  
AKHMET M., Fen M. O. , Kashkynbayev A.  
ELECTRONIC JOURNAL OF QUALITATIVE THEORY OF DIFFERENTIAL EQUATIONS, no.72, pp.1-18, 2017 (Journal Indexed in SCI)
- XXI. **Almost periodic solutions of retarded SICNNs with functional response on piecewise constant argument**  
AKHMET M., Fen M. O. , Kirane M.  
NEURAL COMPUTING & APPLICATIONS, vol.27, no.8, pp.2483-2495, 2016 (Journal Indexed in SCI)
- XXII. **Unpredictable points and chaos**  
AKHMET M., Fen M. O.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.40, pp.1-5, 2016 (Journal Indexed in SCI)
- XXIII. **Discontinuous dynamics with grazing points**  
AKHMET M., Kivilcim A.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.38, pp.218-242, 2016 (Journal Indexed in SCI)

- XXIV. **IMPULSIVE SICNNs WITH CHAOTIC POSTSYNAPTIC CURRENTS**  
Fen M. O. , AKHMET M.  
DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, vol.21, no.4, pp.1119-1148, 2016 (Journal Indexed in SCI)
- XXV. **Li-Yorke chaos generation by SICNNs with chaotic/almost periodic postsynaptic currents**  
AKHMET M., Fen M. O. , Kivilcim A.  
NEUROCOMPUTING, vol.173, pp.580-594, 2016 (Journal Indexed in SCI)
- XXVI. **ANALYSIS OF IMPACT CHATTERING**  
AKHMET M., Cag S.  
MISKOLC MATHEMATICAL NOTES, vol.17, no.2, pp.707-721, 2016 (Journal Indexed in SCI)
- XXVII. **Finite-time nonautonomous bifurcation in impulsive systems**  
AKHMET M., Kashkynbayev A.  
ELECTRONIC JOURNAL OF QUALITATIVE THEORY OF DIFFERENTIAL EQUATIONS, 2016 (Journal Indexed in SCI)
- XXVIII. **Li-Yorke Chaos in Hybrid Systems on a Time Scale**  
AKHMET M., Fen M. O.  
INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS, vol.25, no.14, 2015 (Journal Indexed in SCI)
- XXIX. **Extension of Lorenz Unpredictability**  
AKHMET M., Fen M. O.  
INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS, vol.25, no.10, 2015 (Journal Indexed in SCI)
- XXX. **Attraction of Li-Yorke chaos by retarded SICNNs**  
AKHMET M., Fen M. O.  
NEUROCOMPUTING, vol.147, pp.330-342, 2015 (Journal Indexed in SCI)
- XXXI. **Generation of cyclic/toroidal chaos by Hopfield neural networks**  
AKHMET M., Fen M. O.  
NEUROCOMPUTING, vol.145, pp.230-239, 2014 (Journal Indexed in SCI)
- XXXII. **Extension of spatiotemporal chaos in glow discharge-semiconductor systems**  
AKHMET M., RAFATOV I., FEN M. O.  
CHAOS, vol.24, no.4, 2014 (Journal Indexed in SCI)
- XXXIII. **Chaos in economic models with exogenous shocks**  
AKHMET M., Akhmetova Z., Fen M. O.  
JOURNAL OF ECONOMIC BEHAVIOR & ORGANIZATION, vol.106, pp.95-108, 2014 (Journal Indexed in SSCI)
- XXXIV. **Chaotification of Impulsive Systems by Perturbations**  
AKHMET M., Fen M. O.  
INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS, vol.24, no.6, 2014 (Journal Indexed in SCI)
- XXXV. **Entrainment by Chaos**  
AKHMET M., Fen M. O.  
JOURNAL OF NONLINEAR SCIENCE, vol.24, no.3, pp.411-439, 2014 (Journal Indexed in SCI)
- XXXVI. **QUASILINEAR RETARDED DIFFERENTIAL EQUATIONS WITH FUNCTIONAL DEPENDENCE ON PIECEWISE CONSTANT ARGUMENT**  
AKHMET M.  
COMMUNICATIONS ON PURE AND APPLIED ANALYSIS, vol.13, no.2, pp.929-947, 2014 (Journal Indexed in SCI)
- XXXVII. **Bifurcation of discontinuous limit cycles of the Van der Pol equation**  
AKHMET M., TURAN M.  
MATHEMATICS AND COMPUTERS IN SIMULATION, vol.95, pp.39-54, 2014 (Journal Indexed in SCI)
- XXXVIII. **Replication of chaos**  
AKHMET M., Fen M. O.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.18, no.10, pp.2626-2666, 2013 (Journal Indexed in SCI)
- XXXIX. **Shunting inhibitory cellular neural networks with chaotic external inputs**  
AKHMET M., Fen M. O.  
CHAOS, vol.23, no.2, 2013 (Journal Indexed in SCI)

- XL. NON-AUTONOMOUS BIFURCATION IN IMPULSIVE SYSTEMS**  
AKHMET M., Kashkynbayev A.  
ELECTRONIC JOURNAL OF QUALITATIVE THEORY OF DIFFERENTIAL EQUATIONS, no.74, pp.1-23, 2013 (Journal Indexed in SCI)
- XLI. NONAUTONOMOUS TRANSCRITICAL AND PITCHFORK BIFURCATIONS IN IMPULSIVE SYSTEMS**  
AKHMET M., Kashkynbayev A.  
MISKOLC MATHEMATICAL NOTES, vol.14, no.3, pp.737-748, 2013 (Journal Indexed in SCI)
- XLII. Global exponential stability of neural networks with non-smooth and impact activations**  
AKHMET M., YILMAZ E.  
NEURAL NETWORKS, vol.34, pp.18-27, 2012 (Journal Indexed in SCI)
- XLIII. Chaotic period-doubling and OGY control for the forced Duffing equation**  
AKHMET M., Fen M. O.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.17, no.4, pp.1929-1946, 2012 (Journal Indexed in SCI)
- XLIV. Self-synchronization of the integrate-and-fire pacemaker model with continuous couplings**  
AKHMET M.  
NONLINEAR ANALYSIS-HYBRID SYSTEMS, vol.6, no.1, pp.730-740, 2012 (Journal Indexed in SCI)
- XLV. Method of Lyapunov functions for differential equations with piecewise constant delay**  
AKHMET M., ARUĞASLAN ÇİNÇİN D., YILMAZ E.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.235, no.16, pp.4554-4560, 2011 (Journal Indexed in SCI)
- XLVI. Stability analysis of recurrent neural networks with piecewise constant argument of generalized type**  
AKHMET M., ARUĞASLAN ÇİNÇİN D., YILMAZ E.  
NEURAL NETWORKS, vol.23, no.7, pp.805-811, 2010 (Journal Indexed in SCI)
- XLVII. Impulsive Hopfield-type neural network system with piecewise constant argument**  
AKHMET M., YILMAZ E.  
NONLINEAR ANALYSIS-REAL WORLD APPLICATIONS, vol.11, no.4, pp.2584-2593, 2010 (Journal Indexed in SCI)
- XLVIII. Differential equations with state-dependent piecewise constant argument**  
AKHMET M., Buyukadali C.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.72, no.11, pp.4200-4210, 2010 (Journal Indexed in SCI)
- XLIX. A prototype compartmental model of blood pressure distribution**  
AKHMET M., Bekmukhambetova G. A.  
NONLINEAR ANALYSIS-REAL WORLD APPLICATIONS, vol.11, no.3, pp.1249-1257, 2010 (Journal Indexed in SCI)
- L. Homoclinical structure of the chaotic attractor**  
AKHMET M.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.15, no.4, pp.819-822, 2010 (Journal Indexed in SCI)
- LI. Stability in cellular neural networks with a piecewise constant argument**  
AKHMET M., ARUĞASLAN ÇİNÇİN D., YILMAZ E.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.233, no.9, pp.2365-2373, 2010 (Journal Indexed in SCI)
- LII. Bifurcation of three-dimensional discontinuous cycles**  
AKHMET M., TURAN M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.71, no.12, 2009 (Journal Indexed in SCI)
- LIII. Bifurcation of a non-smooth planar limit cycle from a vertex**  
AKHMET M., Arugaslan D.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.71, no.12, 2009 (Journal Indexed in SCI)
- LIV. The complex dynamics of the cardiovascular system**  
AKHMET M.

- NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.71, no.12, 2009 (Journal Indexed in SCI)
- LV. SHADOWING AND DYNAMICAL SYNTHESIS**  
AKHMET M.  
INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS, vol.19, no.10, pp.3339-3346, 2009 (Journal Indexed in SCI)
- LVI. LYAPUNOV-RAZUMIKHIN METHOD FOR DIFFERENTIAL EQUATIONS WITH PIECEWISE CONSTANT ARGUMENT**  
AKHMET M., Arugaslan D.  
DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS, vol.25, no.2, pp.457-466, 2009 (Journal Indexed in SCI)
- LVII. DYNAMICAL SYNTHESIS OF QUASI-MINIMAL SETS**  
AKHMET M.  
INTERNATIONAL JOURNAL OF BIFURCATION AND CHAOS, vol.19, no.7, pp.2423-2427, 2009 (Journal Indexed in SCI)
- LVIII. Devaney's chaos of a relay system**  
AKHMET M.  
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.14, no.4, pp.1486-1493, 2009 (Journal Indexed in SCI)
- LIX. Li-Yorke chaos in the system with impacts**  
AKHMET M.  
JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS, vol.351, no.2, pp.804-810, 2009 (Journal Indexed in SCI)
- LX. Differential equations on variable time scales**  
AKHMET M., Turan M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.70, no.3, pp.1175-1192, 2009 (Journal Indexed in SCI)
- LXI. On periodic solutions of differential equations with piecewise constant argument**  
AKHMET M., Buyukadali C.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.56, no.8, pp.2034-2042, 2008 (Journal Indexed in SCI)
- LXII. Asymptotic behavior of solutions of differential equations with piecewise constant arguments**  
AKHMET M.  
APPLIED MATHEMATICS LETTERS, vol.21, no.9, pp.951-956, 2008 (Journal Indexed in SCI)
- LXIII. Asymptotic behavior of linear impulsive integro-differential equations**  
AKHMET M., Tleubergenova M. A., YILMAZ O.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.56, no.4, pp.1071-1081, 2008 (Journal Indexed in SCI)
- LXIV. Almost periodic solutions of differential equations with piecewise constant argument of generalized type**  
AKHMET M.  
NONLINEAR ANALYSIS-HYBRID SYSTEMS, vol.2, no.2, pp.456-467, 2008 (Journal Indexed in SCI)
- LXV. Periodic solutions of the hybrid system with small parameter**  
AKHMET M., Buyukadali C., Ergenc T.  
NONLINEAR ANALYSIS-HYBRID SYSTEMS, vol.2, no.2, pp.532-543, 2008 (Journal Indexed in SCI)
- LXVI. Stability of differential equations with piecewise constant arguments of generalized type**  
AKHMET M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.68, no.4, pp.794-803, 2008 (Journal Indexed in SCI)
- LXVII. On the reduction principle for differential equations with piecewise constant argument of generalized type**  
Akhmet M. U.  
JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS, vol.336, no.1, pp.646-663, 2007 (Journal Indexed in SCI)
- LXVIII. Asymptotic equivalence of differential equations and asymptotically almost periodic solutions**

- Akhmet M. U. , Tleubergenova M. A. , Zafer A.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.67, no.6, pp.1870-1877, 2007 (Journal Indexed in SCI)
- LXIX. **Integral manifolds of differential equations with piecewise constant argument of generalized type**  
Akhmet M. U.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.66, no.2, pp.367-383, 2007 (Journal Indexed in SCI)
- LXX. **An impulsive ratio-dependent predator-prey system with diffusion**  
Akhmet M. U. , Beklioglu M., Ergenc T., Tkachenko V. I.  
NONLINEAR ANALYSIS-REAL WORLD APPLICATIONS, vol.7, no.5, pp.1255-1267, 2006 (Journal Indexed in SCI)
- LXXI. **The differential equations on time scales through impulsive differential equations**  
Akhmet M. U. , Turan M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.65, no.11, pp.2043-2060, 2006 (Journal Indexed in SCI)
- LXXII. **Perron's theorem for linear impulsive differential equations with distributed delay**  
Akhmet M. U. , Alzabut J., Zafer A.  
JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS, vol.193, no.1, pp.204-218, 2006 (Journal Indexed in SCI)
- LXXIII. **Boundary value problems for higher order linear impulsive differential equations**  
Ugur O., AKHMET M.  
JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS, vol.319, no.1, pp.139-156, 2006 (Journal Indexed in SCI)
- LXXIV. **Control and optimal response problems for quasilinear impulsive integrodifferential equations**  
Akhmet M., Kirane M., Tleubergenova M., Weber G.  
EUROPEAN JOURNAL OF OPERATIONAL RESEARCH, vol.169, no.3, pp.1128-1147, 2006 (Journal Indexed in SCI)
- LXXV. **The principles of B-smooth discontinuous flows**  
Akalin E., Akhmet M.  
COMPUTERS & MATHEMATICS WITH APPLICATIONS, vol.49, pp.981-995, 2005 (Journal Indexed in SCI)
- LXXVI. **On the smoothness of solutions of impulsive autonomous systems**  
Akhmet M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.60, no.2, pp.311-324, 2005 (Journal Indexed in SCI)
- LXXVII. **Perturbations and Hopf bifurcation of the planar discontinuous dynamical system**  
Akhmet M.  
NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, vol.60, no.1, pp.163-178, 2005 (Journal Indexed in SCI)
- LXXVIII. **Existence and stability of almost-periodic solutions of quasi-linear differential equations with deviating argument**  
Akhmet M.  
APPLIED MATHEMATICS LETTERS, vol.17, no.10, pp.1177-1181, 2004 (Journal Indexed in SCI)
- LXXIX. **Controllability of two-point nonlinear boundary-value problems by the numerical-analytic method**  
Akhmet M., Zafer A.  
APPLIED MATHEMATICS AND COMPUTATION, vol.151, no.3, pp.729-744, 2004 (Journal Indexed in SCI)
- LXXX. **On the general problem of stability for impulsive differential equations**  
Akhmet M.  
JOURNAL OF MATHEMATICAL ANALYSIS AND APPLICATIONS, vol.288, no.1, pp.182-196, 2003 (Journal Indexed in SCI)

## Articles Published in Other Journals

- I. **Modular Chaos for Random Processes**  
AKHMET M.  
Discontinuity, Nonlinearity, and Complexity, vol.11, no.2, pp.191-201, 2022 (Refereed Journals of Other Institutions)
- II. **Unpredictable Solutions of Impulsive Quasi-Linear Systems**  
AKHMET M., Tleubergenova M., Nugayeva Z.  
Discontinuity, Nonlinearity, and Complexity, vol.11, no.1, pp.73-89, 2022 (Refereed Journals of Other Institutions)
- III. **Abstract Hyperbolic Chaos**  
AKHMET M.  
Discontinuity, Nonlinearity, and Complexity, vol.11, no.1, pp.133-138, 2022 (Refereed Journals of Other Institutions)
- IV. **The Models with Impact Deformations**  
AKHMET M., AYSEGUL K.  
The interdisciplinary journal of Discontinuity, Nonlinearity and Complexity, vol.4, no.1, pp.49-78, 2015 (Refereed Journals of Other Institutions)
- V. **On chaotic synchronization via impulsive control and piecewise constant arguments**  
MOHAMAD S A., XINZHI L., AKHMET M.  
Dynamics of Continuous, Discrete and Impulsive Systems Series B: Applications and Algorithms, vol.22, no.1, pp.53-67, 2015 (Refereed Journals of Other Institutions)
- VI. **Permanence of nonautonomous ratio dependent predator prey systems with piecewise constant argument of generalized type**  
AKHMET M., ARUĞASLAN ÇİNÇİN D., XIAOYAN L.  
Dynamics of Continuous, Discrete and Impulsive Systems Series A: Mathematical Analysis, vol.15, no.1, pp.37-51, 2008 (Refereed Journals of Other Institutions)

## Books & Book Chapters

- I. **Domain Structured Dynamics: Unpredictability, chaos, randomness, fractals, differential equations and neural networks**  
Akhmet M.  
Institute of Physics Publishing (IOP) , Bristol, 2021
- II. **Dynamics with Chaos and Fractals**  
Akhmet M.  
Springer, London/Berlin , Basel, 2020
- III. **Almost Periodicity, Chaos, and Asymptotic Equivalence**  
Akhmet M.  
Springer, London/Berlin , Zug, 2019
- IV. **Bifurcation in Autonomous and Nonautonomous Differential Equations with Discontinuities**  
Akhmet M., Kashkynbayev A.  
Springer, London/Berlin , New-York, 2017
- V. **Functional Differential Equations with Piecewise Constant Argument.**  
Akhmet M.  
in: Regularity and Stochasticity of Nonlinear Dynamical Systems., Dimitri Volchenkov,Xavier Leoncini, Editor,  
Springer, London/Berlin , Zug, pp.79-109, 2017
- VI. **Grazing in Impulsive Differential Equations.**  
Akhmet M., Kivilcim A.  
in: Regularity and Stochasticity of Nonlinear Dynamical Systems, Dimitri Volchenkov,Xavier Leoncini, Editor,  
Springer, London/Berlin , Zug, pp.111-159, 2017
- VII. **Replication of chaos in neural networks, economics and physics**  
Akhmet M., Fen M. O.



Springer, London/Berlin , Heidelberg, 2016

**VIII. Input-Output Mechanism of the Discrete Chaos Extension**

Akhmet M., Fen M. O.

in: Complex motions and chaos in nonlinear systems. , Valentin Afraimovich, José António Tenreiro Machado, Jiazhong Zhang, Editor, Springer, London/Berlin , Zug, pp.203-233, 2016

**IX. The Solution of the Second Peskin Conjecture and Developments**

Akhmet M.

in: Mathematical Modeling and Applications in Nonlinear Dynamics, Albert C.J. Luo, Hüseyin Merdan, Editor, Springer, London/Berlin , Zug, pp.1-46, 2016

**X. Neural Networks with Discontinuous/Impact Activations**

Akhmet M., Yilmaz E.

Springer, London/Berlin , New-York, 2013

**XI. Nonlinear hybrid continuous/discrete-time models**

Akhmet M.

Atlantic Publishing , Paris, 2011

**XII. Principles of discontinuous dynamical systems.**

Akhmet M.

Springer, London/Berlin , New-York, 2010

## **Refereed Congress / Symposium Publications in Proceedings**

**I. Mapping Fatou-Julia Iterations**

AKHMET M., Fen M. O. , Alejaily E. M.

10th International Conference on Information Management and Engineering (ICIME), Manchester, United Kingdom, 22 - 24 September 2018, pp.64-67

**II. Exponential stability of periodic solutions of recurrent neural networks with functional dependence on piecewise constant argument**

AKHMET M., ARUĞASLAN ÇİNÇİN D., Cengiz N.

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## **Supported Projects**

AKHMET M., Project Supported by Higher Education Institutions, FONKSİYONEL DİFERANSİYEL DENKLEMLERİN KAOLİT ÇÖZÜMLERİ, 2017 - 2017

AKHMET M., Project Supported by Higher Education Institutions, KISMİ DİFERANSİYEL DENKLEMLERİN KAOLİT ÇÖZÜMLERİ VE UYGULAMALARI, 2017 - 2017

AKHMET M., Project Supported by Higher Education Institutions, Monotone Discontinuous Dynamical Systems And Applications, 2012 - 2012

AKHMET M., Project Supported by Higher Education Institutions, Düzensizlikler Yardımıyla Adi Ve Kısmi Diferansiyel Denklemlerde Kaos Üretimi Ve Kontrolü, 2010 - 2012

AKHMET M., Project Supported by Higher Education Institutions, Sinir Ağlarının Kompleks Dinamiği, 2008 - 2008

## Activities in Scientific Journals

Applied Mathematics and Nonlinear Sciences, Committee Member, 2017 - Continues

Discontinuity, Nonlinearity and Complexity., Committee Member, 2015 - Continues

Discrete and Impulsive Systems, Series A, Committee Member, 2005 - Continues

## Scientific Refereeing

NONLINEAR ANALYSIS-THEORY METHODS & APPLICATIONS, SCI Journal, January 2017

TURKISH JOURNAL OF MATHEMATICS, National Scientific Refreed Journal, January 2016

NEUROCOMPUTING, SCI Journal, January 2015

DYNAMICS OF CONTINUOUS DISCRETE AND IMPULSIVE SYSTEMS-SERIES B-APPLICATIONS, SCI Journal, January 2014

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Communications in Nonlinear Sciences and Numerical Simulations, Other Indexed Journal, January 2011

NONLINEAR ANALYSIS-REAL WORLD APPLICATIONS, SCI Journal, January 2010

COMPUTERS & MATHEMATICS WITH APPLICATIONS, SCI Journal, January 2010

Journal of Mathematical Analysis and Applications, Other Indexed Journal, January 2007

APPLIED MATHEMATICS LETTERS, Other Indexed Journal, January 2007

## Tasks In Event Organizations

Akhmet M., 3rd of International Conference on Neurology and Brain Disorders, Scientific Congress, Paris, France, Haziran 2019

Akhmet M., 3rd International Conference on Frontiers of Image Processing, Scientific Congress, Florence, Italy, Mart 2019

Akhmet M., 5th Edition of International Conference on Knowledge and Software Engineering, Scientific Congress, Praha, Czech Republic, Mart 2019

Akhmet M., 6th International Conference on Mathematics and Information Sciences, Scientific Congress, Sawhaj, Egypt, Şubat 2019

Akhmet M., 10th International Conference on Information Management and Engineering, Scientific Congress, Manchester, United Kingdom, Eylül 2018

Akhmet M., International Conference on Neurology and Brain Disorders, Scientific Congress, Manchester, United Kingdom, Eylül 2018

Akhmet M., 2nd of International Conference on Neurology and Brain Disorders, Scientific Congress, Rome, Italy, Haziran 2018

Akhmet M., 2nd International Conference on Frontiers of Image Processing, Scientific Congress, Barcelona, Spain, Mart 2018

Akhmet M., 7th International Conference on Mathematics and Information Sciences, Scientific Congress, Sawhaj, Egypt, Şubat 2018

Akhmet M., Ankara Mathematics Days Symposium, Scientific Congress, Ankara, Turkey, Mayıs 2016  
Akhmet M., 5th International Conference on Mathematics and Information Sciences, Scientific Congress, Sawhaj, Egypt, Şubat 2016  
Akhmet M., International Conference on Nonlinear Differential and Difference Equations: Recent Developments and Applications, Scientific Congress, Antalya, Turkey, Mayıs 2014  
Akhmet M., 6th Chaotic Modeling and Simulation International Conference , Scientific Congress, İstanbul, Turkey, Haziran 2013  
Akhmet M., 1st Workshop on Complex Dynamical Systems and Their Applications, Scientific Congress, Ankara, Turkey, Ekim 2012  
Akhmet M., Ankara Mathematics Days Symposium, Scientific Congress, Ankara, Turkey, Haziran 2010  
Akhmet M., 3rd International Conference on Complex Systems and Applications, Scientific Congress, Paris, France, Temmuz 2009  
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### **Edit Congress and Symposium Activities**

The 3rd International Conference on Neurology and Brain Disorders, Working Group, Paris, France, 2019  
The 3rd International Conference on Frontiers of Image Processing, Working Group, Florence, Italy, 2019  
The 10th International Conference on Information Management and Engineering, Working Group, Manchester, United Kingdom, 2018  
International Conference on Information Hiding and Image Processing, Working Group, Manchester, United Kingdom, 2018  
The 2nd International Conference on Neurology and Brain Disorders, Working Group, Rome, Italy, 2018  
The 2nd International Conference on Frontiers of Image Processing, Working Group, Barcelona, Spain, 2018  
The 4th Computational Mathematics and Applications Conference, Working Group, Guilin, China, 2017  
8th International Conference on Information Management and Engineering, Working Group, İstanbul, Turkey, 2016  
Ankara Mathematics Days Symposium, Working Group, Ankara, Turkey, 2016  
7th International Conference on Information Management and Engineering, Working Group, Rome, Italy, 2015  
International Conference on Pure and Applied Mathematics, Working Group, Van, Turkey, 2015  
3rd International Conference on Complex Dynamical Systems and Their Applications: New Mathematical Concepts and Applications in Life Sciences, Working Group, Ankara, Turkey, 2014  
International Conference on Nonlinear Differential and Difference Equations: Recent Developments and Applications, Working Group, Antalya, Turkey, 2014  
6th Chaotic Modeling and Simulation International Conference, Working Group, İstanbul, Turkey, 2013  
1st Workshop on Complex Dynamical Systems and Their Applications, Working Group, Ankara, Turkey, 2012

### **Citations**

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