Prof. MUSTAFA TAYLAN ŞENGÜL

Personal Information

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International Researcher IDs
ScholarID: udE47_gAAAAJ
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Biography

Lisans eğitimimi 1995-2001 yılları arasında Boğaziçi Üniversitesi Matematik Bölümününde tamamladıktan sonra yüksek lisansımı Yeditepe Üniversitesinde, doktoramı da Indiana Üniversitesi'nde tamamladım. 2012-2014 yılları arasında Purdue Üniversitesi'nde ziyaretçi öğretim üyesi olarak bulundum. 2014-2015 arasında Yeditepe Üniversitesi'nde yardımcı doçent olarak görev aldım. 2015'den beri Marmara Üniversitesi Matematik Bölümünde çalışmaktayım.

Education Information

Doctorate, Indiana University Bloomington, Fen Bilimleri Enstitüsü/Matematik Bölümü, United States Of America 2007 - 2012
Postgraduate, Yeditepe University, Institute Of Science, Matematik (Yl) (Tezli), Turkey 2003 - 2006
Undergraduate, Bogazici University, Faculty Of Arts And Sciences, Department Of Mathematics, Turkey 1995 - 2001

Dissertations

Doctorate, Transitions and Pattern Formations in Problems of Hydrodynamic Instabilities, Indiana University Bloomington, Fen Bilimleri Enstitüsü/Matematik Bölümü, 2012
Postgraduate, Doğrusal Olmayan Dalga Denkleminde Global Çekicinin Varlığı, Yeditepe Üniversitesi, Fen Bilimleri Enstitüsü, Matematik (Yl) (Tezli), 2006

Research Areas

Mathematics, Differential Equations, Natural Sciences

Academic Titles / Tasks

Associate Professor, Marmara University, Faculty of Arts and Sciences, Mathematics, 2018 - Continues
Assistant Professor, Marmara University, Faculty of Arts and Sciences, Mathematics, 2015 - 2018
Assistant Professor, Yeditepe University, Faculty Of Arts And Sciences, Department Of Mathematics, 2015 - 2015
Lecturer PhD, Purdue University, Fen-Edebiyat Fakültesi, Matematik Bölümü, 2012 - 2014
Research Assistant, Indiana University Bloomington, Fen-Edebiyat Fakültesi, Matematik Bölümü, 2007 - 2012

Research Assistant, Yeditepe University, Faculty Of Arts And Sciences, Department Of Mathematics, 2001 - 2007

Academic and Administrative Experience

Marmara University, Faculty of Arts and Sciences, Mathematics, 2018 - Continues

Published journal articles indexed by SCI, SSCI, and AHCI

I. **First transition dynamics of reaction–diffusion equations with higher order nonlinearity**
ŞENGÜL M. T., TİRYAKİOĞLU B., Yıldız Akıl E.
Studies in Applied Mathematics, 2024 (SCI-Expanded)

II. **Interactions of (m,n) and (m+1,n) modes with real eigenvalues: A dynamic transition approach**
Şengül M. T., Tiryakioğlu B.
Communications in Nonlinear Science and Numerical Simulation, vol.127, 2023 (SCI-Expanded)

III. **Dynamic transitions and bifurcations of 1D reaction-diffusion equations: The non-self-adjoint case**
ŞENGÜL M. T., TİRYAKİOĞLU B.
Journal of Mathematical Analysis and Applications, vol.523, no.1, 2023 (SCI-Expanded)

IV. **Dynamic transitions and Turing patterns of the Brusselator model**
Muntari U. F., ŞENGÜL M. T.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.45, no.16, pp.9130-9151, 2022 (SCI-Expanded)

V. **Transitions of zonal flows in a two-layer quasi-geostrophic ocean model**
Chekroun M. D., Dijkstra H., ŞENGÜL M. T., Wang S.
NONLINEAR DYNAMICS, vol.109, no.3, pp.1887-1904, 2022 (SCI-Expanded)

VI. **Dynamic transitions and bifurcations of 1D reaction-diffusion equations: The self-adjoint case**
ŞENGÜL M. T., TİRYAKİOĞLU B.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.45, no.5, pp.2871-2892, 2022 (SCI-Expanded)

VII. **A dynamical systems approach to the interplay between tobacco smokers, electronic-cigarette smokers and smoking quitters**
ŞENGÜL M. T., Yildiz E.
CHAOS SOLITONS & FRACTALS, vol.146, 2021 (SCI-Expanded)

VIII. **Dynamical transition theory of hexagonal pattern formations**
ŞENGÜL M. T.
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.91, 2020 (SCI-Expanded)

IX. **INTERIOR STRUCTURAL BIFURCATION OF 2D SYMMETRIC INCOMPRESSIBLE FLOWS**
Bozkurt D., DELİCEOĞLU A., ŞENGÜL M. T.
DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, vol.25, no.7, pp.2775-2791, 2020 (SCI-Expanded)

X. **On the spectral instability and bifurcation of the 2D-quasi-geostrophic potential vorticity equation with a generalized Kolmogorov forcing**
Lu C., Mao Y., Sengul T., Wang Q.
Physica D: Nonlinear Phenomena, vol.403, 2020 (SCI-Expanded)

XI. **On the viscous instabilities and transitions of two-layer model with a layered topography**
Pan Z., Sengul T., Wang Q.
Communications in Nonlinear Science and Numerical Simulation, vol.80, 2020 (SCI-Expanded)

XII. **On the nonlinear stability and the existence of selective decay states of 3D quasi-geostrophic potential vorticity equation**
Esen O., Han D., Şengül T., Wang Q.
Mathematical Methods in the Applied Sciences, vol.43, no.2, pp.822-846, 2020 (SCI-Expanded)

XIII. **MULTIPLE EQUILIBRIA AND TRANSITIONS IN SPHERICAL MHD EQUATIONS**
Ozer S., Sengul T., Wang Q.

COMMUNICATIONS IN MATHEMATICAL SCIENCES, vol.17, no.6, pp.1531-1555, 2019 (SCI-Expanded)

XIV. **On the Hopf (double Hopf) bifurcations and transitions of two-layer western boundary currents**
Kieu C., Sengul T., Wang Q., Yan D.
COMMUNICATIONS IN NONLINEAR SCIENCE AND NUMERICAL SIMULATION, vol.65, pp.196-215, 2018 (SCI-Expanded)

XV. **Dynamic Transitions and Baroclinic Instability for 3D Continuously Stratified Boussinesq Flows**
Sengul T., Wang S.
JOURNAL OF MATHEMATICAL FLUID MECHANICS, vol.20, no.3, pp.1173-1193, 2018 (SCI-Expanded)

XVI. **Transitions of Spherical Thermohaline Circulation to Multiple Equilibria**
ÖZER S. S., ŞENGÜL M. T.
Journal Of Mathematical Fluid Mechanics, vol.20, pp.499-515, 2018 (SCI-Expanded)

XVII. **Stability and transitions of the second grade Poiseuille flow**
Ozer S., Sengul T.
PHYSICA D-NONLINEAR PHENOMENA, vol.331, pp.71-80, 2016 (SCI-Expanded)

XVIII. **Pattern formations of 2D Rayleigh-Benard convection with no-slip boundary conditions for the velocity at the critical length scales**
ŞENGÜL M. T., Shen J., Wang S.
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.38, no.17, pp.3792-3806, 2015 (SCI-Expanded)

XIX. **DYNAMIC TRANSITIONS OF QUASI-GEOSTROPHIC CHANNEL FLOW**
Dijkstra H., Sengul T., Shen J., Wang S.
SIAM JOURNAL ON APPLIED MATHEMATICS, vol.75, no.5, pp.2361-2378, 2015 (SCI-Expanded)

XX. **DYNAMIC TRANSITIONS AND PATTERN FORMATIONS FOR A CAHN-HILLIARD MODEL WITH LONG-RANGE REPULSIVE INTERACTIONS**
Liu H., Şengül T., Wang S., Zhang P.
COMMUNICATIONS IN MATHEMATICAL SCIENCES, vol.13, no.5, pp.1289-1315, 2015 (SCI-Expanded)

XXI. **PATTERN FORMATION AND DYNAMIC TRANSITION FOR MAGNETOHYDRODYNAMIC CONVECTION**
ŞENGÜL M. T., Wang S.
COMMUNICATIONS ON PURE AND APPLIED ANALYSIS, vol.13, no.6, pp.2609-2639, 2014 (SCI-Expanded)

XXII. **Dynamic transitions of surface tension driven convection**
Dijkstra H., Sengul T., Wang S.
PHYSICA D-NONLINEAR PHENOMENA, vol.247, no.1, pp.7-17, 2013 (SCI-Expanded)

XXIII. **Pattern formation in Rayleigh Bénard convection**
ŞENGÜL M. T., Shouhong W.
Communications In Mathematical Sciences, vol.11, pp.315-343, 2013 (SCI-Expanded)

XXIV. **Dynamic transitions for quasilinear systems and Cahn-Hilliard equation with Onsager mobility**
Liu H., Sengul T., Wang S.
JOURNAL OF MATHEMATICAL PHYSICS, vol.53, no.2, 2012 (SCI-Expanded)

Articles Published in Other Journals

I. **An effective method for the existence of the global attractor of a nonlinear wave equation**
ŞENGÜL M. T.
Applied Mathematics E-Notes, vol.7, pp.179-185, 2007 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

I. **Stability and Transitions of Quasi-Geostrophic Equations**
ŞENGÜL M. T.
International Conference on Recent Advances in Fluid Dynamics and Nonlinear Dynamics, 2 - 05 June 2019

II. **On the stability and transitions of quasi-geostrophic equations**
ŞENGÜL M. T.
ICAMLS'18, 3 - 05 October 2018

III. **Baroclinic Instability for 3D Boussinesq Flows**
ŞENGÜL M. T.
Workshop on Nonlinear PDEs in Applied Mathematics, 9 - 12 August 2017

IV. **Dynamic Transitions of the Baroclinicity for Continuously Stratified Boussinesq Flow**
ŞENGÜL M. T.
Conference on Classical and Geophysical Fluid Dynamics: Modeling, Reduction and Simulation, 26 - 29 June 2017

V. **Dynamic Transitions in a Shear Flow Model**
ŞENGÜL M. T.
The 8th International Workshop on Differential Equations and Applications, 3 - 05 June 2017

VI. **Dynamic Transitions of Quasi Geostrophic Channel Flow**
ŞENGÜL M. T.
The 11th AIMS Conference on Dynamical Systems,Differential Equations and Applications, 1 - 05 July 2016

VII. **Dynamic transitions of quasi geostrophic equations**
ŞENGÜL M. T.
The 7th International Workshop on Differential Equations and Applications, İzmir, Turkey, 28 - 31 July 2015

VIII. **Dynamic Transitions and Hexagonal Patterns in Surface Tension Driven Convection**
ŞENGÜL M. T.
AMS Joint Mathematics Meeting, Boston, 5 - 09 January 2012

IX. **Dynamic Transitions of Surface Tension Driven Convection**
ŞENGÜL M. T.
Incompressible Fluids, Turbulence and Mixing, In honor of Peter Constantin'xxs 60th birthday, 13 - 16 October 2011

X. **Dynamic Transitions and Hexagonal Patterns in Surface Tension Driven Convection**
ŞENGÜL M. T.
European Geosciences Union General Assembly, 3 - 08 April 2011

XI. **Phase transition of binary systems**
ŞENGÜL M. T.
2010 Fall Central Section Meeting, 5 - 08 November 2010

XII. **Dynamic Transitions for the MHD Equations**
ŞENGÜL M. T.
2009 AMS Fall Central Section Meeting, 17 - 20 October 2009

Activities in Scientific Journals

Mathematical Methods In The Applied Sciences, Committee Member, 2021 - Continues
International journal of advances in engineering and pure sciences (Online), Committee Member, 2017 - Continues

Scientific Refereeing

TURKISH JOURNAL OF MATHEMATICS, SCI Journal, September 2021
AFYON KOCATEPE ÜNİVERSİTESİ FEN VE MÜHENDİSLİK BİLİMLERİ DERGİSİ, National Scientific Refreed Journal, February 2021
DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, SCI Journal, September 2020
PHYSICA D-NONLINEAR PHENOMENA, SCI Journal, August 2020
TUBITAK Project, 3501 - National Young Researcher Career Development Program, Sabanci University, Turkey, January 2019

PHYSICA D-NONLINEAR PHENOMENA, SCI Journal, October 2018

COMMUNICATIONS IN COMPUTATIONAL PHYSICS, SCI Journal, April 2018

DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, SCI Journal, September 2017

JOURNAL OF MATHEMATICAL FLUID MECHANICS, SCI Journal, July 2017

SAKARYA ÜNİVERSİTY JOURNAL OF SCİENCE, National Scientific Refreed Journal, May 2017

DÜZCE ÜNİVERSİTESİ BİLİM VE TEKNOLOJİ DERGİSİ, National Scientific Refreed Journal, March 2017

JOURNAL OF THE BRAZILIAN SOCIETY OF MECHANICAL SCIENCES AND ENGINEERING, SCI Journal, October 2016

DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, SCI Journal, June 2016

GEOSCIENTIFIC MODEL DEVELOPMENT, SCI Journal, May 2016

BOUNDARY VALUE PROBLEMS, SCI Journal, September 2014

TURKISH JOURNAL OF MATHEMATICS, SCI Journal, March 2014

DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, SCI Journal, August 2013

DISCRETE AND CONTINUOUS DYNAMICAL SYSTEMS-SERIES B, SCI Journal, December 2011

Tasks In Event Organizations

Şengül M. T., 5. Marmara Matematik Günleri, Scientific Congress, Turkey, Ekim 2019

Şengül M. T., The International Conference on Applied Mathematics, Modeling and Life Sciences (ICAMLS), Scientific Congress, Turkey, Ekim 2018

Şengül M. T., 4. Marmara Matematik Günleri, Scientific Congress, Turkey, Eylül 2018

Şengül M. T., The International Conference on Applied Analysis and Mathematical Modeling (ICAAMM 2017), Scientific Congress, Turkey, Temmuz 2017

Metrics

Publication: 40
Citation (WoS): 114
Citation (Scopus): 161
H-Index (WoS): 7
H-Index (Scopus): 8

Scholarships

Tübitak Bideb 2232 Yurda Dönüş Araştırma Burs Programı, TUBITAK, 2014 - 2016

Non Academic Experience

Purdue University
Indiana University