

## **Prof. IŞIK HAKAN TARMAN**

### **Personal Information**

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### **International Researcher IDs**

ScholarID: rq32UAUAAAAJ

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Publons / Web Of Science ResearcherID: ABA-3339-2020

ScopusID: 6507552019

Yoksis Researcher ID: 167970

### **Education**

Doctorate, Brown University, Applied Mathematics, United States Of America 1984 - 1988

Postgraduate, Bogazici University, Institute Of Science, Mechanical Engineering, Turkey 1982 - 1984

Undergraduate Double Major, Bogazici University, Engineering and Sciences, Mechanical Engineering & Mathematics, Turkey 1977 - 1982

### **Foreign Languages**

English, C1 Advanced

### **Research Areas**

Mechanical Engineering, Engineering and Technology

### **Academic Positions**

Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 2013 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 2002 - 2013

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Engineering Sciences, 1999 - 2002

### **Academic and Administrative Experience**

Middle East Technical University, Graduate School of Natural and Applied Sciences, Biyomedikal Mühendisliği (YL) (Tezli), 2015 - Continues

Middle East Technical University, Graduate School of Natural and Applied Sciences, Biyomedikal Mühendisliği (YL) (Tezli), 2015 - 2017

## Supervised Theses

- TARMAN I. H., A spectral approach for solving two-fluid flow stability problem, Postgraduate, M.EMİN(Student), 2022
- TARMAN I. H., A Study of structural design based on optimality, Postgraduate, D.Tamkan(Student), 2019
- TARMAN I. H., Mechanical reliability analysis using stress-strength interference model and engineering application of reliability: system safety assessment, Postgraduate, M.Bariş(Student), 2019
- TARMAN I. H., An Exploration of numerical approaches to Boltzmann equation regarding hydrodynamics, Postgraduate, A.Şahin(Student), 2019
- Tarman I. H., Dursunkaya Z., Multi-dimensional modelling of evaporation in the micro region of a micro grooved heat pipe, Doctorate, Y.AKKUŞ(Student), 2015
- TARMAN I. H., GÜRSES S., Statistical analysis of force distribution on the plantar foot during quiet stance, Doctorate, O.ALKAN(Student), 2015
- TARMAN I. H., Two dimensional modeling of electromagnetic radiation and scattering by spectral element method, Doctorate, I.MAHARIQ(Student), 2014
- TARMAN I. H., Numerical modeling of general compressible multi-phase flows, Doctorate, B.KALPAKLI(Student), 2013
- TARMAN I. H., Direct numerical simulation of pipe flow using a solenoidal spectral method, Doctorate, O.Tuğluk(Student), 2012
- TARMAN I. H., Application of fully implicit coupled method for 2D incompressible flows on unstructured grids, Postgraduate, Ş.ZENGİN(Student), 2012
- TARMAN I. H., Numerical study of Rayleigh Bènard thermal convection via solenoidal bases, Doctorate, C.Yıldırım(Student), 2011
- TARMAN I. H., Numerical simulation of thermal convection under the influence of a magnetic field by using solenoidal bases, Doctorate, D.Yarimpabuç(Student), 2011
- TARMAN I. H., Dynamic analysis of flow in two dimensional flow, Postgraduate, E.Engin(Student), 2008
- TARMAN I. H., A study of natural convection in molten metal under a magnetic field, Doctorate, E.Güray(Student), 2006
- TARMAN I. H., Dynamics of wall bounded turbulence /, Postgraduate, O.Tuğluk(Student), 2005
- TARMAN I. H., Vibration exposure of front seat car passengers, Postgraduate, T.Erol(Student), 2004

## Journal articles indexed in SCI, SSCI, and AHCI

- I. **Two-dimensional computational modeling of thin film evaporation**  
Akkuş Y., Tarman H. I., Cetin B., Dursunkaya Z.  
INTERNATIONAL JOURNAL OF THERMAL SCIENCES, vol.121, pp.237-248, 2017 (SCI-Expanded)
- II. **Numerical simulations of thermal convection under the influence of an inclined magnetic field by using solenoidal bases**  
Yarimpabuc D., TARMAN I. H., Yildirim C.  
MATHEMATICAL METHODS IN THE APPLIED SCIENCES, vol.37, no.18, pp.2962-2971, 2014 (SCI-Expanded)
- III. **Photonic Nanojet Analysis by Spectral Element Method**  
Mahariq I., KUZUOĞLU M., TARMAN I. H., KURT H.  
IEEE PHOTONICS JOURNAL, vol.6, no.5, 2014 (SCI-Expanded)
- IV. **On the Attenuation of the Perfectly Matched Layer in Electromagnetic Scattering Problems with the Spectral Element Method**  
Mahariq I., KUZUOĞLU M., TARMAN I. H.  
APPLIED COMPUTATIONAL ELECTROMAGNETICS SOCIETY JOURNAL, vol.29, no.9, pp.701-710, 2014 (SCI-Expanded)
- V. **A Spectral Solenoidal-Galerkin Method for Rotating Thermal Convection between Rigid Plates**  
Yildirim C., YARIMPABUÇ D., Tarman H. I.  
MATHEMATICAL PROBLEMS IN ENGINEERING, vol.2013, 2013 (SCI-Expanded)
- VI. **The numerical study of pumping configurations on the lasing efficiency in photonic crystal fiber Raman laser**  
Berberoglu H., TARMAN I. H.

- OPTIK, vol.124, no.6, pp.522-525, 2013 (SCI-Expanded)
- VII. **Direct numerical simulation of pipe flow using a solenoidal spectral method**  
Tugluk O., TARMAN I. H.  
ACTA MECHANICA, vol.223, no.5, pp.923-935, 2012 (SCI-Expanded)
- VIII. **Solenoidal bases for numerical studies of transition in pipe flow**  
Tugluk O., TARMAN I. H.  
PHYSICA SCRIPTA, vol.T142, 2010 (SCI-Expanded)
- IX. **Variational Approach to Power Evolution in Cascaded Fiber Raman Laser**  
TARMAN I. H., Berberoglu H.  
JOURNAL OF LIGHTWAVE TECHNOLOGY, vol.28, no.21, pp.3136-3141, 2010 (SCI-Expanded)
- X. **Efficient Numerical Algorithm for Cascaded Raman Fiber Lasers Using a Spectral Method**  
TARMAN I. H., Berberoglu H.  
JOURNAL OF LIGHTWAVE TECHNOLOGY, vol.27, no.13, pp.2289-2295, 2009 (SCI-Expanded)
- XI. **A spectral collocation algorithm for two-point boundary value problem in fiber Raman amplifier equations**  
TARMAN I. H., Berberoglu H.  
OPTICS COMMUNICATIONS, vol.282, no.8, pp.1551-1556, 2009 (SCI-Expanded)
- XII. **Thermal convection in the presence of a vertical magnetic field**  
Guray E., Tarman H. I.  
ACTA MECHANICA, vol.194, no.1-4, pp.33-46, 2007 (SCI-Expanded)
- XIII. **Transitional dynamics in thermal convection between rigid plates**  
Yildirim C., Yarimpabuc D., Tarman H. I.  
JOURNAL OF VIBRATION AND CONTROL, vol.13, no.9-10, pp.1331-1342, 2007 (SCI-Expanded)
- XIV. **A Karhunen-Loeve-based approach to numerical simulation of transition in Rayleigh-Benard convection**  
Tarman H.  
NUMERICAL HEAT TRANSFER PART B-FUNDAMENTALS, vol.43, no.6, pp.567-586, 2003 (SCI-Expanded)
- XV. **The gravitational effect on induced charge density for an obliquely rotating neutron star**  
De Paolis F., Qadir A., Tarman I. H.  
NUOVO CIMENTO DELLA SOCIETA ITALIANA DI FISICA B-GENERAL PHYSICS RELATIVITY ASTRONOMY AND MATHEMATICAL PHYSICS AND METHODS, vol.114, no.11, pp.1281-1286, 1999 (SCI-Expanded)
- XVI. **Extensions to Karhunen-Loeve based approximation of complicated phenomena**  
Tarman I. H., Sirovich L.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.155, no.3-4, pp.359-368, 1998 (SCI-Expanded)
- XVII. **An improved dynamical approximation to Boussinesq equation using Karhunen-Loeve basis**  
Tarman I. H.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.144, no.1-2, pp.153-162, 1997 (SCI-Expanded)
- XVIII. **A Karhunen-Loeve based galerkin approximation to Boussinesq equation**  
Tarman I. H.  
COMPUTER METHODS IN APPLIED MECHANICS AND ENGINEERING, vol.137, no.3-4, pp.275-284, 1996 (SCI-Expanded)
- XIX. **A Karhunen-Loeve analysis of turbulent thermal convection**  
Tarman I. H.  
INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN FLUIDS, vol.22, no.1, pp.67-79, 1996 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Numerical simulation of duct flow in the presence of participating media radiation with total energy**

### **based entropic lattice Boltzmann method**

Gümüşsu E., TARMAN I. H.

International Journal of Thermofluids, vol.20, 2023 (Scopus)

### **II. On the Accuracy of Spectral Element Method in Electromagnetic Scattering Problems**

Mahariq İ., TARMAN I. H., KUZUOĞLU M.

International Journal of Computer Theory and Engineering, vol.6, no.6, pp.495-499, 2014 (Peer-Reviewed Journal)

## **Books**

### **I. Lecture Notes in Computational Science and Engineering**

Tarman I. H.

Springer, London/Berlin , Bergen, 2019

## **Papers Presented at Peer-Reviewed Scientific Conferences**

### **I. A Spectral Solenoidal-Galerkin Method for Flow Past a CircularCylinder**

TARMAN I. H.

European Conference on Numerical Mathematics and Advanced Applications (ENUMATH 2017), 25 - 29 September 2017

### **II. A Solenoidal Galerkin Approach for the Numerical Simulation of Flow Past a Circular Cylinder**

TARMAN I. H.

International Conference On Boundary Element And Meshless Techniques, 11 - 13 July 2016

### **III. POD based Models for Drag Reduction in Turbulent Pipe Flow**

Tuğluk O., TARMAN I. H.

International Conference On Boundary Element And Meshless Techniques, 11 - 13 July 2016

### **IV. Drag Reduction via Phase Randomization in Turbulent Pipe Flow**

Tugluk O., Tarman H. I.

European Conference on Numerical Mathematics and Advanced Applications (ENUMATH), Ankara, Turkey, 14 - 18 September 2015, vol.112, pp.463-470

### **V. A spectral Petrov-Galerkin method for thermal convection between rigid plates**

YILDIRIM YÜCEL C., TARMAN I. H.

6th International Symposium on Turbulence, Heat and Mass Transfer, Rome, Italy, 14 - 18 September 2009, pp.213-216

### **VI. Numerical Simulation of Flow through Stenotic Artery**

Tarman H. I.

14th National Biomedical Engineering Meeting, İzmir, Turkey, 20 - 22 May 2009, pp.531-533, (Full Text)

### **VII. Vibration Exposure of Front Seat Car Passengers**

Erol T., Birlik G., sezgin ö., TARMAN I. H.

39th Meeting of the UK Group on Human Response to Vibration, 15 - 17 September 2004

### **VIII. Heat transport in transitional regimes of thermal convection**

Tarman H.

2nd Trabzon International Energy and Environment Symposium, Trabzon, Turkey, 26 - 29 July 1998, pp.375-379, (Full Text)

### **IX. A parametric study of Rayleigh Benard convection using a Karhunen Loeve basis**

TARMAN I. H., Sirovich L.

11th Symposium on Turbulent Shear Flow, Grenoble, France, 8 - 11 September 1997

### **X. Analysis of turbulent thermal convection**

Sirovich L., Maxey M., TARMAN I. H.

6th symposium on turbulent shear flow, France, 7 - 09 September 1987

## **Metrics**

Publication: 32

Citation (WoS): 161

Citation (Scopus): 187

H-Index (WoS): 6

H-Index (Scopus): 6

## **Non Academic Experience**

METU, Associate Professor (Promotion)

METU, Assistant Professor

METU, Associate Professor (Title)

King Fahd University of Petroleum and Minerals, Assistant Professor

Brown University, Post-Doctoral Research Associate

Brown University, Assistant

Boğaziçi University, Assistant