

# Oguz Yilmaz

Professor of Applied Mathematics



## Address

### Izmir Institute of Technology

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**Telephone:** +90(0)232 750 7770 (Work)

Proactive lecturer and researcher with experience in teaching Mathematics courses at undergraduate and graduate level. Have background in Engineering. Supervised 5 MSc theses and 5 PhD dissertations. Published 27 articles in peer-reviewed journals.

## Education

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**1988-1992**      **University of Glasgow, Glasgow, UK, Ph.D. in Ocean Engineering,**

**Thesis supervisor:** Professor Atilla Incecik

**Thesis title:** Non-Linear Dynamic Interaction Between Mooring Systems and a Floating Structure Under Environmental Forces

**1983-1987**      **Istanbul Technical University, Istanbul, Turkey**

**B.Sc. in Naval Architecture and Marine Engineering**

## Work Experience

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**2005 - Present**      **Professor of Applied Mathematics**

Izmir Institute of Technology

Head of the Department for 13 years between 2005-2015, 2020-2023

Undergraduate lectures given are Differential Equations, Calculus, Advanced Calculus, Complex Analysis, Special Functions of Mathematical Physics, Introduction to Integral Equations, Fluid Dynamics, Green's Functions, Probability and Statistics. (All of them are given in English)

Given graduate courses include Complex Analysis, Fluid Mechanics, Partial Differential Equations and Integral Equations. (All of them are given in English)

**2001 – 2005**      **Professor of Applied Mathematics**

Abant İzzet Baysal University

Head of the Department for 4 years

Undergraduate lectures given are Linear Algebra, Boundary Value Problems, Differential Equations, Numerical Analysis, Advanced Calculus. (All of them are given in English)

Given M.Sc. courses include Applied Functional Analysis, Complex Analysis, Perturbation Methods, Partial Differential Equations. (All of them are given in English)

**1993 - 2001 Associate Professor of Ocean Engineering**

Istanbul Technical University

Undergraduate lectures given are Design of Offshore Structures (in Turkish), Kinematics (in Turkish) and Dynamics (in Turkish).

## **Sabbaticals and short time visits**

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**April 2018 - June 2018 University of East Anglia, UK**

Finalising the work on the Two-fluid dam breaking problem.

**July 2001 - Sep. 2001 University of Newcastle, UK**

Visiting Professor in Newcastle University,

Finalising the work on the Non-linear dam breaking problem.

**Jan. 1997 - May 1997 Strathclyde University, UK**

Visiting lecturer in Strathclyde University,

Teaching "Offshore Structural Response" to final year students. Topics include Reliability Analysis, Finite Element Analysis, Vibration Analysis and Fatigue Analysis of Offshore Structures.

**Jan. 1996 - Jan. 1997 Glasgow University, UK**

Academic Visitor Glasgow University

Research topic: Hydrodynamic Interactions Among Multiple Cylinders"

**Mar. 1994 - Apr. 1995 Glasgow University, UK**

Research Assistant

Research on a EPSRC project entitled " Statistical Modelling of Environmental Parameters for Reliability Analyses of Floating and Compliant Offshore Structures".

## **Organized Scientific Meetings**

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- 17th National Mathematics Symposium, Abant İzzet Baysal University, Matematik Bölümü, Bolu, Turkey, 23-26 Ağustos 2004.
- Mathematics Days, Abant İzzet Baysal University, Matematik Bölümü, Bolu, Turkey, 27 Haziran 2003.
- Lectures On "Asymptotic Methods In Hydrodynamics" by Prof. A. Korobkin, Abant İzzet Baysal University, Matematik Bölümü, Bolu, Turkey, 21-24 May 2002.
- Lectures on Slamming and Wave Impact by Prof. A. Korobkin, Izmir Institute of Technology, Dept. of Mathematics, Izmir, Turkey, 15<sup>th</sup> October-13<sup>th</sup> November 2006.

## **Projects**

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- Principal Investigator, "Hydrodynamic Interaction in Rotational Flow", September 2006-September 2008, Tubitak Project, Budget: 40000 TL.

- Principal Investigator "Fluid-Body Interaction: Dam Break Flow and Other Applications", September 2011-January 2014, Tubitak Project, Budget 90000 TL.
- Investigator, "Loads on Engineering Structures in Sea Ice", Haziran 2020-Aralık 2022, Tübitak Project no: 119N361, 20-58-46009 (RFBR).

## MSc Thesis Supervised

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- Wave Asymptotics by Matched Asymptotic Expansions, Kadir Kanat, 2004.
- Hydrodynamic Interaction in Rotational Flow, Filiz Çağatay, 2008.
- Solution of dam break problem by using complex analysis, Özge Çaylıoğlu, 2015.
- Initial Stages of the Dam Break Problem, Damla Isıdııcı, 2013
- Wave Radiation by a Vertical Cylinder of Arbitrary Cross Section, Ece Hazal Korkmaz, 2018-2021.

## PhD Thesis Supervised

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- Vortex – Cylinder Interaction, Serdar Tülü, 2011.
- Fluid – Body Interaction: Dam Break Flow, Damla Isıdııcı (Demirel), 2013-2018.
- Hydrodynamic Interaction of Waves with Cylinders of Arbitrary Cross Section, N. Buğurcan Rüzgar (Disibuyuk), 2013-2018.
- Three Dimensional Dam Break Problems, Elona Fetahu, 2016-2020.
- Cavity Collapse Problems involving two Fluids, Tuğba Yazan, 2020-present

## Recent Publications (Complete list given separately)

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- Disibuyuk, N.B. & Yilmaz, O. 2024 "Linear wave interaction by multiple vertical cylinders of non-circular smooth cross-section: An iterative-asymptotic approach", *Ocean Engineering*, vol. 305, Article No: 117833, DOI: <https://doi.org/10.1016/j.oceaneng.2024.117833>. (SCI)
- Korobkin, A., Yilmaz, O. 2023 "Initial stages of gravity-driven flow of two fluids of equal depth", *Physics of Fluids*, vol. 35, Article No: 027105, DOI: <https://doi.org/10.1063/5.0138868>. (SCI)
- Fetahu,E., Ivanyshyn Yaman, O., Yilmaz, O. 2022 "Initial stages of a three dimensional dam break flow", *Applied Ocean Research*, vol. 127, Article No: 103325, DOI: <https://doi.org/10.1016/j.apor.2022.103325>. (SCI)
- Disibuyuk, N.B., Yilmaz, O., Korobkin, A. & Khabakhpasheva, T. 2022 "An Iterative Method for Interaction of Hydro-Elastic Waves with Several Vertical Cylinders of Circular Cross-Sections", *Journal of Marine Science and Engineering*, Vol. 10/6, Article No: 723, DOI: 10.3390/jmse10060723. (SCI)

## Languages

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- English (C2)
- Turkish (C2)
- Spanish (B1)
- German (A2)

- French (A2)
- Italian (A2)

## **Cooperation with Other Researchers**

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- Prof. Alexander Korobkin, University of East Anglia, Department of Mathematics, England. (Dam Breaking Problems, Cavity Collapse, Diffraction of Hydroelastic waves by Cylinders of Arbitrary Cross Section)
- Prof. Oktay Pashaev, Izmir Institute of Technology, Department of Mathematics, Urla, İzmir, Turkey. (Vortex Dynamics)
- Prof. Alessandro Iafrati, INSEAN, Rome, Italy. (Dam Break Problem involving two fluids)
- Dr. N. B. Dişibüyük, Dokuz Eylül Üniversitesi, Matematik Bölümü, İzmir, Turkey. (Hydrodynamic Diffraction by Cylinders of Arbitrary Cross Section)
- Dr. Elona Fetahu, University of Elbasan, Albania (Three Dimensional Dam Break Problems)