

# Prof. YUSUF ULUDAĞ

## Personal Information

Web: <https://avesis.metu.edu.tr/yuludag>

### International Researcher IDs

ScholarID: uhB\_HOYAAAAJ

ORCID: 0000-0002-2151-5818

Publons / Web Of Science ResearcherID: ABA-2318-2020

ScopusID: 6506698243

Yoksis Researcher ID: 101176

## Education Information

Doctorate, University of California, Davis, Kimya Mühendisliği, United States Of America 1996 - 2001

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Kimya Mühendisliği (YL) (Tezli), Turkey 1992 - 1995

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, Turkey 1987 - 1992

## Foreign Languages

English, C1 Advanced

## Research Areas

Fluid Mechanics, Heat Transfer, Momentum Transport, Transport Events

## Academic Titles / Tasks

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2009 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2002 - 2009

Lecturer PhD, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2001 - 2002

Research Assistant, University of California, Davis, Mühendislik, Kimya Mühendisliği Ve Malzeme Bilimleri Bölümü, 1996 - 2001

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1992 - 1996

## Advising Theses

ULUDAĞ Y., Analysis of velocity profiles in concentrated solid-liquid mixtures using ultrasound doppler velocimetry,

Postgraduate, A.FIRAT(Student), 2021

ULUDAĞ Y., Mathematical modeling and simulation of suspension droplet drying, Postgraduate, A.Furkan(Student), 2019

ULUDAĞ Y., Modelling and simulation of thin film semiconductor metal oxide gas sensor response, Postgraduate, B.Atman(Student), 2019

ULUDAĞ Y., Particle size characterization of suspensions using ultrasonic method, Postgraduate, E.Özçelik(Student), 2019

KARAKAŞ G., ULUDAĞ Y., Mathematical and computational modelling of chemical heat pumps, Postgraduate, T.GÜNEŞ(Student), 2018

ULUDAĞ Y., Modeling effects of material properties and composition on ultrasound propagation, Doctorate, O.ÖZKÖK(Student), 2017

KALIPÇILAR H., ULUDAĞ Y., Experimental and theoretical aspects of membrane based water cooling system, Postgraduate, H.KULAÇ(Student), 2017

ULUDAĞ Y., Computational investigation of hydrodynamics of viscoelastic fluids flowing around square cylinder and complex fluid rheology via magnetic resonance imaging, Doctorate, G.BENGÜSU(Student), 2016

ULUDAĞ Y., Theoretical and Experimental Investigation of Ultrasound Propagation in Packed Beds, Postgraduate, Z.KARAKAŞ(Student), 2016

ULUDAĞ Y., Investigation of fluid rheology effects on ultrasound propagation, Postgraduate, O.ÖZKÖK(Student), 2012

ULUDAĞ Y., Experimental investigation of agitation hydrodynamics and mixing-time of non-Newtonian solutions, Postgraduate, B.ŞEN(Student), 2011

KARAKAŞ G., ULUDAĞ Y., Mathematical modeling of adsorption/desorption systems for chemical heat pumps, Postgraduate, A.ONUR(Student), 2011

ULUDAĞ Y., Experimental and theoretical investigation of complex flows by ultrasound doppler velocimetry, Doctorate, V.KÖSELİ(Student), 2009

ULUDAĞ Y., KARASÖZEN B., Numerical investigation of the viscoelastic fluids, Doctorate, K.YAPICI(Student), 2008

BAYRAM G., ULUDAĞ Y., Production and development of de/anti icing fluids for aircraft, Postgraduate, B.ERDOĞAN(Student), 2008

ULUDAĞ Y., ÖZGEN S., Development of de-icing and anti-icing solutions for aircraft on ground and analysis of their flow instability characteristics, Postgraduate, D.SİNAN(Student), 2008

ULUDAĞ Y., Experimental investigation of the agitation of complex fluids, Postgraduate, Ö.YAZICIOĞLU(Student), 2006

ULUDAĞ Y., Modeling and numerical analysis of single droplet drying, Postgraduate, N.DALMAZ(Student), 2005

ÇALIK P., ULUDAĞ Y., Obtaining durable enzyme powder via spray drying, Postgraduate, A.NAMALDI(Student), 2005

BAYRAM G., ULUDAĞ Y., Experimental investigation of drag reduction effects of polymer additives on turbulent pipe flow, Postgraduate, Ş.ZEYBEK(Student), 2005

ULUDAĞ Y., Experimental investigation of drag reduction effects of polymer additives on turbulent pipe flow, Postgraduate, Ş.Zeybek(Student), 2005

ULUDAĞ Y., Numerical investigation of stirred tank hydrodynamics, Postgraduate, K.YAPICI(Student), 2003

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Analysis of core velocity in the presence of solids using UDV and improved model for cloud height in stirred tanks**  
Firat Taşkın A., ULUDAĞ Y., AYRANCI TANSIK İ.  
Chemical Engineering Science, vol.285, 2024 (SCI-Expanded)
- II. **Modelling and simulation of chemical reaction of porous MgCl<sub>2</sub> pellets with NH<sub>3</sub> by including impact of heat and mass transfer and structure change**  
Helvacı Z. K., KARAKAŞ G., ULUDAĞ Y.  
Turkish Journal of Chemistry, vol.47, no.3, pp.572-582, 2023 (SCI-Expanded)
- III. **Numerical and Experimental Investigation of Newtonian Flow around a Confined Square Cylinder**  
Tezel G. B., YAPICI K., ULUDAĞ Y.  
PERIODICA POLYTECHNICA-CHEMICAL ENGINEERING, vol.63, no.1, pp.190-199, 2019 (SCI-Expanded)

- IV. **Flow Characterization of Viscoelastic Fluids around Square Obstacle**  
Tezel G. B., YAPICI K., ULUDAĞ Y.  
PERIODICA POLYTECHNICA-CHEMICAL ENGINEERING, vol.63, no.1, pp.246-257, 2019 (SCI-Expanded)
- V. **DEPENDENCY OF NANOFUID RHEOLOGY ON PARTICLE SIZE AND CONCENTRATION OF VARIOUS METAL OXIDE NANOPARTICLES**  
YAPICI K., Osturk O., ULUDAĞ Y.  
BRAZILIAN JOURNAL OF CHEMICAL ENGINEERING, vol.35, no.2, pp.575-586, 2018 (SCI-Expanded)
- VI. **Rheological characterization of polyethylene glycol based TiO<sub>2</sub> nanofluids**  
YAPICI K., KEKLİKÇİOĞLU ÇAKMAK N., İlhan N., ULUDAĞ Y.  
KOREA-AUSTRALIA RHEOLOGY JOURNAL, vol.26, no.4, pp.355-363, 2014 (SCI-Expanded)
- VII. **Utilization of I-Q signals of ultrasound Doppler velocimeter to obtain 1-D turbulence quantities in pipe flow**  
KÖSELİ V., ULUDAĞ Y.  
FLOW MEASUREMENT AND INSTRUMENTATION, vol.39, pp.25-34, 2014 (SCI-Expanded)
- VIII. **Theoretical and experimental investigation of fluid rheology effects on modulated ultrasound propagation**  
Ozkok O., ULUDAĞ Y.  
ULTRASONICS, vol.54, no.7, pp.2034-2041, 2014 (SCI-Expanded)
- IX. **Experimental investigation of drag reduction effects of polymer additives on turbulent pipe flow using ultrasound Doppler velocimetry**  
Zeybek Vural S., BAYRAM G., ULUDAĞ Y.  
TURKISH JOURNAL OF CHEMISTRY, vol.38, no.1, pp.142-151, 2014 (SCI-Expanded)
- X. **Computational analysis of hydrodynamics of shear-thinning viscoelastic fluids in a square lid-driven cavity flow**  
YAPICI K., ULUDAĞ Y.  
KOREA-AUSTRALIA RHEOLOGY JOURNAL, vol.25, no.4, pp.243-260, 2013 (SCI-Expanded)
- XI. **FINITE VOLUME SIMULATION OF 2-D STEADY SQUARE LID DRIVEN CAVITY FLOW AT HIGH REYNOLDS NUMBERS**  
YAPICI K., ULUDAĞ Y.  
BRAZILIAN JOURNAL OF CHEMICAL ENGINEERING, vol.30, no.4, pp.923-937, 2013 (SCI-Expanded)
- XII. **Modeling and computational simulation of adsorption based chemical heat pumps**  
YURTSEVER A. O., KARAKAŞ G., ULUDAĞ Y.  
APPLIED THERMAL ENGINEERING, vol.50, no.1, pp.401-407, 2013 (SCI-Expanded)
- XIII. **Numerical Analysis of Viscoelastic Fluids in Steady Pressure-Driven Channel Flow**  
YAPICI K., KARASÖZEN B., ULUDAĞ Y.  
JOURNAL OF FLUIDS ENGINEERING-TRANSACTIONS OF THE ASME, vol.134, no.5, 2012 (SCI-Expanded)
- XIV. **Theoretical investigation of effects of flow oscillations on ultrasound Doppler velocity measurements**  
Koseli V., ULUDAĞ Y.  
ULTRASONICS, vol.52, no.2, pp.244-254, 2012 (SCI-Expanded)
- XV. **Finite volume simulation of viscoelastic laminar flow in a lid-driven cavity**  
Yapici K., KARASÖZEN B., ULUDAĞ Y.  
JOURNAL OF NON-NEWTONIAN FLUID MECHANICS, vol.164, pp.51-65, 2009 (SCI-Expanded)
- XVI. **Crosslinked DADMAC polymers as cationic super absorbents**  
Korpe S., Erdogan B., BAYRAM G., ÖZGEN S., ULUDAĞ Y., BİÇAK N.  
REACTIVE & FUNCTIONAL POLYMERS, vol.69, no.9, pp.660-665, 2009 (SCI-Expanded)
- XVII. **Numerical investigation of the effect of the Rushton type turbine design factors on agitated tank flow characteristics**  
Yapici K., KARASÖZEN B., Schaefer M., ULUDAĞ Y.  
CHEMICAL ENGINEERING AND PROCESSING, vol.47, no.8, pp.1346-1355, 2008 (SCI-Expanded)
- XVIII. **Heat and mass transfer mechanisms in drying of a suspension droplet: A new computational model**

- Dalmaz N., Ozbelge H. O., Eraslan A. N., Uludag Y.  
DRYING TECHNOLOGY, vol.25, pp.391-400, 2007 (SCI-Expanded)
- XIX. **Effects of spray drying temperature and additives on the stability of serine alkaline protease powders**  
Namaldi A., Calik P., Uludag Y.  
DRYING TECHNOLOGY, vol.24, no.11, pp.1495-1500, 2006 (SCI-Expanded)
- XX. **Online viscosity measurement of complex solutions using ultrasound Doppler velocimetry**  
Koseli V., Zeybek S., Uludag Y.  
TURKISH JOURNAL OF CHEMISTRY, vol.30, no.3, pp.297-305, 2006 (SCI-Expanded)
- XXI. **Numerical method for optimizing stirrer configurations**  
Schafer M., KARASOZEN B., ULUDAĞ Y., YAPICI K., Ugur O.  
COMPUTERS & CHEMICAL ENGINEERING, vol.30, no.2, pp.183-190, 2005 (SCI-Expanded)
- XXII. **Effects of periodic flow fluctuations on magnetic resonance flow images**  
Uludag Y., Powell R., McCarthy M.  
AIChE JOURNAL, vol.50, no.8, pp.1662-1671, 2004 (SCI-Expanded)
- XXIII. **Polymer melt rheology by magnetic resonance imaging**  
Uludag Y., McCarthy M., Barrall G., Powell R.  
MACROMOLECULES, vol.34, no.16, pp.5520-5524, 2001 (SCI-Expanded)
- XXIV. **Determination of heavy metal concentration in feed and permeate streams of polymer enhanced ultrafiltration process**  
Muslehiddinoglu J., Uludag Y., Ozbelge H., Yilmaz L.  
TALANTA, vol.46, no.6, pp.1557-1565, 1998 (SCI-Expanded)
- XXV. **Effect of operating parameters on selective separation of heavy metals from binary mixtures via polymer enhanced ultrafiltration**  
Muslehiddinoglu J., Uludag Y., Ozbelge H., Yilmaz L.  
JOURNAL OF MEMBRANE SCIENCE, vol.140, no.2, pp.251-266, 1998 (SCI-Expanded)
- XXVI. **Removal of mercury from aqueous solutions via polymer-enhanced ultrafiltration**  
Uludag Y., Ozbelge H., Yilmaz L.  
JOURNAL OF MEMBRANE SCIENCE, vol.129, no.1, pp.93-99, 1997 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Stress behaviour of viscoelastic flow around square cylinder**  
TEZEL TANRISEVER G. B., YAPICI K., ULUDAĞ Y.  
International Journal of Chemistry and Technology, vol.3, no.1, pp.61-66, 2019 (Peer-Reviewed Journal)
- II. **Şekil Değiştiren Uçaklar Havacılıkta Yeni Bir Devrim Yaratabilir mi?**  
Yaman Y., Özgen S., Seber G., Şahin M., Bayram G., Uludağ Y., Yılmaz A.  
SAVunma ve Havacılık Dergisi, vol.22, no.126, pp.125-128, 2008 (Non Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Complex flow rheology analysis using Magnetic Resonance Imaging (MRI)**  
TEZEL TANRISEVER G. B., McCarthy M. J., ULUDAĞ Y.  
2nd International Euroasian Conference on Biological and Chemical Sciences, 28 - 29 June 2019
- II. **Theoretical and experimental investigation of ultrasound propagation through porous medium**  
KARAKAŞ Z., ULUDAĞ Y.  
22nd INTERNATIONAL CONGRESS OF CHEMICAL AND PROCESS ENGINEERING CHISA 2016, Prague, Czech Republic, 28 - 30 August 2016
- III. **A COMBINED EXPERIMENTAL AND COMPUTATIONAL STUDY FOR THE DESIGN OF A LOW WATER**

## CONSUMPTION COOLING TOWER

Dogan B., Yilmaz I., Polat O., Karabulut O., Ural A., ULUDAĞ Y., ARADAĞ ÇELEBİOĞLU S.

12th ASME Biennial Conference on Engineering Systems Design and Analysis (ESDA2014), Copenhagen, Denmark, 25 - 27 June 2014

### IV. Morphing Air Vehicle Concepts

ÖZGEN S., YAMAN Y., ŞAHİN M., GÜÇLÜ S., KÖRPE D. S., EVREN S., ERDOĞAN TOLGA İ., ÜNLÜSOY L., BAYRAM G., ULUDAĞ Y., et al.

UVW2010, International Unmanned Vehicle Workshop, İstanbul, Turkey, 10 - 12 June 2010

### V. ODTÜ de Sürdürülen İnsansız Hava Aracı Çalışmaları

YAMAN Y., ÖZGEN S., ŞAHİN M., GÜÇLÜ S., VOLKAN N., EVREN S., ERDOĞAN TOLGA İ., ÜNLÜSOY L., BAYRAM G., ULUDAĞ Y., et al.

TMMOB Makina Mühendisleri Odası, V. Ulusal Uçak, Havacılık ve Uzay Mühendisliği Kurultayı, Eskişehir, Turkey, 22 - 23 May 2009

### VI. Magnetic resonance imaging of polymer melt flows

Uludag Y., McCarthy M., Powell R., Barall G.

58th Annual Technical Conference of the Society-of-Plastics-Engineers, Florida, United States Of America, 7 - 11 May 2000, pp.1061-1064

## Supported Projects

ULUDAĞ Y., KARAKAŞ Z., Project Supported by Higher Education Institutions, METAL TUZLARININ AMONYAK ADSORPSİYON / DESORPSİYON REAKSİYONLARINDAKİ YAPSAL DEĞİŞİMLERİN İNCELENMESİ, 2018 - 2019

ULUDAĞ Y., KARAKAŞ Z., Project Supported by Higher Education Institutions, Metal Tuzları ve Amonyak Arasında Gerçekleşen Adsorplanma/Desorplanma Reaksiyon Sistemine Yapısal Değişikliklerin ve Çözücünün Etkisinin Araştırılması, 2018 - 2019

ULUDAĞ Y., KARAKAŞ Z., Project Supported by Higher Education Institutions, METAL TUZLARININ AMONYAK GAZI İLE TEPKİME TERMODİNAMİĞİNİN VE KİNETİĞİNİN KİMYASAL ISI POMPALARINDA KULLANILMASINA YÖNELİK İNCELENMESİ, 2017 - 2017

ULUDAĞ Y., ÖZKÖK O., Project Supported by Higher Education Institutions, MALZEME ÖZELLİKLERİNİN VE KOMPOZİSYONUNUN ULTRASON YAYILIMI ÜZERİNDEKİ ETKİLERİNİN MODELLENMESİ VE ÖLÇÜLMESİ, 2015 - 2015

ULUDAĞ Y., KARAKAŞ Z., Project Supported by Higher Education Institutions, Dolgulu Kolonlarda Ultrason Yayılımın Deneysel ve Teorik Olarak İncelenmesi, 2015 - 2015

ULUDAĞ Y., Project Supported by Higher Education Institutions, Newtonumsu Olmayan Çözeltilerin Karıştırma Tanklarındaki Hidrodinamiği Ve Karışma Zamanlarının Deneysel İncelenmesi, 2009 - 2009

## Patent

ULUDAĞ Y., DÜŞÜK SU TÜKETİMLİ DÖNER LÜLE SİSTEMİNE SAHİP SU SOĞUTMA KULESİ, Patent, CHAPTER F Mechanical engineering; Lighting; Heating; Weaponry; Destroyed Materials, Standard Registration, 2016

## Metrics

Publication: 36

Citation (WoS): 583

Citation (Scopus): 580

H-Index (WoS): 13

H-Index (Scopus): 12

## **Non Academic Experience**

METU

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University of California, Davis

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