

## **Personal Information**

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## **International Researcher IDs**

ScholarID: 8dt3RK4AAAAJ

ORCID: 0000-0001-5184-0323

Publons / Web Of Science ResearcherID: G-6091-2013

ScopusID: 6602469110

Yoksis Researcher ID: 168555

## **Education Information**

Post Doctorate, Harvard University, Harvard Tıp Fakültesi, Center For Engineering İn Medicine / Biyomedikal Muhendisliği, United States Of America 2010 - 2010

Post Doctorate, Harvard University, Harvard Tıp Fakültesi, Center For Engineering İn Medicine / Biyomedikal Muhendisliği, United States Of America 2009 - 2009

Post Doctorate, Harvard University, Harvard Tıp Fakültesi, Center For Engineering İn Medicine / Biyomedikal Muhendisliği, United States Of America 2008 - 2008

Doctorate, Northeastern University, Graduate School Of Engineering, Makina Muhendisliği, United States Of America 2000 - 2006

Postgraduate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Kimya Muhendisliği, Turkey 1997 - 2000

Undergraduate, Middle East Technical University, Faculty Of Engineering, Kimya Muhendisliği, Turkey 1992 - 1997

## **Foreign Languages**

English, C1 Advanced

## **Dissertations**

Doctorate, Comparison and extension of free dendritic growth models through application to silver-15 mass percent copper alloy, Northeastern University, Department Of Mechanical And Industrial Engineering, 2006

Postgraduate, Energy optimization of the yankee-hood dryer, Orta Doğu Teknik Üniversitesi, Risk Analizi A.B.D., Kimya Mühendisliği (YI) (Tezli), 2000

## **Research Areas**

Biomedical Engineering, Bioengineering and MEMS, Bioinstrumentation and Microelectromechanical Systems (MEMS), Chemical Engineering and Technology, Biotechnology, Biomedical Engineering, Basic Operations and Thermodynamics, Thermodynamics, Heat Transfer, Transport Events, Mechanical Engineering, Construction and Manufacturing, Non-

traditional manufacturing methods, Thermodynamics, Heat and Mass Transfer, Computational fluid dynamics, Thermal Systems, Metallurgical and Materials Engineering, Material science and engineering, Chemical and Electrochemical Properties, Mathematics, Numerical Analysis, Natural Sciences, Engineering and Technology

## Academic Titles / Tasks

Associate Professor, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2017 - Continues  
Associate Professor, Middle East Technical University Northern Cyprus Campus, Engineering, Mechanical Engineering, 2018 - 2019  
Associate Professor, National Defense University, Alparslan Defense Sciences Institute, Department Of Weapon Systems, 2017 - 2019  
Researcher, Harvard University, Harvard Medical School / Massachusetts General Hospital, Biomedical Engineering, 2016 - 2017  
Assistant Professor, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2011 - 2017  
Assistant Professor, Land War Academy Command, Institute Of Defense Sciences, 2012 - 2016  
Researcher, Harvard University, Massachusetts General Hospital, Center for Engineering in Medicine, 2008 - 2015  
Lecturer PhD, Land War Academy Command, Institute Of Defense Sciences, Department Of Operation Research, 2008 - 2011  
Research Assistant, Northeastern University, College of Engineering, Department of Mechanical and Industrial Engineering, 2000 - 2006  
Research Assistant, Middle East Technical University, Graduate School Of Natural And Applied Sciences, International Center for Heat and Mass Transfer (ICHMT), 1998 - 2000

## Academic and Administrative Experience

Deputy Head of Department, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2023 - Continues  
Fakülte Kurulu Üyesi, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2021 - Continues  
Hacettepe Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2008 - Continues

## Courses

Kimya Mühendisliği Termodinamiği I, Undergraduate, 2021 - 2022  
Thermodynamics of Chemical Engineering II, Undergraduate, 2022 - 2023  
Advanced Chemical Engineering Thermodynamics, Postgraduate, 2020 - 2021  
Solid State Chemistry, Doctorate, 2018 - 2019  
Advanced Engineering Mathematics, Postgraduate, 2019 - 2020, 2018 - 2019, 2017 - 2018  
Introduction to Microfluidic Systems, Doctorate, 2019 - 2020  
KMU600 ÖZEL KONULAR, Postgraduate, 2017 - 2018, 2016 - 2017  
KMU700 ÖZEL KONULAR, Doctorate, 2017 - 2018, 2016 - 2017  
NNT600 ÖZEL KONULAR, Postgraduate, 2017 - 2018, 2016 - 2017  
KMU479 MALZEME BİLİMİ VE TEKNOLOJİSİ II, Undergraduate, 2017 - 2018  
KMÜ403 KİMYA MÜHENDİSLİĞİ LABORATUVARI I, Undergraduate, 2017 - 2018  
BYM600 ÖZEL KONULAR, Postgraduate, 2017 - 2018, 2016 - 2017  
NNT700 ÖZEL KONULAR, Doctorate, 2016 - 2017

## Advising Theses

Gerçekçiöglü E., Önel Kayran S., 17-4 PH Paslanmaz Çeliğin Elektro Erozyon ve Elektrokimyasal İşleme Yöntemleriyle İşlenebilirliğinin Araştırılması ve İşleme Yüzeylerinde Korozyon Davranışının İncelenmesi, Doctorate, M.ALBAŞKARA(Student), 2022

Önel Kayran S., DUYARSIZ PATLAYICILARIN DETONASYONU İÇİN LAZER TETİKLİ DETONATÖR DÜZENEGİ GELİŞTİRİLMESİ, Doctorate, G.ÖZKASAPÖĞLU(Student), 2022

Önel Kayran S., OPTIMIZATION OF FLOW CONDITIONS AND INVESTIGATION OF CRYSTALLIZATION KINETICS FROM A SUPERSATURATED SOLUTION IN A TWO-PHASE MICROFLUIDIC SYSTEM, Postgraduate, T.AHMED(Student), 2022

Önel Kayran S., Külâh H., Investigation of the permeability of the cell membrane for different cryoprotectant agents in a continuous thermo-fluidic micro-channel system, Postgraduate, A.HATİBOĞLU(Student), 2021

Önel Kayran S., Mikrokanaallı cihazlarda damlacık oluşturmak için iki-fazlı akış çalışma parametrelerinin optimizasyonu, Postgraduate, B.ÖZDEN(Student), 2021

Önel S., Al-6061 alaşımı için uygun elektrokimyasal işleme parametrelerinin ve elektrolitin araştırılması, Postgraduate, G.ŞEHNAZ(Student), 2018

Önel S., Yeni bir elektrokimyasal işleme tezgahında çalışma parametrelerinin titanyum alaşımları için eniyilemesi, Postgraduate, N.HANLIOĞLU(Student), 2018

Önel S., Beyin damar akışında gaz halde emboli davranışının matematiksel modellemesi, Postgraduate, P.KIZILTAŞ(Student), 2018

Önel S., Ekmeklik buğday kalitesini değerlendirmede kullanılan kimyasal ve fiziksel özelliklerin incelenmesi, Postgraduate, Y.OKUR(Student), 2017

Önel S., Examination and mathematical modelling of shrinkage rate of uniform droplets in a microfluidic system designed for biopreservation, Postgraduate, U.OKUMUŞ(Student), 2015

ÖNEL S., Bir elektrokimyasal işleme uygulamasında atık elektrolitin ağır metal iyonlarından arındırılması ve geri kazanımı, Postgraduate, G.ERGİN(Student), 2012

## Jury Memberships

Post Graduate, Post Graduate, Hacettepe Üniversitesi, December, 2023

Post Graduate, Post Graduate, Hacettepe Üniversitesi, December, 2023

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, İhsan Doğramacı Bilkent Üniversitesi, August, 2023

Post Graduate, Post Graduate, Hacettepe Üniversitesi, July, 2023

Post Graduate, Post Graduate, Hacettepe Üniversitesi, July, 2023

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, İhsan Doğramacı Bilkent Üniversitesi, April, 2023

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, December, 2019

Doctoral Examination, Doctoral Examination, Orta Doğu Teknik Üniversitesi, December, 2019

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, November, 2019

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2019

Doctoral Examination, Doctoral Examination, Hacettepe Üniversitesi, June, 2019

Doctoral Examination, Doctoral Examination, Hacettepe Üniversitesi, February, 2019

## Designed Lessons

Önel Kayran S., Introduction to Microfluidic Systems, Doctorate, 2019 - 2020

Önel Kayran S., Solid State Chemistry, Doctorate, 2018 - 2019

Önel Kayran S., Materials Science and Technology II, Undergraduate, 2008 - 2009

Önel Kayran S., Materials Science and Engineering III, Undergraduate, 2007 - 2008

Önel Kayran S., Numerical Analysis, Mathematical Modeling, and Simulation with MATLAB, Postgraduate, 2007 - 2008

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

- I. **Multistep Treatment of a Complex Electrolyte for Removal of Heavy Metal Ions and Recycling in Electrochemical Machining**  
ÖNEL S., Ergin G.  
JOURNAL OF MANUFACTURING SCIENCE AND ENGINEERING-TRANSACTIONS OF THE ASME, vol.142, no.7, 2020 (SCI-Expanded)
- II. **Permeability and fluid flow-induced wall shear stress in bone scaffolds with TPMS and lattice architectures: A CFD analysis**  
ALI D., ÖZALP M., Blanquer S. B. G., ÖNEL S.  
EUROPEAN JOURNAL OF MECHANICS B-FLUIDS, vol.79, pp.376-385, 2020 (SCI-Expanded)
- III. **Application of a simple subregular solution model to the computation of phase boundaries and free dendritic growth in the Ag-Cu system**  
ÖNEL S., Ando T.  
ACTA MATERIALIA, vol.113, pp.109-115, 2016 (SCI-Expanded)
- IV. **Simulations of nanoscale Ni/Al multilayer foils with intermediate Ni<sub>2</sub>Al<sub>3</sub> growth**  
GUNDUZ I. E., ÖNEL S., DOUMANIDIS C. C., Rebholz C., SON S. F.  
JOURNAL OF APPLIED PHYSICS, vol.117, no.21, 2015 (SCI-Expanded)
- V. **INVESTIGATION AND APPLICATION OF AUTOMATIC CONTROLLED ELECTROCHEMICAL MACHINING (ECM)**  
Onel S.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.29, no.1, pp.1-8, 2014 (SCI-Expanded)
- VI. **DETERMINATION AND REMOVAL OF COPPER IONS (Cu<sup>2+</sup>) IN THE WASTE ELECTROLYTE IN AN ELECTROCHEMICAL MACHINING APPLICATION**  
ERGIN G., ÖNEL S.  
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.29, no.3, pp.487-494, 2014 (SCI-Expanded)
- VII. **Comparison and extension of free dendritic growth models through application to a Ag-15 mass pct Cu alloy**  
Onel S., Ando T.  
METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, no.10, pp.2449-2458, 2008 (SCI-Expanded)
- VIII. **Energy optimization of the Yankee-Hood dryer**  
Onel S., Guruz G.  
STROJNISKI VESTNIK-JOURNAL OF MECHANICAL ENGINEERING, vol.47, no.8, pp.512-518, 2001 (SCI-Expanded)

## Refereed Congress / Symposium Publications in Proceedings

- I. **EFFECT OF MINIATURIZATION USING DROPLET BASED MICRO FLUIDIC SYSTEMS ON THE SYNTHESIS OF UiO-66 MOF NANOPARTICLES**  
ÖNEL KAYRAN S., Parlak B., Korkmaz G., DİLCİ E. G.  
ASME 2023 International Mechanical Engineering Congress and Exposition, IMECE 2023, Louisiana, United States Of America, 29 October - 02 November 2023, vol.4
- II. **Effect of Blood Viscosity on Pressure and Shear Stress on the Walls of an Artery with Stenosis**  
Ali D., ÖNEL S.  
Medical Technologies National Congress (TIPTEKNO), Magusa, CYPRUS, 8 - 10 November 2018
- III. **Entropy based classification of road-profiles**  
Caglar Baslamisli S. Ç., ÖNEL S.  
ASME 2010 10th Biennial Conference on Engineering Systems Design and Analysis, ESDA2010, İstanbul, Turkey,

## Supported Projects

ÖNEL KAYRAN S., Project Supported by Higher Education Institutions, Biyomalzemeleri Önderiştirme için geliştirilen BiyoMEMS Cihazda Biyomalzemelerle Performans Testleri, 2015 - 2016

ÖNEL KAYRAN S., Project Supported by Higher Education Institutions, Biyosaklama ve Önderiştirme Yöntemlerinde İlerlemeler, 2015 - 2015

ÖNEL KAYRAN S., Project Supported by Higher Education Institutions, Biomedikal amaçlı mikro-kanallı akışkan bir sistemde kütle aktarımının matematiksel modellemesi, 2014 - 2015

ÖNEL S., TUBITAK Project, Otomatik Kontrollü Elektrokimyasal İşleme Tezgahında Geliştirme Çalışmaları Elektrolit Devri Tasarımı ve Modellemesi, 2011 - 2012

ÖNEL S., Industrial Thesis Project, CNC Kontrollü Elektrokimyasal İşleme Tezgahı, 2010 - 2011

Project Supported by Other Private Institutions, Yankee Hood Kurutucusunda Enerji Optimizasyonu, 1998 - 2000

## Activities in Scientific Journals

Technology, Assistant Editor/Section Editor, 2016 - Continues

## Scientific Refereeing

TUBITAK Project, 1001 - Program for Supporting Scientific and Technological Research Projects, Hacettepe University, Turkey, November 2019

## Metrics

Publication: 11

Citation (WoS): 32

Citation (Scopus): 29

H-Index (WoS): 3

H-Index (Scopus): 3

## Non Academic Experience

Kara Harp Okulu- Savunma Bilimleri Enstitüsü

Harvard University, Massachusetts General Hospital

EKİ Elektrokimya Metalurji ve Makine Sanayi ve Ticaret Limited Şirketi

Northeastern University

Northeastern University

Northeastern University

International Center for Heat and Mass Transfer (ICHMT)

Eczacıbaşı İpekkağıt A.Ş., Yalova

Çukurova Tekstil Fabrikası

Çanakkale Çimento Fabrikası

El-Fouladh Iron & Steel Co, Bizerte, Tunisia