

## Prof. ÖVGÜ CEYDA YELGEL

### Personal Information

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**Web:** [https://www.researchgate.net/profile/Oevgue\\_Yelgel](https://www.researchgate.net/profile/Oevgue_Yelgel)

### International Researcher IDs

ScholarID: QWWA2GsAAAAJ

ORCID: 0000-0001-5888-5743

Yoksis Researcher ID: 206731

### Education

Doctorate, University of Exeter, College Of Engineering, Mathematics And Physical Sciences, Physics and Astronomy ,  
England 2010 - 2013

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, Thermoelectric Properties of V-VI Semiconductor Alloys and Nanocomposites, University of Exeter, College Of  
Engineering, Mathematics And Physical Sciences, 2013

### Research Areas

Artificial Intelligence, Computer Learning and Pattern Recognition, Neural Networks, Nanotechnology, Renewable  
energy, Renewable Energy Systems, Material science and engineering, Nanomaterials, Materials Science, Condensed  
Matter 1: Structural, Mechanical and Thermal Properties, Intensive Article 2: Electronic Structure, Electric, Magnetic and  
Optical Properties

### Academic Positions

Professor, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK  
MÜHENDİSLİĞİ, 2025 - Continues

Associate Professor, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE  
ELEKTRONİK MÜHENDİSLİĞİ, 2019 - 2025

Associate Professor, The University of Manchester, 2023 - 2024

Associate Professor, Recep Tayyip Erdogan University, Mühendislik Fakültesi, Malzeme Bilimi Ve Nanoteknoloji  
Muhendisligi, 2018 - 2019

Research Assistant PhD, University of Manchester, Department Of Physics And Astronomy, Physics, 2017 - 2019

Research Assistant PhD, Recep Tayyip Erdogan University, Mühendislik Fakültesi, Malzeme Bilimi Ve Nanoteknoloji

Muhendisligi, 2014 - 2018

Research Assistant, University of Exeter, College Of Engineering, Mathematics And Physical Sciences, 2010 - 2012

## Academic and Administrative Experience

Head of Department, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİĞİ, 2024 - Continues

Head of Department, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİĞİ, 2020 - Continues

## Courses

### Postgraduate

ELEKTRİK ELEKTRONİK MÜHENDİSLİĞİNDE GÜNCEL KONULAR, Postgraduate, 2022 - 2023

### Undergraduate

GÜÇ SİSTEMLERİNİN ANALİZİ, Undergraduate, 2022 - 2023, 2021 - 2022

YAPAY ZEKA, Undergraduate, 2022 - 2023, 2021 - 2022

RASTGELE SURECLER, Undergraduate, 2022 - 2023, 2020 - 2021

OLASILIK VE İSTATİSTİK, Undergraduate, 2020 - 2021

YENİLENEBİLİR ENERJİ KAYNAKLARI, Undergraduate, 2020 - 2021

RASTGELE SÜREÇLER, Undergraduate, 2021 - 2022

OLASILIK, Undergraduate, 2020 - 2021

OLASILIK, Undergraduate, 2019 - 2020

GUC SISTEMLERINE GIRIS, Undergraduate, 2020 - 2021

YENİLENEBİLİR ENERJİ KAYNAKLARI, Undergraduate, 2019 - 2020

GÜÇ SİSTEMLERİNE GİRİŞ, Undergraduate, 2019 - 2020

## Jury Memberships

Appointment to Academic Staff-Assistant Professorship, Appointment to Academic Staff-Assistant Professorship, Recep Tayyip Erdoğan Üniversitesi, December, 2022

Post Graduate, Post Graduate, İstanbul Teknik Üniversitesi, December, 2022

Post Graduate, Post Graduate, Recep Tayyip Erdoğan Üniversitesi, October, 2021

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

- I. **Engineering the electronic properties of  $\text{MoTe}_2$  via defect control**  
Yelgel C., Yelgel Ö. C.  
SCIENCE AND TECHNOLOGY OF ADVANCED MATERIALS, vol.25, no.1, pp.2388502-2388512, 2024 (SCI-Expanded)
- II. **The Investigation of Electronic and Photocatalytic Characteristics of van der Waals  $\text{GaSe/WSeTe}$  Heterostructures: The First Principles Study**  
Yelgel C., Yelgel Ö. C.  
JOURNAL OF CATALYSIS, vol.11, no.11, pp.1-15, 2024 (SCI-Expanded)
- III. **Defect dependent electronic properties of  $\text{WTe}_2$ : a first-principles study**  
Yelgel C., Yelgel Ö.  
MODELLING AND SIMULATION IN MATERIALS SCIENCE AND ENGINEERING, vol.32, no.8, pp.1-14, 2024 (SCI-Expanded)
- IV. **The role of intrinsic atomic defects in a Janus  $\text{MoSSe}/\text{XN}$  ( $\text{X} = \text{Al, Ga}$ ) heterostructure: a first**

## **principles study**

Yelgel Ö. C.

CONDENSED MATTER PHYSICS, vol.26, no.4, pp.43703-43713, 2023 (SCI-Expanded)

- V. **Theoretical and experimental evaluation of thermoelectric performance of alkaline earth filled skutterudite compounds**  
Yelgel Ö. C., Ballikaya S.  
JOURNAL OF SOLID STATE CHEMISTRY, vol.284, 2020 (SCI-Expanded)
- VI. **Thermoelectric transport behaviours of n-type Mg-2 (Si,Sn,Ge) quaternary solid solutions**  
Yelgel O. C., Yelgel C.  
JOURNAL OF MAGNESIUM AND ALLOYS, vol.7, no.3, pp.514-521, 2019 (SCI-Expanded)
- VII. **Structural and electronic properties of MoS<sub>2</sub>, WS<sub>2</sub>, and WS<sub>2</sub>/MoS<sub>2</sub> heterostructures encapsulated with hexagonal boron nitride monolayers**  
Yelgel C., Yelgel O. C., Gulseren O.  
JOURNAL OF APPLIED PHYSICS, vol.122, no.6, 2017 (SCI-Expanded)
- VIII. **Structural and Electronic Properties of MoS<sub>2</sub>, WS<sub>2</sub>, and WS<sub>2</sub>/MoS<sub>2</sub> Heterostructures Intercalated with Bilayer Hexagonal Boron Nitride**  
YELGEL C., YELGEL Ö. C., gulseren o.  
JOURNAL OF APPLIED PHYSICS, vol.xx, pp.1-25, 2017 (SCI-Expanded)
- IX. **Thermoelectric properties of Mg<sub>2</sub>X (X = Si, Ge) based bulk and quantum well systems**  
Yelgel O. C.  
JOURNAL OF APPLIED PHYSICS, vol.121, no.3, 2017 (SCI-Expanded)
- X. **Theoretical study of thermoelectric properties of p-type Mg-2 Si<sub>1-x</sub>Sn<sub>x</sub> solid solutions doped with Ga**  
Yelgel O. C.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.691, pp.151-158, 2017 (SCI-Expanded)
- XI. **Theoretical study of thermoelectric properties of n-type doped Mg<sub>2</sub>Si<sub>0.4</sub>Sn<sub>0.6</sub> solid solutions**  
Yelgel O. C.  
PHILOSOPHICAL MAGAZINE, vol.96, no.6, pp.560-575, 2016 (SCI-Expanded)
- XII. **Thermoelectric properties of Bi<sub>2</sub>Se<sub>3</sub>/Bi<sub>2</sub>Te<sub>3</sub>/Bi<sub>2</sub>Se<sub>3</sub> and Sb<sub>2</sub>Te<sub>3</sub>/Bi<sub>2</sub>Te<sub>3</sub>/Sb<sub>2</sub>Te<sub>3</sub> quantum well systems**  
Yelgel O. C., Srivastava G. P.  
PHILOSOPHICAL MAGAZINE, vol.94, no.18, pp.2072-2099, 2014 (SCI-Expanded)
- XIII. **Thermoelectric properties of p-type (Bi<sub>2</sub>Te<sub>3</sub>)<sub>x</sub>(Sb<sub>2</sub>Te<sub>3</sub>)<sub>(1-x)</sub> single crystals doped with 3 wt. % Te**  
Yelgel O. C., Srivastava G. P.  
JOURNAL OF APPLIED PHYSICS, vol.113, no.7, 2013 (SCI-Expanded)
- XIV. **Thermoelectric properties of n-type Bi-2(Te<sub>0.85</sub>Se<sub>0.15</sub>)<sub>3</sub> single crystals doped with CuBr and SbI<sub>3</sub>**  
Yelgel O. C., Srivastava G. P.  
PHYSICAL REVIEW B, vol.85, no.12, 2012 (SCI-Expanded)

## **Articles Published in Other Journals**

- I. **Long-Term Prediction of Solar Panel Power Output with Artificial Intelligence Techniques**  
türker m., YELGEL C., YELGEL Ö. C.  
Ejons International Journal on Mathematic, Engineering and Natural Sciences, vol.9, no.1, pp.130-146, 2025 (Peer-Reviewed Journal)
- II. **Investigation of Photocatalytic Performance of GaN-WSe Under Vertical Strain**  
Yelgel Ö. C.  
Recep Tayyip Erdoğan University Journal of Science and Engineering, vol.4, no.1, pp.30-38, 2023 (Peer-Reviewed)

Journal)

- III. **Forecasting Wind Power Generation Using Artificial Neural Network**  
Tokmak A., Atalay I., Yelgel Ö. C.  
International Journal of Pure and Applied Sciences, vol.9, no.1, pp.7-19, 2023 (Peer-Reviewed Journal)
- IV. **Theoretical Study of Thermal Conductivities of n- and p-type Doped Mg<sub>2</sub>Si<sub>1-x</sub>Sn<sub>x</sub> Thermoelectric Solid Solutions**  
Yelgel Ö. C.  
SAKARYA UNIVERSITY JOURNAL OF SCIENCE, vol.21, no.6, pp.1-10, 2017 (Peer-Reviewed Journal)

## Books

- I. **Functional Transition Metal Oxides: Novel Applications and Engineering Perspectives**  
Yelgel C., Yelgel Ö. C.  
in: Thin Films - Fundamentals, Deposition Techniques and Applications, Pablo Cayado, Editor, IntechOpen, London, pp.1-18, 2024
- II. **The Role of Machine Learning Methods for Renewable Energy Forecasting**  
Yelgel Ö. C., Yelgel C.  
in: Advances in Energy Recovery and Efficiency Technologies, Basel I. Abed Ismail, Editor, IntechOpen, London, pp.1-36, 2024
- III. **Effects of Dimensionality Reduction for High-Efficiency Mg-based Thermoelectrics**  
Yelgel Ö. C.  
in: Magnesium Alloys - Processing, Potential, Applications, Prof. Tomasz Arkadiusz Tański, Editor, IntechOpen, London, pp.37-62, 2023
- IV. **Using Machine Learning Techniques to Discover Novel Thermoelectric Materials**  
Yıldırım E., Yelgel Ö. C.  
in: New Materials and Devices for Thermoelectric Power Generation, Basel I. Ismail, Editor, IntechOpen, London, pp.37-67, 2023
- V. **Recent Advances on Mg<sub>2</sub>XIV Based Thermoelectric Materials: A Theoretical Approach**  
YELGEL Ö. C.  
in: Advanced Thermoelectric Materials, Chong Rae Park, Editor, Scrivener Publishing Llc - Wiley-Vch Verlag Weinheim GmbH, Beverly, pp.229-266, 2019

## Papers Presented at Peer-Reviewed Scientific Conferences

- I. **LONG-TERM PREDICTION OF SOLAR PANEL POWER OUTPUT WITH ARTIFICIAL INTELLIGENCE TECHNIQUES**  
Türker M., Yelgel C., Yelgel Ö. C.  
EJONS 18th INTERNATIONAL CONGRESS "Artificial Intelligence Trends: Theory to Practice", New Delhi, India, 10 - 11 February 2025, vol.11, no.11, pp.1-19, (Full Text)
- II. **Thermal Conductivities of n- and p-typed Mg<sub>2</sub>Si<sub>1-x</sub>Sn<sub>x</sub> Thermoelectric Solid Solution**  
YELGEL Ö. C.  
INTERNATIONAL CONFERENCE ON PROGRESS IN APPLIED SCIENCE 2017 - ICPAS 2017, 4 - 06 January 2017, (Summary Text)
- III. **Detailed Theoretical Investigation and Comparison of the Thermal Conductivities of n- and p-type Bi<sub>2</sub>Te<sub>3</sub> Based Alloys**  
YELGEL Ö. C., Srivastava G. P.  
Mater. Res. Soc. Symp. Proc., San Francisco, United States Of America, 1 - 07 April 2013, no.1543, pp.1-6, (Full Text)
- IV. **A Detailed Theoretical Study of the Thermal Conductivity of Bi<sub>2</sub>(Te<sub>0.85</sub>Se<sub>0.15</sub>)<sub>3</sub> Single Crystals**  
YELGEL Ö. C., Srivastava G. P.

## Funded Projects

Yelgel Ö. C., TUBITAK Project, Termoelektrik Taşınım Özelliklerinin Nanotel Yapılı Malzemeler İçin İncelenmesi, 2022 - 2022

Tören M., Mollahasanoğlu H., Yelgel Ö. C., TUBITAK Project, Termoelektrik Soğutucuların Yağlı Tip Dağıtım Transformatörlerinin Faydalı Ömürlerine Etkisinin İncelenmesi, 2021 - 2022

BAL ALTUNTAŞ D., YELGEL Ö. C., Project Supported by Higher Education Institutions, Dikalkojen nanoyapılar kullanılarak yeni nesil biyosensörlerin geliştirilmesi, 2017 - 2019

YELGEL Ö. C., TUBITAK Project, N- ve P-Tip Katkılı Mg<sub>2</sub>X (X=Si, Ge, Sn) Tabanlı Sistemlerin Termoelektrik Özelliklerinin Teorik Olarak İncelenmesi, 2016 - 2017

YELGEL Ö. C., Project Supported by Higher Education Institutions, N- ve P-Tip Katkılı Mg<sub>2</sub>X (X=Si, Ge, Sn) Tabanlı Kuantum Kuyu Sistemlerinin Termoelektrik Özelliklerinin Teorik Olarak İncelenmesi, 2016 - 2017

## Student Project

Other, Makine Öğrenimi ile Rüzgar Hızı Tahmini: Doğu Karadeniz Vaka Çalışması, Recep Tayyip Erdogan University, MÜHENDİSLİK VE MİMARLIK FAKÜLTESİ, ELEKTRİK VE ELEKTRONİK MÜHENDİSLİĞİ, Turkey, 2023 - 2023

## Activities in Scientific Journals

FRONTIERS IN PHYSICS, Assistant Editor/Section Editor, 2023 - Continues

Recep Tayyip Erdoğan Üniversitesi Fen ve Mühendislik Bilimleri Dergisi, Committee Member, 2021 - Continues

## Memberships and Roles in Scientific Organizations

International Scientific Research Congress Science and Engineering, Member of Science Committee, 2021 - Continues, Turkey

International Thermoelectric Society (ITS), Member, 2012 - Continues

Materials Research Society, Member, 2011 - Continues

## Peer Reviews in Scientific Publications

JOURNAL OF APPLIED PHYSICS, SCI Journal, May 2025

FRONTIERS IN PHYSICS, SCI Journal, April 2025

JOURNAL OF APPLIED PHYSICS, SCI Journal, April 2025

PHYSICA SCRIPTA, SCI Journal, October 2024

JOURNAL OF APPLIED PHYSICS, SCI Journal, October 2024

SCIENTIFIC DATA, SCI Journal, August 2024

FRONTIERS IN PHYSICS, SCI Journal, July 2024

Nanocomposite Materials with Photocatalytic Properties, Chapter Scientific / Professional Book Published by Renowned Publishing Houses, April 2024

SCIENTIFIC DATA, SCI Journal, April 2024

PHILOSOPHICAL MAGAZINE LETTERS, SCI Journal, March 2024

FRONTIERS OF PHYSICS, SCI Journal, March 2024

International Journal of Energy Applications and Technologies, Other Indexed Journal, February 2024

MATERIALS SCIENCE & ENGINEERING B: SOLID-STATE MATERIALS FOR ADVANCED TECHNOLOGY, SCI Journal, October 2023  
JOURNAL OF APPLIED PHYSICS, SCI Journal, March 2023  
INTERNATIONAL JOURNAL OF PURE AND APPLIED SCIENCES, National Scientific Refreed Journal, January 2022  
JOURNAL OF ALLOYS AND COMPOUNDS, SCI Journal, August 2021  
JOURNAL OF ALLOYS AND COMPOUNDS, SCI Journal, May 2021  
FRONTIERS IN MATERIALS, National Scientific Refreed Journal, January 2021  
JOURNAL OF ALLOYS AND COMPOUNDS, SCI Journal, November 2020  
JOURNAL OF MATERIALS RESEARCH AND TECHNOLOGY-JMR&T, Journal Indexed in SSCI, October 2020  
MATERIALS RESEARCH EXPRESS, SCI Journal, October 2020  
Journal of Alloys and Compounds, SCI Journal, August 2019  
Journal of Physics and Chemistry of Solids, SCI Journal, February 2019  
Intermetallics, SCI Journal, December 2018  
Journal of Alloys and Compounds, SCI Journal, July 2018  
Scientific Reports, SCI Journal, May 2018  
Philosophical Magazine, SCI Journal, March 2018  
International Journal of Hydrogen Energy, SCI Journal, July 2017  
Journal of Applied Physics, SCI Journal, March 2017  
Journal of Alloys and Compounds, SCI Journal, November 2016  
American Journal of Applied Sciences, SCI Journal, March 2015  
International Journal of Applied Mathematics and Theoretical Physics, SCI Journal, March 2015  
Philosophical Magazine, SCI Journal, January 2015  
Materials Research Society symposia proceedings, SCI Journal, January 2013

### **Scientific Project Refereeing**

TUBITAK Project, 1002 - Quick Support Program, January 2022  
TUBITAK Project, 1002 - Quick Support Program, October 2021

### **Scientific Research / Working Group Memberships**

Hesaplamalı Bilim Ve Makine Öğrenimi Çalışma Grubu , Recep Tayyip Erdogan University, Turkey,  
<https://avesis.erdogan.edu.tr/oceyda.yelgel>, 2024 - Continues

### **Metrics**

Publication: 28  
Citation (WoS): 112  
Citation (Scopus): 171  
H-Index (WoS): 5  
H-Index (Scopus): 7

### **Congress and Symposium Activities**

AAIC - Applied Artificial Intelligence Conference 2024, Attendee, Vienna, Austria, 2024  
The Future of 2D Materials: Grand Challenges and Opportunities, Audience, Manchester, England, 2024  
Workshop on Twistronics in 2D Materials from Modelling to Real Systems, Attendee, Manchester, England, 2023  
USBILIM 2 nd International Congress on Artificial Intelligence Studies , Attendee, Ankara, Turkey, 2022

Rumeli 1st International Scientific Research Conference on Sustainable Engineering and Technology, Attendee, İstanbul, Turkey, 2022  
2nd International Congress of engineering and Natural Sciences, Attendee, Ankara, Turkey, 2022  
EuroCC@Türkiye Kuantum Hesaplama ve Teknolojileri Çalıştayı, Attendee, Ankara, Turkey, 2022  
12th International Scientific Research Congress Science and Engineering , Session Moderator, Ankara, Turkey, 2021  
12th International Scientific Research Congress Science and Engineering , Session Moderator, Ankara, Turkey, 2021  
USBİLİM 1st International Congress on Artificial Intelligence Studies, Attendee, Ankara, Turkey, 2021  
10th International Scientific Research Congress Science and Engineering, Session Moderator, Ankara, Turkey, 2021  
7th International Scientific Research Congress Science and Engineering, Attendee, Ankara, Turkey, 2020  
ISTANBUL INTERNATIONAL CONFERENCE ON PROGRESS IN APPLIED SCIENCE 2017 - ICPAS 2017, Attendee, İstanbul, Turkey, 2017  
Materials Research Society Spring Meeting and Exhibit, Attendee, New York, United States Of America, 2013  
Materials Research Society Fall Meeting and Exhibit, Attendee, Massachusetts, United States Of America, 2011  
VII International Workshop on Semiconductor Surface Passivation, Attendee, Kraków, Poland, 2011

## Scholarships

2008 YLSY Bursu, Ministry of Education, 2008 - 2013

## Awards

YELGEL Ö. C., Üniversite Akademik Tesvik Birinciliği, RECEP TAYYIP ERDOĞAN UNIVERSİTESİ GELİSTİRME VAKFI, May 2017  
YELGEL Ö. C., Outstanding Author (Mükemmel Yazarlık), Journal of Applied Physics, May 2013  
Yelgel Ö. C., MEB YLSY Doktora Bursu, Meb, August 2008  
Yelgel Ö. C., Gazi Üniversitesi Fen Edebiyat Fakültesi Fakülte ve Bölüm İkinciliği Ödülü (GPA:3.82), Gazi Üniversitesi, June 2008