

## Asst. Prof. Volkan ACAR



### Personal Information

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**Address:** Atatürk Üniversitesi Mühendislik Fakültesi Makine Mühendisliği Bölümü



### International Researcher IDs

ScholarID: XAUMWdkAAAAJ

ORCID: 0000-0001-7412-301X

Publons / Web Of Science ResearcherID: AAJ-1340-2020

ScopusID: 57189224651

Yoksis Researcher ID: 35276

### Education

Doctorate, Ataturk University, Fen Bilimleri Enstitüsü, Makine Mühendisliği Anabilim Dalı, Turkey 2013 - 2022

Postgraduate, Ataturk University, Fen Bilimleri Enstitüsü, Makine Mühendisliği / Mekanik Bilim Dalı, Turkey 2011 - 2013

Undergraduate, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği Bölümü, Turkey 2006 - 2010

### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, Vasküler Kompozitlerde Hibritleşme ve Aktif Isıtma Faaliyetinin Mekanik ve Isıl Karakterizasyonu, Ataturk University, Fen Bilimleri Enstitüsü, Makine Mühendisliği Anabilim Dalı, 2022

Postgraduate, Karbon iplik dolgulu termoset film kompozitlerde arayüzey çalışmaları, Atatürk Üniversitesi, Fen Bilimleri Enstitüsü, Makine Mühendisliği / Mekanik Bilim Dalı, 2013

### Research Areas

Repair and Strengthening in Buildings, Composite materials, Mechanical Vibrations, Solid Mechanics, Mechanical Testing, Mechanical Properties, Nanomaterials, nanocomposites, Polymeric Materials

### Academic Positions

Assistant Professor, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2022 - Continues

Research Assistant PhD, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2022 - 2022  
Research Assistant, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2011 - 2022  
Researcher, University of Oklahoma, Gallogly College of Engineering, Department of Aerospace and Mechanical Engineering, Norman, OK, 73019, USA , 2015 - 2016

## Academic and Administrative Experience

Deputy Head of Department, Ataturk University, Mühendislik Fakültesi, Makine Mühendisliği, 2022 - Continues

## Courses

### Postgraduate

Fundamentals of Solid Mechanics, Postgraduate, 2024 - 2025, 2023 - 2024, 2022 - 2023  
Mechanics of Composite Materials, Postgraduate, 2022 - 2023

### Undergraduate

Engineering Statics, Undergraduate, 2023 - 2024, 2022 - 2023  
Strength of Materials I, Undergraduate, 2024 - 2025  
Elective Design I, Undergraduate, 2023 - 2024  
Machine Laboratory II, Undergraduate, 2022 - 2023  
Machine Elements II, Undergraduate, 2021 - 2022  
Machine Elements I, Undergraduate, 2021 - 2022

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

- I. **Effect of Manufacturing Parameters on Low-Velocity Impact Behavior of Aramid, Carbon and Glass Fiber Reinforced Polymer Composites Using Taguchi Experimental Design**  
Aydin M. R., ACAR V., Cakir F., GÜNDOĞDU Ö.  
APPLIED COMPOSITE MATERIALS, 2025 (SCI-Expanded)
- II. **Corrosion and structural properties of lightweight magnesium and aluminum alloy cores based sandwich composites**  
Keleş A., Karabudak F., ACAR V., Kula M. E., ASLAN M., KARABACAK A. H., Alibeyoğlu F.  
Polymer Composites, 2025 (SCI-Expanded)
- III. **Experimental and numerical assessment of intraply hybrid composites strengthened RC deep beams**  
Cakir F., ACAR V., Aydin M. R.  
Mechanics of Advanced Materials and Structures, 2025 (SCI-Expanded)
- IV. **Impact of hybrid and non-hybrid Fiber Reinforced Polymers on mechanical performance of concrete**  
Cakir F., Aydin M. R., ACAR V., Yildirim P.  
Construction and Building Materials, vol.451, 2024 (SCI-Expanded)
- V. **Recycled Ti6Al4V alloy powder reinforced polyurethane core based sandwich structures: Mechanical and modal properties**  
Aydin O. A., ACAR V., Aydin M. R., HÜLAGÜ B., Khan T., Unal H. Y., Teke E., Seydibeyoglu M. O., AKBULUT H.  
JOURNAL OF REINFORCED PLASTICS AND COMPOSITES, vol.43, no.19-20, pp.1113-1132, 2024 (SCI-Expanded)
- VI. **Flexural and thermal characterization of epoxy composites reinforced with nanoparticles synthesized from waste walnut husk with green synthesis method**  
Oner G., Nadaroğlu H., Acar V., Gök S.  
BIOMASS CONVERSION AND BIOREFINERY, vol.14, no.17, pp.20201-20212, 2024 (SCI-Expanded)
- VII. **Interply hybridization of hollow glass fiber reinforced vascular composites**  
Acar V., Seydibeyoglu M. O., Altan M. C.

POLYMER COMPOSITES, vol.45, no.9, pp.8163-8175, 2024 (SCI-Expanded)

- VIII. **An experimental study on RC beams shear-strengthened with Intraply Hybrid U-Jackets Composites monitored by digital image correlation (DIC)**  
Cakir F., Raci Aydin M., Acar V., Aksar B., Cem Akkaya H.  
Composite Structures, vol.323, 2023 (SCI-Expanded)
- IX. **Comparative dynamic analysis of carbon, aramid and glass fiber reinforced interply and intraply hybrid composites**  
Raci Aydin M., ACAR V., Cakir F., GÜNDOĞDU Ö., AKBULUT H.  
Composite Structures, vol.291, 2022 (SCI-Expanded)
- X. **Strengthening of reinforced concrete beams without transverse reinforcement by using intraply hybrid composites**  
Cakir F., ACAR V., Aydin M. R., Aksar B., Yildirim P.  
CASE STUDIES IN CONSTRUCTION MATERIALS, vol.15, 2021 (SCI-Expanded)
- XI. **Experimental modal analysis of graphene nanoparticle-reinforced adhesively bonded double strap joints**  
Hülagü B., Acar V., Aydın M. R., Aydın O. A., Gök S., Ünal H. Y., Pekbey Y., Akbulut H.  
JOURNAL OF ADHESION, vol.97, no.12, pp.1107-1135, 2021 (SCI-Expanded)
- XII. **Low-velocity impact and bending response of graphene nanoparticle-reinforced adhesively bonded double strap joints**  
HÜLAGÜ B., ÜNAL H. Y., ACAR V., Khan T., Aydın M. R., Aydın O. A., GÖK S., PEKBEY Y., AKBULUT H.  
Journal of Adhesion Science and Technology, vol.35, no.22, pp.2391-2409, 2021 (SCI-Expanded)
- XIII. **Graphene oxide modified carbon fiber preregs: A mechanical comparison of the effects of oxidation methods**  
ACAR V., ERDEN S., SARIKANAT M., Seki Y., AKBULUT H., Seydibeyoğlu M.  
Express Polymer Letters, vol.14, no.12, pp.1106-1115, 2020 (SCI-Expanded)
- XIV. **Experimental investigation of mechanical and modal properties of Al<sub>2</sub>O<sub>3</sub> nanoparticle reinforced polyurethane core sandwich structures**  
Khan T., Aydın O. A., ACAR V., Aydın M. R., HÜLAGÜ B., BAYRAKÇEKEN H., Seydibeyoğlu M. Ö., AKBULUT H.  
Materials Today Communications, vol.24, 2020 (SCI-Expanded)
- XV. **A review on recent advances in sandwich structures based on polyurethane foam cores**  
Khan T., Acar V., Aydın M. R., Hülagü B., Akbulut H., Seydibeyoğlu M. Ö.  
Polymer Composites, vol.41, no.6, pp.2355-2361, 2020 (SCI-Expanded)
- XVI. **Finite element analysis of the impact of screw insertion distal to the trochanter minor on the risk of iatrogenic subtrochanteric fracture**  
SENSOZ E., ÖZKAL F. M., ACAR V., Cakir F.  
Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, vol.232, no.8, pp.807-818, 2018 (SCI-Expanded)
- XVII. **Strengthening of concrete beams by monolayer prepreg composites with and without graphene reinforcement**  
ACAR V., ÇAKIR F., UYSAL H., Seydibeyoglu M. O., AKBULUT H., MOSALAM K. M.  
Construction and Building Materials, vol.151, pp.866-880, 2017 (SCI-Expanded)
- XVIII. **Combined effects of chopped carbon and glass fibres on mechanical properties of lime-based mortar**  
Seker B. S., ÇAKIR F., ACAR V., Seydibeyoglu M. O., AKBULUT H.  
Advanced Composites Letters, vol.26, no.2, pp.41-48, 2017 (SCI-Expanded)
- XIX. **Experimental modal analysis of masonry arches strengthened with graphene nanoplatelets reinforced prepreg composites**  
ÇAKIR F., UYSAL H., ACAR V.  
MEASUREMENT, vol.90, pp.233-241, 2016 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Vibration Response of Thermoplastic Veil Interleaved Carbon Fiber Reinforced Epoxy Composites**  
ACAR V., TARİH Y. S., GÜNDOĞDU Ö., YAR A.  
Türk Doğa ve Fen Dergisi, vol.13, no.1, pp.128-132, 2024 (Peer-Reviewed Journal)
- II. **Inter-ply Hibrit Kompozit Yapılarda Elyaf Diziliş Sıralamasının Mekanik ve Dinamik Özelliklere Etkisi**  
AYDIN M. R., ACAR V., YAPICI F., YILDIZ K., TOPCU M. V., GÜNDOĞDU Ö.  
İğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.8, no.3, pp.255-263, 2018 (Scopus)
- III. **Karbon Elyaf Takviyeli Prepreg Kompozitlerde Arayüzey Mekaniğinin Karbon Nanoyapı Katkısıyla İyileştirilmesi**  
ACAR V., AKBULUT H., SARIKANAT M., SEYDİBEYOĞLU M. Ö., SEKİ Y., ERDEN S.  
Makine Teknolojileri Elektronik Dergisi (elektronik), vol.10, no.3, pp.43-51, 2013 (Peer-Reviewed Journal)

## Books

- I. **Mechanical properties of nanoparticle-based polymer composites**  
Kara Y., Acar V., Seydibeyoğlu M. Ö.  
in: Nanoparticle-Based Polymer Composites, Sanjay Mavinkere Rangappa, Jyotishkumar Parameswaranpillai, Yashas Gowda T.G, Suchart Siengchin, M.Ozgur Seydibeyoglu, Editor, Elsevier Science, Oxford/Amsterdam, Cambridge, pp.95-118, 2022
- II. **Lightweight Polymer Composites from Wood Flour, Metals, Alloys, Metallic Fibers, Ceramics**  
Teke E., Sütçü M., Acar V., Seydibeyoğlu M. Ö.  
in: Lightweight Polymer Composite Structures Design and Manufacturing Techniques, Sanjay Mavinkere Rangappa, Jyotishkumar Parameswaranpillai, Suchart Siengchin, Lothar Kroll, Editor, CRC, New York, Florida, pp.89-102, 2020
- III. **Basalt Fibers**  
Acar V., Cakır F., Alyamaç E., Seydibeyoglu M. O.  
in: Fiber Technology for Fiber-reinforced Composites, Seydibeyoglu, M.O., Mohanty, A. K., Misra, M., Editor, Woodhead Publishing, Elsevier Science, Oxford/Amsterdam, Oxford, pp.169-186, 2017

## Papers Presented at Peer-Reviewed Scientific Conferences

- I. **Modal and Buckling Analysis of Short Carbon Fiber Reinforced Polyamide**  
Doğru A., Acar V., Seydibeyoğlu M. Ö.  
VI. International Ege Composite Materials Symposium KOMPEGE 2025, İzmir, Turkey, 27 - 29 November 2024, (Summary Text)
- II. **Numerical Analysis of Vibration Response of Aramid Fiber Reinforced Self-Healing Composites**  
ACAR V.  
5th International Conference on Advanced Engineering Technologies ICADET 2024, Turkey, 25 - 27 September 2024, (Summary Text)
- III. **Production of Bi2O3 NPs and NiO NPs nanoparticle doped epoxy nanocomposites synthesized by green synthesis method and investigation of their bending strength**  
Öner G., Acar V., Nadaroğlu H., Gök S.  
World Congress on Applied Nanotechnology (W-CAN 2021), Erzurum, Turkey, 24 - 26 November 2021, pp.64, (Summary Text)
- IV. **Preparation of Ce2O3 NPs and SrO NPs nanoparticle doped epoxy nanocomposites synthesized by green synthesis method and investigation of their bending strength**  
Öner G., Nadaroğlu H., Acar V., Gök S.  
World Congress on Applied Nanotechnology (W-CAN 2021), Erzurum, Turkey, 24 - 26 November 2021, pp.63,

(Summary Text)

- V. **Femur boyun kırıklarının tedavisinde kullanılan kanüllü vida fiksasyonunun iatrojenik subtrokanterik kırılma riski üzerindeki etkilerinin sonlu elemanlar yöntemi ile incelenmesi**  
SENZOZ E., ÇAKIR F., ÖZKAL F. M., ACAR V.  
9th International Biomechanics Congress, Eskişehir, Turkey, 19 - 22 September 2018, pp.475-479, (Full Text)
- VI. **EFFECT OF DISPERSION QUALITY ON EXPERIMENTAL DAMPING BEHAVIOUR OF GRAPHENE MODIFIED STRUCTURAL ADHESIVES**  
HÜLAGÜ B., ACAR V., AYDIN O. A., ÜNAL H. Y., AYDIN M. R., KHAN T., PEKBAY Y., AKBULUT H.  
IV. INTERNATIONAL EGE COMPOSITE MATERIALS SYMPOSIUM, İzmir, Turkey, 6 - 08 September 2018, pp.335-345, (Full Text)
- VII. **Influence of Stacking Sequence in Laminated Composite Structures on the Mechanical and Dynamics Properties**  
GÜNDOĞDU Ö., AYDIN M. R., ACAR V., YAPICI F., YILDIZ K., TOPÇU M. V.  
II. International Iğdır Symposium, 9 - 11 November 2017, (Summary Text)
- VIII. **Reçinesine Grafen ve Karbon Nanotüp Eklenmesinin Karbon Elyaf Takviyeli Kompozitlerin Mekanik Özellikleri ve Darbe Davranışları Üzerindeki Etkileri**  
F AZİMPOUR S., ACAR V., AKBULUT H., M OZGÜR S.  
MÜHENDİSLİKTE YENİ TEKNOLOJİLER SEMPOZYUMU, Turkey, 22 - 23 October 2015, (Full Text)
- IX. **Grafen Nanopartikül ve Karbon Nanotüp Katkılı Elyaf Polimer Kompozitlerin Serbest Titreşim ve Burkulma Analizi**  
AYDIN M. R., AZİMPOUR F., ACAR V., ŞAKAR G., AKBULUT H., SEYDİBEYOĞLU M. Ö.  
Uluslararası Katılımlı 17. Makina Teorisi Sempozyumu, İzmir, Turkey, 14 - 17 June 2015, (Full Text)
- X. **Grafen ve karbon nanotüp katkısının bazalt elyaf takviyeli epoksi kompozitlerin eğilme davranışlarına etkileri**  
SEYDİBEYOĞLU M. Ö., ACAR V., AZİMPOUR F., AKBULUT H.  
IV th INTERNATIONAL POLYMERIC COMPOSITES SYMPOSIUM, İzmir, Turkey, 7 - 09 May 2015, (Full Text)
- XI. **Strengthening of Brick Masonry Arches with Carbon Fiber Prepreg Composites**  
ÇAKIR F., UYSAL H., ACAR V.  
11th International Congress on Advances in Civil Engineering, İstanbul, Turkey, 21 - 25 October 2014, (Full Text)
- XII. **Cam Elyaf Takviyeli Kompozitlerin Düşük Hızlı Darbe Davranışlarının Nümerik Analizi**  
AKBULUT H., KARADAYI S., SHISHSEVAN F. A., ACAR V.  
MÜHENDİSLİKTE YENİ TEKNOLOJİLER SEMPOZYUMU, Bayburt, Turkey, 22 - 23 October 2015, (Full Text)
- XIII. **Effect Of Carbon Nanotube Added Adhesive On The Strength Of Adhesively Bonded Joint**  
ÖNER G., AKPINAR S., GÜLTEKİN K., ACAR V., ÖZEL A.  
ICCE 22, 22nd Annual International Conference on Composites or Nano Engineering, 13 - 19 June 2014, (Full Text)
- XIV. **Effect Of Graphene Nanocomposite Adhesives On The Strength Of Adhesively Bonded Single-Lap Joint**  
ACAR V., GÜLTEKİN K., AKPINAR S., ÖNER G., AKBULUT H., ÖZEL A.  
ICCE-22, 22nd Annual International Conference on Composites or Nano Engineering, 13 - 19 June 2014, (Full Text)

## Funded Projects

BOZKURT F., KESKİN M. E., ACAR V., HÜLAGÜ B., ÇELEBİ Y. K., ÇONDAL A. B., ÇELİK E., YILDIZ Z., GÖKOĞLAN H., ÇARTI R., et al., Project Supported by Higher Education Institutions, TİPİ - ASKERİ HEDEF KARA ARACI, 2023 - 2024

AKBULUT H., ERTUĞRUL M., KARSLI YILMAZ N. G., YILMAZ T., SALMAN A. O., ACAR V., HÜLAGÜ B., Project Supported by Higher Education Institutions, GNP Kaplı Zincir Yapılı MXene Ti3C2Tx Nanoyapı ve NonNewtonian Akışkan ile Modifiye Edilmiş Özgün Bir Sandviç Kompozit Zırh Üretimi, 2022 - 2024

ÖZAKIN A. N., EFEOĞLU İ., ÖNER İ. V., YILDIRIM O., ACAR M. T., TOPRAK B. İ., HÜLAGÜ B., GÜLTEN G., SOLMAZ İ., KOVACI H., et al., Project Supported by Higher Education Institutions, Makine Mühendisliği Bölümü Bakım Onarım Projesi, 2021 - 2023

Hülagü B., Totik Y., Acar V., Efeoğlu İ., Akbulut H., Project Supported by Higher Education Institutions, Plazma Elektrolitik Oksidasyon PEO İşlemi Uygulanmış Alüminyum Alaşımının Yapıştırma Bağlantılarının Yapısal ve Mekanik Özelliklerin İncelenmesi, 2021 - 2021

ÖNER G., NADAROĞLU H., ACAR V., GÖK S., Project Supported by Higher Education Institutions, Yeşil sentez yöntemi ile elde edilen Bi<sub>2</sub>O<sub>3</sub> CeO NiO ve SrO nanopartikül katkılı epoksi nanokompozitlerinin hazırlanması ve eğilme dayanımlarının incelenmesi, 2020 - 2021

SOLMAZ İ., GÜRÜF G., TOPRAK B. İ., ACAR V., Project Supported by Higher Education Institutions, Modifiye Grafit Köpük Malzemenin Akış Karakteristiklerinin Belirlenmesi, 2020 - 2021

Acar V., Akbulut H., Seydibeyoğlu M. Ö., Hülagü B., Teke E., TUBITAK Project, Geri Dönüştürülmüş Ti6Al4V Alaşım Tozu Takviyeli Poliüretan Çekirdek Malzemeli Sandviç Yapıların Mekanik ve Dinamik Özelliklerinin Belirlenmesi, 2019 - 2021

Acar V., Çakır F., Project Supported by Other Private Institutions, FARKLI KESME AÇIKLIĞI/KİRİŞ DERİNLİĞİ ORANINA SAHİP KAYMA DONATISIZ BETONARME KİRİŞLERİN INTRAPLY HİBRİT KOMPOZİTLERLE GÜÇLENDİRİLMESİ, 2019 - 2020

AKBULUT H., ACAR V., PEKBAY Y., HÜLAGÜ B., ÜNAL H. Y., Project Supported by Higher Education Institutions, Grafen Nanoyapı Katkılı Çift Bindirmeli Yapıştırma Bağlantılarının Dinamik ve Mekanik Analizi, 2017 - 2019

AKBULUT H., NADAROĞLU H., ACAR V., Project Supported by Higher Education Institutions, BAKIR VE ALÜMİNYUM GİBİ METALLERİN ENZİMATİK VE BAKTERİYEL YÖNTEMLERLE NANO İŞLENMESİ VE BU YÖNTEMLERİN ETKİNLİĞİNİN KARŞILAŞTIRILMASI, 2015 - 2017

TUBITAK Project, Termal Çevrimin Bazalt / Karbon Elyaf Takviyeli Intraply Hibrit Kompozitlerin Yapısal Özellikleri Üzerindeki Etkisi, 2014 - 2016

AKBULUT H., ACAR V., Project Supported by Higher Education Institutions, KARBON/EPOKSİ KOMPOZİT MALZEME MEKANİK ÖZELLİKLERİNİN NANOTEKNOLOJİK YÖNTEMLERLE ARAŞIRILMASI VE GELİŞTİRİLMESİ, 2011 - 2012

ALTUN H., ACAR V., AKBULUT H., Project Supported by Higher Education Institutions, MALZEMELERİN YAPI-ÖZELLİK İLİŞKİLERİNİN KARAKTERİZASYON ARAŞTIRMALARI, 2011 - 2012

AKBULUT H., ACAR V., Project Supported by Higher Education Institutions, MALZEMELERİN MEKANİK DAVRANIŞLARI İLE İLGİLİ ARAŞTIRMALAR, 2011 - 2012

ACAR V., TUBITAK Project, Artık Gerilmelerin Yapıştırma Bağlantılarına Etkisi, 2009 - 2010

## Mobility Activity

Erasmus Programme, Lecturing, Silesian University of Technology, Poland, 2024 - 2024

Research Scholarship Program, Research During Graduate Education, University of Oklahoma, United States Of America, 2015 - 2016

## Metrics

Publication: 39

Citation (WoS): 277

Citation (Scopus): 320

H-Index (WoS): 10

H-Index (Scopus): 11

## Scholarships

2214-A Yurt Dışı Doktora Sırası Araştırma Burs Programı / University of Oklahoma, Gallogly College of Engineering, Department of Aerospace and Mechanical Engineering, Norman, OK, 73019, USA, TUBITAK, 2016 - 2016

Research Scholar at University of Oklahoma, Gallogly College of Engineering, Department of Aerospace and Mechanical Engineering, Norman, OK, 73019, USA, University, 2015 - 2016

## Non Academic Experience

Tübitak 2214-A / Yurt Dışı Doktora Sırası Araştırma Burs Programı, University of Oklahoma (Norman, OK, USA),  
Bursiyer

University of Oklahoma, School of Aerospace and Mechanical Engineering, OK, USA, Research Scholar

Ege Üniversitesi Bergama MYO (Aliğa Yerleşkesi) Makine Programı, Öğretim Görevlisi (Yarı Zamanlı)