

Prof. CANER DURUCAN

Personal Information

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Education Information

Doctorate, Pennsylvania State University, Earth and Mineral Sciences, Department of Materials Science and Engineering, United States Of America 1998 - 2003

Post Graduate, Pennsylvania State University, Earth and Mineral Sciences, Department of Materials Science and Engineering, United States Of America 1995 - 1998

Under Graduate, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, Turkey 1989 - 1993

Foreign Languages

English, C1 Advanced

Research Areas

Biomedical Engineering, Metallurgical and Materials Engineering, Material science and engineering

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2014 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2009 - 2014

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2005 - 2009

Lecturer PhD, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2005 - 2005

Lecturer PhD, Pennsylvania State University, Earth And Mineral Science, Materials Science And Engineering, 2003 - 2005

Research Assistant, Pennsylvania State University, Earth And Mineral Science, Materials Science And Engineering, 1996 - 2003

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 1993 - 1995

Professional Experience

University Executive Board Member, Middle East Technical University, Biyomalzeme Ve Doku Mühendisliği Araştırma Ve Uygulama Merkezi, 2011 - Continues

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2012 - 2015

Courses

BIOCERAMICS, Post Graduate, 2018 - 2019

FUNDAMENTALS OF MATERIALS SCIENCE AND ENGINEERING , Under Graduate, 2018 - 2019

MATERIALS PROCESSING LABORATORY , Under Graduate, 2018 - 2019

Advising Theses

DURUCAN C., Synthesis of selenium-incorporated alpha-tricalcium phosphate and evaluation of its cement-type reactivity, Post Graduate, B.BAŞTUĞ(Student), 2019

DURUCAN C., Optimization of the mechanical properties of Ti-6Al-4V alloy produced by three dimensional additive manufacturing using thermochemical processes, Post Graduate, G.MERT(Student), 2017

DURUCAN C., ÜNALAN H. E. , Structural and optical properties of sol-gel derived nickel oxide thin films, Post Graduate, B.EKİM(Student), 2017

DURUCAN C., ÜNALAN H. E. , Structural and optoelectronic properties of sol-gel derived nickel oxide thin films, Post Graduate, B.Ekim(Student), 2017

DURUCAN C., Sol-gel processing of silver-doped silica and assessment of its structural and antimicrobial properties, Post Graduate, B.AKKÖPRÜ(Student), 2015

DURUCAN C., Chemical and structural characterization of selenium-incorporated hydroxyapatite, Post Graduate, B.ALKAN(Student), 2015

DURUCAN C., Development of D -type fiber optic sensors for detection of refractive index variation in evanescent wave field / , Post Graduate, B.GÜLERYÜZ(Student), 2014

DURUCAN C., Synthesis of zinc oxide nanoparticles by aqueous methods and effect of metal incorporation on the structural/functional properties of nanoparticles, Doctorate, Ö.ALTINTAŞ(Student), 2014

DURUCAN C., Alpha tricalcium phosphate-based hybrid bone analogs: assessment of cement behaviour and mechanical properties / , Post Graduate, G.Alkan(Student), 2014

DURUCAN C., Alpha tricalcium phosphate-based hybrid bone analogs: Assessment of cement behaviour and mechanical properties, Post Graduate, G.ALKAN(Student), 2014

DURUCAN C., AKIN T., A microbolometer detector based on a sol-gel technology, Doctorate, Ö.DERVİŞOĞLU(Student), 2013

DURUCAN C., Sol-gel synthesis of antibacterial silver-doped silica powders from sodium silicate (Water glass), Post Graduate, E.ÖZDEM(Student), 2013

DURUCAN C., Sol-gel processing of organically modified ITO thin films and characterization of their optoelectronic and microstructural properties, Post Graduate, M.TÜMERKAN(Student), 2012

DURUCAN C., Development of indium tin oxide (ITO) nanoparticle incorporated transparent conductive oxide thin films, Post Graduate, H.YAVAŞ(Student), 2012

DURUCAN C., Hydrothermal-like synthesis of hydroxyapatite from calcium sulfates, Post Graduate, O.RAUF(Student), 2010

EVİS Z., DURUCAN C., Structural and mechanical investigations of magnesium and fluoride doped nano calcium phosphates, Post Graduate, Z.PINAR(Student), 2009

DURUCAN C., Sol-gel synthesis of DNA encapsulated silica, Post Graduate, D.KAPUSUZ(Student), 2009

DURUCAN C., Development of sol-gel derived hydroxyapatite-titania coatings, Post Graduate, N.SERHAT(Student), 2008

DURUCAN C., Sol-gel derived tungsten oxide based electrochromic coatings, Post Graduate, D.İŞİK(Student), 2008

Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Development of a solid-phase microextraction LC-MS/MS method for determination of oxidative stress biomarkers in biofluids**
Kahremanoglu K., Temel E. R. , Korkut T. E. , Nalbant A. A. , BAŞTUĞ AZER B., DURUCAN C., VOLKAN M., BOYACI E.
JOURNAL OF SEPARATION SCIENCE, vol.43, pp.1925-1933, 2020 (Journal Indexed in SCI)
- II. **Exploring encapsulation mechanism of DNA and mononucleotides in sol-gel derived silica**
KAPUSUZ D., DURUCAN C.
JOURNAL OF BIOMATERIALS APPLICATIONS, vol.32, no.1, pp.114-125, 2017 (Journal Indexed in SCI)
- III. **Ternary nanocomposite SWNT/WO₃/PANI thin film electrodes for supercapacitors**
Yuksel R., DURUCAN C., ÜNALAN H. E.
JOURNAL OF ALLOYS AND COMPOUNDS, vol.658, pp.183-189, 2016 (Journal Indexed in SCI)
- IV. **Room temperature synthesis of Cu incorporated ZnO nanoparticles with room temperature ferromagnetic activity: Structural, optical and magnetic characterization**
YILDIRIM Ö. A. , DURUCAN C.
CERAMICS INTERNATIONAL, vol.42, no.2, pp.3229-3238, 2016 (Journal Indexed in SCI)
- V. **Computational study of hydroxyapatite structures, properties and defects**
Bystrov V. S. , Coutinho J., Bystrova A. V. , Dekhtyar Y. D. , Pullar R. C. , Poronin A., Palcevskis E., Dindune A., Alkan B., DURUCAN C., et al.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, vol.48, no.19, 2015 (Journal Indexed in SCI)
- VI. **A parametric study on processing of scratch resistant hybrid sol-gel silica coatings on polycarbonate**
Yavas H., Selcuk C. D. O. , Ozhan A. E. S. , DURUCAN C.
THIN SOLID FILMS, vol.556, pp.112-119, 2014 (Journal Indexed in SCI)
- VII. **Indium tin oxide thin films elaborated by sol-gel routes: The effect of oxalic acid addition on optoelectronic properties**
Kesim M. T. , DURUCAN C.
THIN SOLID FILMS, vol.545, pp.56-63, 2013 (Journal Indexed in SCI)
- VIII. **Highly Efficient Room Temperature Synthesis of Silver-Doped Zinc Oxide (ZnO:Ag) Nanoparticles: Structural, Optical, and Photocatalytic Properties**
Yildirim O. A. , ÜNALAN H. E. , DURUCAN C.
JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol.96, no.3, pp.766-773, 2013 (Journal Indexed in SCI)
- IX. **Synthesis of DNA-encapsulated silica elaborated by sol-gel routes**
Kapusuz D., DURUCAN C.
JOURNAL OF MATERIALS RESEARCH, vol.28, no.2, pp.175-184, 2013 (Journal Indexed in SCI)
- X. **Gentamicin loaded beta-tricalcium phosphate/gelatin composite microspheres as biodegradable bone fillers**
Sezer U. A. , Aksoy E. A. , DURUCAN C., Hasirci N.
POLYMER COMPOSITES, vol.33, no.9, pp.1644-1651, 2012 (Journal Indexed in SCI)
- XI. **Effect of precipitation temperature and organic additives on size and morphology of ZnO nanoparticles**
Yildirim O. A. , DURUCAN C.
JOURNAL OF MATERIALS RESEARCH, vol.27, no.11, pp.1452-1461, 2012 (Journal Indexed in SCI)
- XII. **Silver containing sol-gel derived silica thin films: effect of aluminum incorporation on optical, microstructural and bactericidal properties**
Akgun B. A. , Mellott N. P. , DURUCAN C.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.62, no.2, pp.240-251, 2012 (Journal Indexed in SCI)
- XIII. **Sol-gel derived silver-incorporated titania thin films on glass: bactericidal and photocatalytic activity**
Akgun B. A. , Wren A. W. , DURUCAN C., Towler M. R. , Mellott N. P.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.59, no.2, pp.228-238, 2011 (Journal Indexed in SCI)
- XIV. **Alpha-tricalcium phosphate (alpha-TCP): solid state synthesis from different calcium precursors and the hydraulic reactivity**
Cicek G., Aksoy E. A. , DURUCAN C., Hasirci N.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE, vol.22, no.4, pp.809-817, 2011 (Journal Indexed in

- SCI)
- XV. **Effect of silver incorporation on crystallization and microstructural properties of sol-gel derived titania thin films on glass**
Akgun B. A. , DURUCAN C., Mellott N. P.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.58, no.1, pp.277-289, 2011 (Journal Indexed in SCI)
- XVI. **Synthesis of zinc oxide nanoparticles elaborated by microemulsion method**
Yildirim O. A. , DURUCAN C.
JOURNAL OF ALLOYS AND COMPOUNDS, vol.506, no.2, pp.944-949, 2010 (Journal Indexed in SCI)
- XVII. **Effect of Calcination on Microstructure and Antibacterial Activity of Silver-Containing Silica Coatings**
DURUCAN C., Akkopru B.
JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS, no.2, pp.448-458, 2010 (Journal Indexed in SCI)
- XVIII. **Structural, electrochemical and optical comparisons of tungsten oxide coatings derived from tungsten powder-based sols**
Isik D., AK M., DURUCAN C.
THIN SOLID FILMS, vol.518, no.1, pp.104-111, 2009 (Journal Indexed in SCI)
- XIX. **Preparation of Hydroxyapatite-Titania Hybrid Coatings on Titanium Alloy**
Un S., DURUCAN C.
JOURNAL OF BIOMEDICAL MATERIALS RESEARCH PART B-APPLIED BIOMATERIALS, no.2, pp.574-583, 2009 (Journal Indexed in SCI)
- XX. **Preparation and microstructure of sol-gel derived silver-doped silica**
Akkopru B., Durucan C.
JOURNAL OF SOL-GEL SCIENCE AND TECHNOLOGY, vol.43, no.2, pp.227-236, 2007 (Journal Indexed in SCI)
- XXI. **Commercial and laboratory prepared titanium dioxide thin films for self-cleaning glasses: Photocatalytic performance and chemical durability**
Mellott N., Durucan C., Pantano C., Guglielmi M.
THIN SOLID FILMS, vol.502, pp.112-120, 2006 (Journal Indexed in SCI)
- XXII. **Kinetic model for alpha-tricalcium phosphate hydrolysis**
Durucan C., Brown P.
JOURNAL OF THE AMERICAN CERAMIC SOCIETY, vol.85, no.8, pp.2013-2018, 2002 (Journal Indexed in SCI)
- XXIII. **Reactivity of alpha-tricalcium phosphate**
Durucan C., Brown P.
JOURNAL OF MATERIALS SCIENCE, vol.37, no.5, pp.963-969, 2002 (Journal Indexed in SCI)
- XXIV. **Biodegradable hydroxyapatite - Polymer composites**
Durucan C., Brown P.
ADVANCED ENGINEERING MATERIALS, vol.3, no.4, pp.227-231, 2001 (Journal Indexed in SCI)
- XXV. **Low temperature formation of calcium-deficient hydroxyapatite-PLA/PLGA composites**
Durucan C., Brown P.
JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, vol.51, no.4, pp.717-725, 2000 (Journal Indexed in SCI)
- XXVI. **Calcium-deficient hydroxyapatite-PLGA composites: Mechanical and microstructural investigation**
Durucan C., Brown P.
JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, vol.51, no.4, pp.726-734, 2000 (Journal Indexed in SCI)
- XXVII. **alpha-Tricalcium phosphate hydrolysis to hydroxyapatite at and near physiological temperature**
Durucan C., Brown P.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN MEDICINE, vol.11, no.6, pp.365-371, 2000 (Journal Indexed in SCI)

Articles Published in Other Journals

1. **Hydrothermal synthesis of hydroxyapatite from calcium sulfate hemihydrate**

Refereed Congress / Symposium Publications in Proceedings

- I. **Surface Interactions of DNA and Mononucleotides with Sol-Gel derived Silica Host**
Kapusuz D., Durucan C.
Materials Research Society Fall Meeting,, Massachusetts, United States Of America, 2 - 07 December 2018, pp.22
- II. **Synthesis of Selenium-Incorporated Alpha-Tricalcium Phosphate and Evaluation of Its Cement-type Reactivity**
Baştuğ Azer B., Durucan C.
Materials Research Society Fall Meeting, Massachusetts, United States Of America, 2 - 07 December 2018, pp.2222
- III. **Synthesis of Manganese-Doped Zinc Oxide Quantum Dots**
ALTINTAŞ YILDIRIM Ö., DURUCAN C.
2017MRS SPRING MEETING EXHIBIT, 17 - 21 April 2017
- IV. **Synthesis Manganese Doped Zinc Oxide Nanoparticles**
ALTINTAŞ YILDIRIM Ö., DURUCAN C.
IMMC2016 Int. Metallurgy and Materials Congress, İstanbul, Turkey, 29 June - 01 October 2016, pp.265-267
- V. **The effect of copper incorporation on structural optical and magnetic properties of ZnO nanoparticles**
ALTINTAŞ YILDIRIM Ö., DURUCAN C.
2016 MRS Spring Meeting, 28 March - 01 April 2016
- VI. **Optoelectronic Properties Of Nickel Oxide Thin Films Elaborated by Sol Gel**
saraç b. e. , COŞKUN Ş., ÜNALAN H. E. , DURUCAN C.
MRS Fall Meeting' 2015, 29 November - 04 December 2015
- VII. **Silver Nanowire Molybdenum Oxide Nanocomposite Electrodes for Flexible Supercapacitors**
YÜKSEL R., COŞKUN Ş., DURUCAN C., ÜNALAN H. E.
MRS Fall Meeting' 2015, 29 November - 04 December 2015
- VIII. **Chemical and structural characterization of selenium incorporated hydroxyapatite**
DURUCAN C., ALKAN B.
BIOMED 2015-21st International Biomedical Science and Technology Symposium, Antalya, Turkey, 22 - 24 October 2015
- IX. **Fabrication of D-type Fiber Optic Sensors with a Long Interaction Length and Studying Effects of Critical Parameters on Sensor Response**
Guleryuz B., DURUCAN C., Aslan M. M.
Conference on Advanced Environmental, Chemical, and Biological Sensing Technologies XI, Maryland, United States Of America, 5 - 06 May 2014, vol.9106
- X. **Investigation of nucleotide immobilization on sol/gel supports using solid-state NMR spectroscopy.**
Fry R., Durucan C., Pantano C., Mueller K.
228th National Meeting of the American-Chemical-Society, Pennsylvania, United States Of America, 22 - 26 August 2004, vol.228
- XI. **Investigation of hydroxyl sites in fiberglass materials using solid-state ¹⁹F MAS NMR spectroscopy.**
Fry R., Durucan C., Pantano C., Mueller K.
226th National Meeting of the American-Chemical-Society, New-York, United States Of America, 7 - 11 September 2003, vol.226

Supported Projects

DURUCAN C., Project Supported by Higher Education Institutions, TERAPÖTİK AGENT KATKILI KALSİYUM FOSFAT

BİYOSERAMİK TOZ SENTEZİ, 2017 - 2017

DURUCAN C., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016

DURUCAN C., ATABAY S. E. , Project Supported by Higher Education Institutions, Elektronik Soğutma Sistemleri İçin Difüzyonla Bağlama Yöntemiyle Malzeme Üretimi ve Karakterizasyonu, 2015 - 2015

DURUCAN C., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2015

DURUCAN C., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2015

Hasırcı N., Hasırcı V. N. , Durucan C., Tezcaner A., Keskin D., Özen C., Tönük E., Gürses S., Project Supported by Higher Education Institutions, Biyomalzeme ve Doku Mühendisliği Mükemmeliyet Merkezi (BIOMATEN) DPT, 2011 - 2015

DURUCAN C., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Biyomalzeme ve Doku Mühendisliği Mükemmeliyet Merkezi, 2011 - 2015

DURUCAN C., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

DURUCAN C., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014

DURUCAN C., Project Supported by Higher Education Institutions, FONSIYONEL ÖZELLİĞİ ARTIRILMIŞ KALSİYUM FOSFAT ESASLI KEMİK ÇİMENTOLARININ GELİŞTİRİLMESİ, 2013 - 2014

DURUCAN C., GÜLERYÜZ B., Project Supported by Higher Education Institutions, NANOYAPILI FİLM İLE KAPLANMIŞ D-TİPİ FİBER OPTİK ALGILAYICILARIN GELİŞTİRİLMESİ, 2013 - 2013

DURUCAN C., ALBAYRAK İ. C. , Project Supported by Higher Education Institutions, OPTOELEKTRONİK CİHAZ UYGULAMALARI İÇİN SOL-GEL METODU İLE NİKEL OKSİT İNCE FİLMLEİN GELİŞTİRİLMESİ, 2013 - 2013

DURUCAN C., ALKAN B., Project Supported by Higher Education Institutions, SERAMİK ESASLI GÖZENEKLİ SERT DOKU ANALOGLARININ (GREFTLERİNİN) ÜRETİLMESİ, 2013 - 2013

DURUCAN C., ALKAN G., Project Supported by Higher Education Institutions, KALSİYUM FOSFAT ESASLI KEMİK ÇİMENTOLARININ SENTEZİ VE MEKANİK ÖZELLİKLERİNİN İYİLEŞTİRİLMESİ, 2013 - 2013

TEZCANER A., ÖZEN C., GÜLDİKEN M., KESKİN D., DURUCAN C., ATAOL S., Project Supported by Higher Education Institutions, Kemik Hasarlarının Tedavisine Yönelik Simvastatin Yüklü Mikrotaşıyıcıların Geliştirilmesi Ve Karakterizasyonu, 2012 - 2013

DURUCAN C., Project Supported by Higher Education Institutions, Gümüş-Aşılınmış Çinko Oksit (zno):nanoparçacık Sentesi Ve İnce Film Kaplama Oluşturulması, 2012 - 2012

DURUCAN C., TUBITAK Project, Uyarlanmış sol jel üretim süreçleriyle indiyum kalay oksit ITO kaplamaların geliştirilmesi 109M475, 2010 - 2012

DURUCAN C., Project Supported by Higher Education Institutions, Solüsyon Esaslı Kaplama Teknikleriyle Cam Üstü Şeffaf Ve İletken Oksit (tco) İnce Film Kaplamaları Üretilmesi., 2010 - 2012

DURUCAN C., Project Supported by Higher Education Institutions, Gümüş Katkılı Tio2 Esaslı İnce Filmlerin Sol-Jel Tekniği İle Üretilmesi Ve Fonksiyonel Özelliklerinin İyileştirilmesi., 2011 - 2011

DURUCAN C., Project Supported by Higher Education Institutions, Metal Biyosit Aşılınmış Antibakteriyel Silika Tozların Üretilmesi, 2009 - 2010

DURUCAN C., Project Supported by Higher Education Institutions, Çinko Oksit (zno) Nano Parçacıkların Şekil Kontrollü Olarak Sentezlenmesi, 2009 - 2010

Patent

DURUCAN C., Optical screening system, Patent, CHAPTER A Human Needs, Initial Registration, 2014

Citations

Total Citations (WOS):887

h-index (WOS):17

Scholarships

TÜBİTAK – 2219 YURT DIŐI DOKTORA SONRASI ARAŐTIRMA BURS PROGRAMI , TUBITAK, 2017 - 2018