

Prof. GÜRKAN KARAKAŞ

Personal Information

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Education Information

Doctorate, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, Turkey 1989 - 1995

Post Graduate, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, Turkey 1985 - 1988

Under Graduate, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, Turkey 1980 - 1985

Research Areas

Technical Sciences, Chemical Engineering and Technology, Process and Reactor Design, Chemical Reaction Engineering, Catalysis and Catalytic Processes, Basic Sciences, Chemistry, Physical Chemistry, Surface Chemistry

Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2006 - Continues

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2001 - 2006

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1999 - 2001

Lecturer, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1998 - 1998

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1980 - 1995

Professional Experience

Head of Department, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2007 - 2010

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1998 - 2004

Advising Theses

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

KARAKAŞ G., Effect of synthesis parameters on structural properties and thermal behavior of sol-gel synthesized iron oxide xerogels, Doctorate, N.EZGİ(Student), 2018

KARAKAŞ G., Catalyst screening for complete oxidation of nitrogen containing compounds, Post Graduate, A.SEVİNÇ(Student), 2017

KARAKAŞ G., Synthesis of CNT-titania-silica nanocomposite thin films: The effect of heat treatment on photocatalytic activity, Post Graduate, T.KIRBAŞ(Student), 2014

KARAKAŞ G., YÜCEL H., Comparison of sorption capacities of hydrocarbons on different samples of MCM-41, Post Graduate, B.AYDOĞDU(Student), 2013

KARAKAŞ G., Electrodeposition of ZnO thin films: Effect of vanadium doping, Post Graduate, C.AVŞAR(Student), 2013

KARAKAŞ G., Sensitization of sol-gel derived titania-silica photocatalytic thin films with ascorbic acid, Post Graduate, E.YILMAZ(Student), 2012

KARAKAŞ G., ÖGEL B., The photocatalytic activity of praseodymium doped titanium dioxide, Doctorate, D.DOĞU(Student), 2012

KARAKAŞ G., Photocatalytic antimicrobial and self-cleaning properties of titania-silica mixed oxide thin films, Doctorate, B.KORKMAZ(Student), 2012

KARAKAŞ G., Analysis of phenol oxidation products by *Scytalidium thermophilum* bifunctional catalase/phenol oxidase (CATPO), Doctorate, G.AVCI(Student), 2011

HAMAMCI H., KARAKAŞ G., Production of lactic acid esters by reactive distillation, Post Graduate, Ö.YALÇIN(Student), 2011

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

KARAKAŞ G., Low temperature photocatalytic oxidation of carbon monoxide over palladium doped titania catalysts, Post Graduate, P.YETİŞEMİYEN(Student), 2010

KARAKAŞ G., YÜCEL H., Sorption of C8 aromatics on MCM-41, Post Graduate, B.ALİ(Student), 2010

KARAKAŞ G., Enzyme immobilization on titania-silica-gold thin films for biosensor applications and photocatalytic enzyme removal for surface patterning, Post Graduate, M.ÇINAR(Student), 2009

KARAKAŞ G., Photocatalytic activity of titania-silica mixed oxides prepared with co-hydrolyzation, Post Graduate, B.BAYRAM(Student), 2009

PARLAK M., KARAKAŞ G., PRODUCTION OF TITANIUM DIOXIDE THIN FILMS WITH IMPROVED PHOTOCATALYTIC ACTIVITY: THE USE OF BACTERIA AS 3D TEMPLATES, Post Graduate, B.KOÇ(Student), 2009

VOLKAN M., KARAKAŞ G., Preparation and characterization of titania-silica-gold thin films over its substrates for laccase immobilization, Post Graduate, Z.EKER(Student), 2009

KARAKAŞ G., The synthesis of titanium dioxide photocatalysts by sol-gel method: The effect of hydrothermal treatment conditions and use of carbon nanotube template, Doctorate, A.YÜRÜM(Student), 2009

KARAKAŞ G., Application of semiconductor films over glass/ceramic surfaces and their low temperature photocatalytic activity, Post Graduate, T.İRFAN(Student), 2009

KARAKAŞ G., Dynamic resistivity behavior of tin oxide based multilayer thin films under reducing conditions, Post Graduate, B.KURBANOĞLU(Student), 2006

KARAKAŞ G., Carbon monoxide oxidation under oxidizing and reducing conditions with alkali-metal and palladium doped tin dioxide, Doctorate, B.MİRKELAMOĞLU(Student), 2006

HAMAMCI H., KARAKAŞ G., Partial removal of proteins from lactic acid broth and recovery of proteins from brewery wastes by foam fractionation technique, Post Graduate, L.KURT(Student), 2006

YILMAZ L., KARAKAŞ G., Screening and characterization of catalytic composite membranes for ethyl lactate production, Post Graduate, Ö.ÖĞUZER(Student), 2004

KARAKAŞ G., Kinetics of methyl lactate formation over the ion exchange resin catalysts, Post Graduate, S.AKBELEN(Student), 2004

KARAKAŞ G., Parametric studies on cell flotation of Mazıdağı phosphate rock, Post Graduate, E.ÖZTİN(Student), 2003

YILMAZ L., KARAKAŞ G., Ethyl lactate production by hybrid processes: Determination of phase diagrams and evaluation of performance of organophilic pervaporation membranes, Post Graduate, M.İNAL(Student), 2003

KARAKAŞ G., Design and construction of a flotation column, Post Graduate, Ç.ÇAĞDAŞ(Student), 2002

KARAKAŞ G., Investigation of carbon monoxide oxidation over tin dioxide based catalysts by dynamic methods, Post Graduate, B.MİRKELAMOĞLU(Student), 2002

KARAKAŞ G., Dynamic resistivity behavior of tin oxide based thick films under reducing and oxidizing conditions, Post

Graduate, I.SEVERCAN(Student), 2002

YILMAZ L., KARAKAŞ G., Ethyl lactate production by hybrid processes: Evaluation of performance of hydrophilic pervaporation membranes for ethyl lactate-water-ethanol mixtures, Post Graduate, S.KORKUT(Student), 2001

KARAKAŞ G., Characterization of adsorption and chemisorption of permanent gases over metal supported oxide powders with magnetic permeability, Post Graduate, S.BEKTESEVİC(Student), 2000

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

- **Effect of Drying Conditions on the Characteristics and Performance of B/Fe₂O₃ Nano-Composites Prepared by Sol-Gel Method**
Yilmaz N. E. D. , KARAKAŞ G.
CENTRAL EUROPEAN JOURNAL OF ENERGETIC MATERIALS, vol.17, pp.85-106, 2020 (Journal Indexed in SCI)
- **Methylene Blue Degradation on Praseodymium-Doped Titanium Dioxide Photocatalyst**
Dogu D., KARAKAŞ G.
JOURNAL OF THE FACULTY OF ENGINEERING AND ARCHITECTURE OF GAZI UNIVERSITY, vol.35, pp.859-869, 2020 (Journal Indexed in SCI)
- **Catalytic oxidation of nitrogen containing compounds for nitrogen determination**
KARAKAŞ G., SEVİNÇ A.
CATALYSIS TODAY, vol.323, pp.159-165, 2019 (Journal Indexed in SCI)
- **Photocatalytic properties and characterization of praseodymium-doped titanium dioxide**
DOĞU D., KARAKAŞ G.
Journal of Advanced Oxidation Technologies, vol.21, 2018 (Journal Indexed in SCI Expanded)
- **Synthesis of Na-, Fe-, and Co-promoted TiO₂/multiwalled carbon nanotube composites and their use as a photocatalyst**
Yurum A., KARAKAŞ G.
TURKISH JOURNAL OF CHEMISTRY, vol.41, pp.440-454, 2017 (Journal Indexed in SCI)
- **Photocatalytic antibacterial activity of TiO₂-SiO₂ thin films: The effect of composition on cell adhesion and antibacterial activity**
ERDURAL B., Bolukbasi U., KARAKAŞ G.
JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY A-CHEMISTRY, vol.283, pp.29-37, 2014 (Journal Indexed in SCI)
- **Room Temperature Photocatalytic Oxidation of Carbon Monoxide Over Pd/TiO₂-SiO₂ Catalysts**
KARAKAŞ G., Yetisemiyen P.
TOPICS IN CATALYSIS, vol.56, pp.1883-1891, 2013 (Journal Indexed in SCI)
- **Modeling and computational simulation of adsorption based chemical heat pumps**
YURTSEVER A. O. , KARAKAŞ G., ULUDAĞ Y.
APPLIED THERMAL ENGINEERING, vol.50, pp.401-407, 2013 (Journal Indexed in SCI)
- **Electrical and catalytic properties of SnO₂/TiO₂ measured in operando conditions**
MUNTEANU C., CALDARARU M., BRATAN V., YETISEMIYEN P., KARAKAŞ G., IONESCU N. I.
REACTION KINETICS MECHANISMS AND CATALYSIS, vol.105, pp.13-22, 2012 (Journal Indexed in SCI)
- **Production of a novel bifunctional catalase-phenol oxidase of *Scytalidium thermophilum* in the presence of phenolic compounds**
YUZUGULLU Y., Ogel Z. B. , BOLUKBASI U. B. , ÇORUH N., KARAKAŞ G.
TURKISH JOURNAL OF BIOLOGY, vol.35, pp.697-704, 2011 (Journal Indexed in SCI)
- **Synthesis and characterization of Ba/MCM-41**
Kaya E., Oktar N., KARAKAŞ G., Murtezaoglu K.
TURKISH JOURNAL OF CHEMISTRY, vol.34, pp.935-943, 2010 (Journal Indexed in SCI)
- **Antimicrobial properties of TiO₂-SiO₂ thin films**
Erdural B. K. , KARAKAŞ G., Bakir U., SULUDERE Z., Suludere D.
NEW BIOTECHNOLOGY, vol.25, 2009 (Journal Indexed in SCI)

● **Hydrothermal synthesis of nanostructured TiO₂ particles and characterization of their photocatalytic antimicrobial activity**

ERDURAL B. K. , YÜRÜM A., BAKIR U., KARAKAŞ G.

JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, vol.8, pp.878-886, 2008 (Journal Indexed in SCI)

● **A special issue - Selected peer reviewed articles from NANOMAT 2006 - International Workshop on Nanostructured Materials, June 21-23, 2006, Antalya, Turkey**

Oezenbas M., TURAN R., Karakas G.

JOURNAL OF NANOSCIENCE AND NANOTECHNOLOGY, vol.8, pp.467-468, 2008 (Journal Indexed in SCI)

● **Photocatalytic microbial inactivation over Pd doped SnO₂ and TiO₂ thin films**

ERKAN A., BAKIR U., Karakas G.

JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY A-CHEMISTRY, vol.184, pp.313-321, 2006 (Journal Indexed in SCI)

● **The role of alkali-metal promotion on CO oxidation over PdO/SnO₂ catalysts**

MİRKELAMOĞLU B., Karakas G.

APPLIED CATALYSIS A-GENERAL, vol.299, pp.84-94, 2006 (Journal Indexed in SCI)

● **CO oxidation over palladium- and sodium-promoted tin dioxide: catalyst characterization and temperature-programmed studies**

MİRKELAMOĞLU B., Karakas G.

APPLIED CATALYSIS A-GENERAL, vol.281, pp.275-284, 2005 (Journal Indexed in SCI)

● **Production of lactic acid esters catalyzed by heteropoly acid supported over ion-exchange resins**

AYTURK E., HAMAMCI H., Karakas G.

GREEN CHEMISTRY, vol.5, pp.460-466, 2003 (Journal Indexed in SCI)

● **In situ DRIFTS characterization of wet-impregnated and sol-gel Pd/TiO₂ for NO reduction with CH₄**

Karakas G., Mitome-Watson J., Ozkan U. S.

Catalysis Communications, vol.3, pp.199-206, 2002 (Journal Indexed in SCI)

● **Reaction network of indole hydrodenitrogenation over NiMoS/γ-Al₂O₃ catalysts**

BUNCH A., ZHANG L., Karakas G., Ozkan U. S.

Applied Catalysis A: General, vol.190, pp.51-60, 2000 (Journal Indexed in SCI Expanded)

● **NiMoS/gamma-Al₂O₃ catalysts: The nature and the aging behavior of active sites in HDN reactions**

ZHANG L. P. , Karakas G., OZKAN U. S.

JOURNAL OF CATALYSIS, vol.178, pp.457-465, 1998 (Journal Indexed in SCI)

● **Supercritical fluid extraction and temperature-programmed desorption of phenol and its oxidative coupling products from activated carbon**

HUMAYUN R., Karakas G., Dahlstrom P., OZKAN U. S. , TOMASKO D. L.

INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.37, pp.3089-3097, 1998 (Journal Indexed in SCI)

● **Effect of H₂O and SO₂ on the activity of Pd/TiO₂ catalysts in catalytic reduction of NO with methane in the presence of oxygen**

MITOME J., Karakas G., Bryan K. A. , Ozkan U. S.

Catalysis Today, vol.42, pp.3-11, 1998 (Journal Indexed in SCI)

● **Characterization and temperature-programmed studies over Pd/TiO₂ catalysts for NO reduction with methane**

Ozkan U. S. , Kumthekar M. W. , Karakas G.

Catalysis Today, vol.40, pp.3-14, 1998 (Journal Indexed in SCI)

● **Reactivity of CO₂ during thermal cracking of heavy paraffins under supercritical conditions**

Karakas G., Dogu T., Somer T.

INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.36, pp.4445-4451, 1997 (Journal Indexed in SCI)

● **Self-sustained oscillatory behavior of NO+CH₄+O₂ reaction over titania-supported Pd catalysts**

OZKAN U., KUMTHEKAR M., Karakas G.

JOURNAL OF CATALYSIS, vol.171, pp.67-76, 1997 (Journal Indexed in SCI)

● **AN EXPERIMENTAL INVESTIGATION OF POLYVINYL-CHLORIDE) EMULSION POLYMERIZATION - EFFECT OF INITIATOR AND EMULSIFIER CONCENTRATIONS ON POLYMERIZATION KINETICS AND**

PRODUCT PARTICLE-SIZE

KARAKAS G., ORBEY N.

BRITISH POLYMER JOURNAL, vol.21, pp.399-406, 1989 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- **Effect of Proton Scavengers on the Textural Properties and Performance of Fe₂O₃ Xerogels for BoronContaining Pyrotechnics**
YILMAZ N. E. D., KARAKAŞ G.
53rd AIAA/SAE/ASEE Joint Propulsion Conference, ATLANTA, United States Of America, 10 - 12 July 2017
- **SYNTHESIS OF CNT TiO₂ SiO₂ NANOCOMPOSITE THINFILMS THE EFFECT OF HEAT TREATMENT ONPHOTOCATALYTIC ACTIVITY**
KARAKAŞ G., TUĞÇE K.
NCC 6 CATALYSIS CONFERENCE, 6. KATALİZ KONGRESİ, Turkey, 27 - 30 April 2016
- **Catalyst For Complete Oxidation of Nitrogen Containing Samples**
KARAKAŞ G., ATAMER B., SEVİNÇ A.
10th EUROPEAN CONGRESS OF CHEMICAL ENGINEERING, 27 September - 01 October 2015
- **Effect of carbon nanotube templates and, sodium, iron and cobalt doping on the photocatalytic activity of sol-gel synthesized titania for water treatment**
Yurum A., KARAKAŞ G.
11th International Biorelated Polymer Symposium / 243rd National Spring Meeting of the American-Chemical-Society (ACS), California, United States Of America, 25 - 29 March 2012, vol.243
- **ANTIMICROBIAL PROPERTIES OF TITANIUM NANOPARTICLES**
ERDURAL B. K. , YURUM A., BAKIR U., KARAKAŞ G.
NATO Advanced Study Institute on Functionalized Nanoscale Materials, Devices and Systems for Chem-Bio Sensors, Photonics and Energy Generation and Storage, Sinaia, Romania, 4 - 15 June 2007, pp.409-414
- **Low temperature oxidation of carbon monoxide over alkali-metal promoted palladium-tin oxide catalysts**
MİRKELAMOĞLU B., KARAKAŞ G.
NATO Advanced Research Workshop on Surface Chemistry in Biomedical and Environmental Science, Kiev, Ukraine, 14 - 17 September 2005, vol.228, pp.359-361

Supported Projects

- KARAKAŞ G., Project Supported by Higher Education Institutions, ATIK SUDA FOSFORLU BİLEŞİKLERİN GİDERİMİ İÇİN Fe₂O₃ ZEROJEL VE AEROJEL SENTEZİ VE KARAKTERİZASYONU, 2017 - 2017
- KARAKAŞ G., GÖZDE E., Project Supported by Higher Education Institutions, METAL Klorürlerin Derin Ötektik Sıvılar İle Çözeltili ve Süspansiyonlarında Amonyak İle Tepkime Kinetiğinin İncelenmesi, 2017 - 2017
- KARAKAŞ G., Project Supported by Higher Education Institutions, AZOTLU ORGANİK BİLEŞİKLERİN YÜKSEK SICAKLIKTA Pt/Fe₂O₃ ve CuO/Fe₂O₃ KATALİZÖRLERİ İLE KATALİTİK OKSİDASYONU, 2015 - 2015
- KARAKAŞ G., Project Supported by Higher Education Institutions, FOTOKATALİTİK UYGULAMALAR İÇİN TiO₂-SiO₂ KARIŞIM OKSİTLERİNİN İLETKEN OKSİT KAPLI CAM ÜZERİNE ELEKTROFOREZ METODU İLE KAPLANMASI, 2013 - 2014
- BÖLÜKBAŞI U., KARAKAŞ G., Project Supported by Higher Education Institutions, Dik Hizalanmış Karbon Nanotüplerin Şablon Olarak Kullanılmasıyla Elde Edilen Titanyum Dioksit Filmlerin Fotokatalitik Aktivitesi, 2012 - 2013
- KARAKAŞ G., Project Supported by Higher Education Institutions, Antioksidanlar Elektron Tutuklayıcılar Kullanılarak Fotokatalitik Hidrojen Üretimi, 2011 - 2011
- KARAKAŞ G., Project Supported by Higher Education Institutions, Tek Basamaklı Tepkime-Ayrıştırma Sisteminde Etil Laktat Üretimi, 2010 - 2010
- KARAKAŞ G., Project Supported by Higher Education Institutions, Suyun Ve Etil Alkol Çözeltilerinin Fotokatalitik

İndirgenmesi Yoluyla Hidrojen Üretimi, 2010 - 2010

Citations

Total Citations (WOS):473

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