#### Prof. DENIZ ÜNER

#### **Personal Information**

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#### **International Researcher IDs**

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Publons / Web Of Science ResearcherID: P-5819-2015

ScopusID: 6603719926 Yoksis Researcher ID: 3562

#### **Education Information**

Doctorate, Iowa State University of Science and Technology, College of Engineering, Chemical Engineering, United States Of America 1988 - 1994

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Kimya Mühendisliği (Yl) (Tezli), Turkey 1985 - 1987

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

#### Foreign Languages

Spanish, A2 Elementary German, B1 Intermediate

#### **Dissertations**

Doctorate, Proton NMR studies on supported metal catalysts, Iowa State University of Science and Technology, Engineering, Chemical Engineering, 1994

Postgraduate, Momentum and heat transfer studies in an eccentric annulus, Middle East Technical University, Graduate School of Natural and Applied Sciences, 1987

#### **Research Areas**

Process and Reactor Design, Basic Operations and Thermodynamics, Engineering and Technology

## **Academic Titles / Tasks**

Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2005 - Continues

Professor, University of California, Berkeley, College Of Chemistry, Chemical And Biomolecular Engineering, 2015 - 2016

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1999 - 2004

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1995 - 1999

#### Academic and Administrative Experience

Head of Department, Middle East Technical University, Graduate School of Natural and Applied Sciences, Micro and Nanotechnology, 2022 - Continues

Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2010 - 2013

Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 2004 - 2006

Middle East Technical University, Faculty of Engineering, Department of Chemical Engineering, 1998 - 2001

#### Courses

Advances in Catalysis, Postgraduate, 2019 - 2020

#### **Advising Theses**

ÜNER D., Interaction of hydrogen with titanium dioxide and palladium-titanium dioxide surface at low and high temperature, Postgraduate, M.YARAR(Student), 2022

ÜNER D., Investigation of the transient behaviors of photocatalytic no oxidation over TiO2, Postgraduate,

S.ERNAM(Student), 2022

ÜNER D., Empirical evaluation of storage materials and conditions for propellant grade white fuming nitric acid, Postgraduate, K.SAÇ(Student), 2022

ÜNER D., Determining service life and ageing characteristics of composite solid propellants by their chemical properties, Postgraduate, Y.KÖSA(Student), 2022

ÜNER D., Modeling kinetics and thermodynamics of amine based fuel and oxidizer interactions, Postgraduate, M.ÖZKAN(Student), 2021

Kazanç Özerinç F., Üner D., MODELING THE EFFECT OF SCR DENOX UNIT ON DIESEL ENGINE PERFORMANCE,

Postgraduate, P.PELEN(Student), 2020 Üner D., Sustainable hydrogen production process development using reducible oxides, Doctorate, A.ÇALIŞAN(Student),

2020

Üner D., Elucidating the role of adsorbed states of hydrogen, water and carbon dioxide over TiO2 and Pd/TiO2, Postgraduate, B.YILMAZ(Student), 2020

Üner D., Ammonia synthesis reaction under time interrupted conditions, Doctorate, M.YASİN(Student), 2019

Üner D., Effect of ZnO morphology on photocatalytic activity determined by no oxidation, Postgraduate, O.KAHRAMAN(Student), 2019

Üner D., Valorization of Şırnak asphaltite and biomass, Postgraduate, V.HELVACI(Student), 2019

İpek Torun B., Üner D., HYDROGEN ADSORPTION ON CU (I)-EXCHANGED ZEOLITES, Postgraduate,

İ.Altıparmak(Student), 2019

ÜNER D., Effect of cobalt doping on photocatalytic activity of lead titanate, Postgraduate, S.ODABAŞI(Student), 2018

Erkoç E., Üner D., Gliserolün fotokatalitik oksidasyonu, Postgraduate, Ö.AKYAVAŞOĞLU(Student), 2018

ÜNER D., Optimization of operation temperatures and durations during solar thermal water splitting towards greater energy efficiencies, Postgraduate, E.YAVUZYILMAZ(Student), 2016

ÜNER D., YILMAZ A., Hydrothermal synthesis of rare earth ions doped LaBO3 and GdBO3 orthoborates and their photoluminescence properties, Postgraduate, S.VAHED(Student), 2016

ÜNER D., YILMAZ A., Hydrothermal synthesis of rare earth ions doped LaBO3 and GdBO3 and their photoluminescence

properties, Postgraduate, S.Vahed(Student), 2016

ÜNER D., The role of precious metal nanoparticles on the oxygen exchange kinetics from ceria, Postgraduate,

D.KAYA(Student), 2016

ÜNER D., Population balance modeling of TiO2 nanoparticles synthesized via thermal hydrolysis method, Postgraduate, A.DOĞAN(Student), 2015

ÜNER D., Characterization of adsorption-desorption properties of oxygen and water on mixed oxides, Postgraduate, C.ATES(Student), 2015

ÜNER D., Characterization of adsorption-desorption properties of oxygen & water on mixed oxides, Postgraduate, C.Ateş(Student), 2015

ÜNER D., Carbon dioxide reforming of methane on Ni-based bimetallic catalyts, Doctorate, H.Ay(Student), 2014

ÜNER D., Design constraints for gas-liquid catalytic microreactors, Postgraduate, N.BERKER(Student), 2014

ÜNER D., Carbon dioxide reforming of methane on Ni-based bimetallic catalysts, Doctorate, H.AY(Student), 2014

ÜNER D., CO2 reduction in reverse flow reactors, Postgraduate, N.Can(Student), 2013

ÜNER D., Syngas production over reducible metal oxides, Postgraduate, A.ÇALIŞAN(Student), 2013

ÜNER D., Photocatalytic oxidation of NOX over TiO2 containing cement based materials, Postgraduate, İ.BAYAR(Student), 2013

ÜNER D., Carbon dioxide reduction in reverse flow reactors, Postgraduate, N.CAN(Student), 2013

ÜNER D., Photocatalytic oxidation of NOX over TiO<sub>2</sub> containing cement based materials, Postgraduate, İ.Bayar(Student), 2013

ÜNER D., Characterization and reactivity studies for chemical loop gasification of high sulfur lignites, Doctorate, A.KANCA(Student), 2013

ÜNER D., Photocatalytic activity in nano sized titanium dioxide structures, Doctorate, M.MEHMET(Student), 2012

ÜNER D., Supported Ru based ammonia synthesis catalysts, Postgraduate, M.YASİN(Student), 2012

ÜNER D., YILMAZ A., Hydrogen generation of conventional fuels over mesoporous mixed oxide catalysts under time interrrupted reaction conditions, Doctorate, M.Can(Student), 2012

ÜNER D., Hydrogen generation from conventional fuels over mesoporous mixed oxide catalysts under time interrupted reaction conditions, Doctorate, M.CAN(Student), 2011

ÜNER D., Photocatalytic carbon dioxide reduction in liquid media, Postgraduate, B.İPEK(Student), 2011

ÜNER D., Synthesis and characterization of ethanol electro-oxidation catalysts, Doctorate, H.DEMİR(Student), 2010

ÜNER D., The effects of platinum particle size to the efficiency of a dye sensitized solar cell (DSSC), Postgraduate,

H.BERK(Student), 2010

ÜNER D., Photocatalytic and photoelectrochemical water splitting over ordered titania nanotube arrays, Postgraduate, O.KARSLIOĞLU(Student), 2009

ÜNER D., NOx storage and reduction over Ce-Zr mixed oxide supported catalysts, Postgraduate, B.ÇAĞLAR(Student), 2009

ÜNER D., Acidity characterization and adsorption characteristics of cobalt and lead doped SBA15 mesoporous materials, Postgraduate, Ö.GÜNER(Student), 2007

ÜNER D., Methane activation via bromination over sulfated zirconia/SBA-15 catalysts, Doctorate,

V.DEĞİRMENCİ(Student), 2007

ÜNER D., Synthesis and characterization of Co-Pb/SBA-15 mesoporous catalysts, Postgraduate, B.AKÇA(Student), 2006

ÜNER D., Structure and activity predictions on mono- and bi-metallic catalysts, Postgraduate, E.ERÜNAL(Student), 2006

ÜNER D., Structure sensitivity of selective CO oxidation over precious metal catalysts, Postgraduate, B.ATALIK(Student), 2005

ÜNER D., Artifical photosynthesis: Dye assisted photocatalytic reduction of carbon dioxide over pure and platinum containing titania, Postgraduate, Ö.ÖZCAN(Student), 2005

ÜNER D., Diesel soot oxidation catalyst filter system design, Postgraduate, V.Eyüp(Student), 2005

ÜNER D., Steam reforming of ethanol over sol-gel-synthesized mixed oxide catalysts, Postgraduate, H.ÖNDER(Student), 2005

ÜNER D., Diesel soot oxidation catalyst filter sytem design, Postgraduate, V.EYÜP(Student), 2005

ÜNER D., Adsorption calorimetry in supported catalyst characterization: adsorption structure sensitivity on pt(y-Al2o3, Postgraduate, M.Üner(Student), 2004

ÜNER D., Adsorption calorimetry in supported catalyst characterization: Adsorption structure sensitivity on Pt/gamma-AI203, Postgraduate, M.ÜNER(Student), 2004

ÜNER D., Soot oxidation catalysis., Postgraduate, M.KEMAL(Student), 2002

ÜNER D., CO oxidation on alumina supporter Pd-Pt mono- and BI-metallic catalysts : temperature hysteresis.,

Postgraduate, S.Kaya(Student), 2002

ÜNER D., CO oxidation on alumina supported Pd-Pt mono and bi-metallic catalysts: Temperature hysteresis,

Postgraduate, S.KAYA(Student), 2002

ÜNER D., Assessment of exhaust emissions from gasoline fueled motor vehicles, Postgraduate, R.GÜLTEKİN(Student), 2001

ÜNER D., Catalytic combustion of diesel soot, Postgraduate, B.DERNAİKA(Student), 2001

ÜNER D., Effect of cerium dioxide on carbonmonoxide oxidation reaction mechanism over Pt/y-Al2O3 catalyst,

Postgraduate, U.ORAN(Student), 2001

ÜNER D., Thermal and photocatalytic oxidation of carbon monoxide over titanium dioxide-effects of platinum deposition, Postgraduate, İ.ÖZEN(Student), 2001

Üner D., Adsorption dynamics and reaction kinetics at gas-solid interfaces: applications in catalysis and gas sensors, Postgraduate, N.Alper(Student), 1999

ÜNER D., DOĞU T., Determination of rate processes and parameters for hydrogen adsorption on silica supported ruthenium catalysts, Postgraduate, A.İLDEŞ(Student), 1999

Üner D., Improvements in adhesion properties of solid propellant rocket liner, Postgraduate, F.Burcu(Student), 1998

Üner D., Studies on photocatalytic reactions : heterogeneous photocatalysis by titaniumdioxide, Postgraduate,

S.Özbek(Student), 1998

Üner D., De-nox catalysis via bimetallics, Postgraduate, D.Ernur(Student), 1998

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

I. Effects of dead volume and inert sweep gas flow on photocatalytic hydrogen evolution over Pt/TiO2 Can Özcan E., ÜNER D., Yildirim R.

International Journal of Hydrogen Energy, vol.75, pp.540-546, 2024 (SCI-Expanded)

II. Dissociation of HNO3 in water revisited: experiment and theory

Munar I., Özer M. Ö., Fusco E., ÜNER D., Aviyente V., Bühl M.

Physical Chemistry Chemical Physics, vol.26, no.23, pp.16616-16624, 2024 (SCI-Expanded)

III. LaCoO3 is a promising catalyst for the dry reforming of benzene used as a surrogate of biomass tar Cağlar B., ÜNER D.

Turkish Journal of Chemistry, vol.48, no.4, pp.643-658, 2024 (SCI-Expanded)

IV. PdH  $\alpha$ -phase is associated with residual oxygen as revealed by in situ 1H NMR measurements and DFT-NMR estimations

Mete E., YILMAZ B., ÜNER D.

Applied Surface Science, vol.641, 2023 (SCI-Expanded)

V. Pd as a reduction promoter for TiO2: Oxygen and hydrogen transport at 2D and 3D Pd interfaces with TiO2 monitored by TPR, operando 1H NMR and CO oxidation studies

YARAR M., Bouzani A., ÜNER D.

Catalysis Communications, vol.174, 2023 (SCI-Expanded)

VI. Recommendations for improving the experimental protocol for the determination of photocatalytic activity by nitric oxide oxidation measurements

ERNAM S., Akgül Z. E., ÜNER D.

Turkish Journal of Chemistry, vol.47, no.5, pp.1285-1295, 2023 (SCI-Expanded)

VII. Elucidating the role of adsorption during artificial photosynthesis: H2O and CO2 adsorption isotherms over TiO2 reveal thermal effects under UV illumination

ÜNER D., YILMAZ B.

PHOTOSYNTHESIS RESEARCH, vol.154, no.3, pp.353-367, 2022 (SCI-Expanded)

VIII. Oxygen vacancies on Pd/TiO2 are detected at low pressures by ESR spectroscopy at ambient temperatures

ÜNER D., YARAR M.

Turkish Journal of Chemistry, vol.46, no.4, pp.1081-1088, 2022 (SCI-Expanded)

IX. Microstructure, resistivity, and shear strength of electrically conductive adhesives made of silvercoated copper powder

Hamrah Z. S., Lashgari V. A., Mohammadi M. H. D., Uner D., Pourabdoli M.

MICROELECTRONICS RELIABILITY, vol.127, 2021 (SCI-Expanded)

X. Construction of phase diagrams to estimate phase transitions at high pressures: A critical point at the solid liquid transition for benzene

Ibrahimoglu B., ÜNER D., Veziroglu A., Karakaya F., Ibrahimoglu B.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.46, no.29, pp.15168-15180, 2021 (SCI-Expanded)

XI. The effect of H2:N2ratio on the NH3synthesis rate and on process economics over the Co3Mo3N catalyst

ASLAN M., Hargreaves J. S., ÜNER D.

Faraday Discussions, vol.229, pp.475-488, 2021 (SCI-Expanded)

XII. Elucidating the Barriers on Direct Water Splitting: Key Role of Oxygen Vacancy Density and Coordination over PbTiO3 and TiO2

METE E., Ellialtioglu S., GÜLSEREN O., ÜNER D.

JOURNAL OF PHYSICAL CHEMISTRY C, vol.125, no.3, pp.1874-1880, 2021 (SCI-Expanded)

XIII. Double Perovskite Structure Induced by Co Addition to PbTiO3: Insights from DFT and Experimental Solid-State NMR Spectroscopy

Mete E., Odabasi S., Mao H., Chung T., Ellialtioglu S., Reimer J. A., Gulseren O., ÜNER D.

JOURNAL OF PHYSICAL CHEMISTRY C, vol.123, no.44, pp.27132-27139, 2019 (SCI-Expanded)

XIV. H-2 adsorption on Cu(I)-ZSM-5: Exploration of Cu(I)-exchange in solution

Altıparmak İ., Karakaya B., Üner D., İpek Torun B.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, pp.18866-18874, 2019 (SCI-Expanded)

 $XV. \quad Fundamentals \ of \ hydrogen \ storage \ processes \ over \ Ru/SiO2 \ and \ Ru/Vulcan$ 

ASLAN M. Y., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.34, pp.18903-18914, 2019 (SCI-Expanded)

XVI. Steam methane reforming over structured reactors under concentrated solar irradiation Calisan A., Ogulgonen C. G., Yilmaz A., ÜNER D., Kincal S.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.34, pp.18682-18693, 2019 (SCI-Expanded)

XVII. Finding the optimum between volatility and cycle temperatures in solar thermochemical hydrogen production: Pb/PbO pair

Calisan A., Ogulgonen C. G., Kincal S., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.34, pp.18671-18681, 2019 (SCI-Expanded)

XVIII. In situ and downstream sulfidation reactivity of PbO and ZnO during pyrolysis and hydrogenation of a high-sulfur lignite

KANCA A., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.34, pp.18827-18835, 2019 (SCI-Expanded)

XIX. Facilitating role of Pd for hydrogen, oxygen and water adsorption/desorption processes from bulk CeO2 and CeO2/gamma- Al2O3

Kaya D., Singh D., Kincal S., ÜNER D.

CATALYSIS TODAY, vol.323, pp.141-147, 2019 (SCI-Expanded)

XX. Enhancement of hydrogen storage capacity of multi-walled carbon nanotubes with palladium doping prepared through supercritical CO2 deposition method

ERÜNAL E., Ulusal F., ASLAN M. Y., GÜZEL B., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.23, pp.10755-10764, 2018 (SCI-Expanded)

XXI. Effect of mechanical activation on thermal energy storage properties of Co304/CoO system Nekokar N., Pourabdoli M., Hamidi A. G., ÜNER D.

ADVANCED POWDER TECHNOLOGY, vol.29, no.2, pp.333-340, 2018 (SCI-Expanded)

XXII. H-2 Adsorption on Cu(I)-SSZ-13

Ipek B., Pollock R. A., Brown C. M., Üner D., Lobo R. F.

JOURNAL OF PHYSICAL CHEMISTRY C, vol.122, pp.540-548, 2018 (SCI-Expanded)

XXIII. Following the structure and reactivity of Tuncbilek lignite during pyrolysis and hydrogenation Kanca A., Dodd M., Reimer J. A., ÜNER D.

FUEL PROCESSING TECHNOLOGY, vol.152, pp.266-273, 2016 (SCI-Expanded)

XXIV. Using spilled over hydrogen in NH3 synthesis over supported Ru catalysts ÜNER D., ASLAN M. Y.

CATALYSIS TODAY, vol.272, pp.49-57, 2016 (SCI-Expanded)

Dry reforming of methane over CeO2 supported Ni, Co and Ni-Co catalysts XXV. Av H., ÜNER D.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.179, pp.128-138, 2015 (SCI-Expanded)

XXVI. The influence of relative humidity on photocatalytic oxidation of nitric oxide (NO) over TiO2 ÜNER D., Bayar I., Tabari T.

APPLIED SURFACE SCIENCE, vol.354, pp.260-266, 2015 (SCI-Expanded)

XXVII. Time interrupted behavior of ammonia synthesis over ruthenium based catalysts ÜNER D., ASLAN M. Y., Uner N. B.

ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, vol.249, 2015 (SCI-Expanded)

XXVIII. Effect of process control agents on synthesizing nano-structured 2Mg-9Ni-Y catalyst by mechanical milling and its catalytic effect on desorption capacity of MgH2

Hosseini-Gourajoubi F., Pourabdoli M., ÜNER D., Raygan S.

ADVANCED POWDER TECHNOLOGY, vol.26, no.2, pp.448-453, 2015 (SCI-Expanded)

XXIX. A comparative study for synthesis methods of nano-structured (9Ni-2Mg-Y) alloy catalysts and effect of the produced alloy on hydrogen desorption properties of MgH2

Pourabdoli M., Raygan S., Abdizadeh H., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.38, no.36, pp.16090-16097, 2013 (SCI-Expanded)

XXX. Determination of kinetic parameters and hydrogen desorption characteristics of MgH2-10 wt% (9Ni-2Mg-Y) nano-composite

Pourabdoli M., Raygan S., Abdizadeh H., ÜNER D.

INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.38, no.27, pp.11910-11919, 2013 (SCI-Expanded)

XXXI. On the mechanism of photocatalytic CO2 reduction with water in the gas phase ÜNER D., Oymak M. M.

CATALYSIS TODAY, vol.181, no.1, pp.82-88, 2012 (SCI-Expanded)

XXXII. Comparative photodecolorization of red dye by anatase, rutile (TiO2), and wurtzite (ZnO) using response surface methodology

Khameneh S., Sadrnezhaad S. K., Rad M. K., ÜNER D.

TURKISH JOURNAL OF CHEMISTRY, vol.36, no.1, pp.121-135, 2012 (SCI-Expanded)

XXXIII. NO oxidation and NOx storage over Ce-Zr mixed oxide supported catalysts Caglar B., ÜNER D.

CATALYSIS COMMUNICATIONS, vol.12, no.6, pp.450-453, 2011 (SCI-Expanded)

XXXIV. Carbon Nanotube Structures as Support for Ethanol Electro-Oxidation Catalysis Kivrak H., Kuliyev S., Tempel H., Schneider J., Uner D.

INTERNATIONAL JOURNAL OF CHEMICAL REACTOR ENGINEERING, vol.9, 2011 (SCI-Expanded)

Sulfated Zirconia Modified SBA-15 Catalysts for Cellobiose Hydrolysis Degirmenci V., ÜNER D., Cinlar B., Shanks B. H., YILMAZ A., van Santen R. A., Hensen E. J. M. CATALYSIS LETTERS, vol.141, no.1, pp.33-42, 2011 (SCI-Expanded)

XXXVI. CO2 utilisation by photocatalytic conversion to methane and methanol Uner D., Oymak M. M., Ipek B.

INTERNATIONAL JOURNAL OF GLOBAL WARMING, vol.3, pp.142-162, 2011 (SCI-Expanded)

XXXVII. Selective methane bromination over sulfated zirconia in SBA-15 catalysts

Degirmenci V., YILMAZ A., ÜNER D.

CATALYSIS TODAY, vol.142, pp.30-33, 2009 (SCI-Expanded)

XXXVIII. Pt-incorporated anatase TiO2(001) surface for solar cell applications: First-principles density functional theory calculations

METE E., ÜNER D., GÜLSEREN O., ELLİALTIOĞLU S. Ş.

PHYSICAL REVIEW B, vol.79, no.12, 2009 (SCI-Expanded)

XXXIX. Determination of the dispersion of supported Pt particles by gas-phase and liquid-phase measurements

Kivrak H., Mastalir A., Kiraly Z., ÜNER D.

CATALYSIS COMMUNICATIONS, vol.10, no.6, pp.1002-1005, 2009 (SCI-Expanded)

XL. On the Structure Sensitivity of CO Oxidation on Alumina Supported Pd-Pt Bimetallic Catalysts Kaya S., Erunal E., Shaltaf R., Ellialtioglu S., ÜNER D.

TURKISH JOURNAL OF CHEMISTRY, vol.33, no.1, pp.11-21, 2009 (SCI-Expanded)

XLI. Oxidation States and the Acidity of Ordered Arrays of Co-Pb Mixed Oxide Nanoparticles Templated in SBA15

Akca B., Guner O., Can M., YILMAZ A., ÜNER D.

TOPICS IN CATALYSIS, vol.49, pp.187-192, 2008 (SCI-Expanded)

XLII. Synthesis and NMR Characterization of Titanium and Zirconium Oxides Incorporated in SBA-15
Degirmenci V., Erdem O. F., Ergun O., YILMAZ A., Michel D., ÜNER D.
TOPICS IN CATALYSIS, vol.49, pp.204-208, 2008 (SCI-Expanded)

XLIII. CO Oxidation over Mono and Bi-Metallic Sequentially Impregnated Pd-Pt Catalysts
Kaya S., ÜNER D.

TURKISH JOURNAL OF CHEMISTRY, vol.32, no.5, pp.645-652, 2008 (SCI-Expanded)

XLIV. Dye sensitized CO2 reduction over pure and platinized TiO2

Ozcan O., Yukruk F., Akkaya E. U., Uner D.

TOPICS IN CATALYSIS, vol.44, no.4, pp.523-528, 2007 (SCI-Expanded)

XLV. Effect of molecular and electronic structure on the light-harvesting properties of dye sensitizers Mete E., Uner D., Cakmak M., Gulseren O., Ellialtoglu S.

JOURNAL OF PHYSICAL CHEMISTRY C, vol.111, no.20, pp.7539-7547, 2007 (SCI-Expanded)

XLVI. Sulfated zirconia in SBA-15 structures with strong Bronsted acidity as observed by H-1 MAS NMR spectroscopy

Degirmenci V., Erdem O. F., Yilmaz A., Michel D., Uner D.

CATALYSIS LETTERS, vol.115, pp.79-85, 2007 (SCI-Expanded)

XLVII. Dye sensitized artificial photosynthesis in the gas phase over thin and thick TiO2 films under UV and visible light irradiation

Ozcan O., Yukruk F., Akkaya E. U., Uner D.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.71, pp.291-297, 2007 (SCI-Expanded)

XLVIII. Liquid chromatography as a novel method for determination of the dispersion of supported Fd particles

Kiraly Z., Mastalir A., Csaszar A., Demir H., Uner D., Findenegg G. H.

JOURNAL OF CATALYSIS, vol.245, no.2, pp.267-271, 2007 (SCI-Expanded)

XLIX. Preparation and characterization of ordered TiO2 photocatalysts: films and mesoporous structures Erguen O., Karslioglu O., YILMAZ A., ÜNER D.

TURKISH JOURNAL OF CHEMISTRY, vol.31, no.5, pp.501-508, 2007 (SCI-Expanded)

L. Preparation and morphological characterization of a catalytic soot oxidation SiC foam filter Caglar B., ÜNER D.

TURKISH JOURNAL OF CHEMISTRY, vol.31, no.5, pp.487-492, 2007 (SCI-Expanded)

LI. Structure sensitivity of selective CO oxidation over Pt/gamma-Al2O3

Atalik B., Uner D.

JOURNAL OF CATALYSIS, vol.241, no.2, pp.268-275, 2006 (SCI-Expanded)

LII. A novel catalyst for diesel soot oxidation

Uner D., Demirkol M., Dernaika B.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.61, pp.334-345, 2005 (SCI-Expanded)

LIII. Methane to higher hydrocarbons via halogenation

Degirmenci V., Uner D., Yilmaz A.

CATALYSIS TODAY, vol.106, pp.252-255, 2005 (SCI-Expanded)

LIV. Adsorption calorimetry in supported catalyst characterization: Adsorption structure sensitivity on Pt/-gamma-Al2O3

Uner D., Uner M.

THERMOCHIMICA ACTA, vol.434, pp.107-112, 2005 (SCI-Expanded)

LV. Testing molten metal oxide catalysts over structured ceramic substrates for diesel soot oxidation Genc V., Altay F., Uner D.

CATALYSIS TODAY, vol.105, pp.537-543, 2005 (SCI-Expanded)

LVI. Mechanisms of CO oxidation reaction and effect of chlorine ions on the CO oxidation reaction over Pt/CeO2 and Pt/CeO2/gamma-Al2O3 catalysts

Oran U., Uner D.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.54, no.3, pp.183-191, 2004 (SCI-Expanded)

LVII. Oxygen adsorption on Pt/TiO2 catalysts

Uner D., Tapan N., Ozen I., Uner M.

APPLIED CATALYSIS A-GENERAL, vol.251, no.2, pp.225-234, 2003 (SCI-Expanded)

LVIII. Use of Seydisehir alumina as a support for Co oxidation catalysts

Mbaraka I., Uner D.

CHEMICAL ENGINEERING COMMUNICATIONS, vol.190, pp.1073-1084, 2003 (SCI-Expanded)

LIX. A simplified approach to determine the activation energies of uncatalyzed and catalyzed combustion of soot

Dernaika B., Uner D.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.40, no.3, pp.219-229, 2003 (SCI-Expanded)

LX. Kinetics of hydrogen adsorption and Desorption on silica-supported Pt, Rh, and Ru catalysts studied by solid state H-1 NMR

Savargaonkar N., Uner D., Pruski M., King T.

LANGMUIR, vol.18, no.10, pp.4005-4009, 2002 (SCI-Expanded)

LXI. Improved adhesive properties and bonding performance of HTPB-based polyurethane elastomer by using aziridine type bond promoter

Gercel B., Unel D., Pekel F., Ozkar S.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.80, no.5, pp.806-814, 2001 (SCI-Expanded)

LXII. FTIR characterization of Ru/SiO2 catalyst for ammonia synthesis

Sayan S., Kantcheva M., Suzer S., Uner D.

JOURNAL OF MOLECULAR STRUCTURE, vol.481, pp.241-245, 1999 (SCI-Expanded)

LXIII. The deactivation behavior of the TiO2 used as a photo-catalyst for benzene oxidation Uner D., Ozbek S.

CATALYST DEACTIVATION 1999, vol.126, pp.411-414, 1999 (SCI-Expanded)

LXIV. Structure sensitive hydrogen adsorption: Effect of Ag on Ru/SiO2 catalysts

Savargaonkar N., Narayan R., Pruski M., Uner D., King T.

JOURNAL OF CATALYSIS, vol.178, no.1, pp.26-33, 1998 (SCI-Expanded)

LXV. A note on N(2)0+CO reaction mechanism over Rh surfaces

Uner D

JOURNAL OF CATALYSIS, vol.178, no.1, pp.382-385, 1998 (SCI-Expanded)

LXVI. A sensible mechanism of alkali promotion in Fischer-Tropsch synthesis: Adsorbate mobilities Uner D.

INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.37, no.6, pp.2239-2245, 1998 (SCI-Expanded)

LXVII. XPS and in-situ IR investigation of Ru/SiO2 catalyst

Sayan S., Suzer S., Uner D.

JOURNAL OF MOLECULAR STRUCTURE, vol.410, pp.111-114, 1997 (SCI-Expanded)

LXVIII. The effects of alkali promoters on the dynamics of hydrogen chemisorption and syngas reaction kinetics on Ru/SiO2 surfaces

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LXXII. HYDROGEN CHEMISORPTION ON POTASSIUM-PROMOTED SUPPORTED RUTHENIUM CATALYSTS UNER D., PRUSKI M., GERSTEIN B., KING T.

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LXXIII. AN APPROXIMATE SOLUTION FOR NON-NEWTONIAN FLOW IN ECCENTRIC ANNULI UNER D., OZGEN C., TOSUN I.

INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.27, no.4, pp.698-701, 1988 (SCI-Expanded)

#### **Books & Book Chapters**

I. On the Limits of Photocatalytic Water Splitting

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in: Water Chemistry, Dr. Murat Eyvaz, Editor, IntechOpen, pp.1-23, 2019

II. Artificial Photosynthesis from a Chemical Engineering Perspective İPEK B., ÜNER D.

in: Artificial Photosynthesis, Dr Mohammad Najafpour, Editor, Intech, Rijeka, pp.13-36, 2012

III. Artificial Photosynthesis from a Chemical Engineering Perspective İPEK B., ÜNER D.

in: Artificial Photosynthesis, Dr Mohammad Najafpour, Editor, InTech, pp.13-36, 2012

## Refereed Congress / Symposium Publications in Proceedings

I. selectivity control through microkinetic analysis of complex catalytic reactions ÜNER D.

5th Anatolian school of catalysis, İzmir, Turkey, 8 - 11 September 2019

II. H2 Storage at Ambient Temperature using Cu(I)-SSZ-39

İpek Torun B., Altiparmak I., Üner D.

4. Uluslararası Hidrojen Teknolojileri Konferansı, Edirne, Turkey, 20 - 23 June 2019

III. In-situ and downstream desulfurization ability of PbO and ZnO during pyrolysis and hydrogenation of a high-sulfur lignite

KANCA A., ÜNER D.

3th International Hydrogen Technologies Congress, 15 - 18 March 2018, pp.53-56

IV. Comparison of Low and High Pd Loadings on CNTs via Supercritical Fluid Deposition as Hydrogen

#### **Storage Materials**

ERÜNAL E., ULUSAL F., ODABAŞI S., ASLAN M. Y., GÜZEL B., ÜNER D.

14th International Conference on Energy Storage, Adana, Turkey, 25 - 28 April 2018

V. Deposition Pressure and Calcination Effect on Hydrogen Storage Capacity of Palladium Doped Multiwalled Carbon Nanotubes Prepared via Supercritical Fluid Deposition Method

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VII. N'xx Catalyzed methane pyrolysis for H2 generation under concentrated solar irradiation oğulgonen c. g., ÇALIŞAN A., ÜNER D., KINCAL S.

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IX. Water splitting through Pb/PbO cycle

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X. A low cost continuous H2-CH4 sensor assembly

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XI. Hyrogen storage capacity investiations of Pd loading ratio on ME-CNTs via Supercritical Fluid deposition metod

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XII. Water splitting through Pb/PbO cycle

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3rd international hydrogen energies conference, alanya, Turkey, 15 - 18 March 2018

XIII. A Cost Analysis for Ammonia as a Hydrogen Carrier

ASLAN M. Y., AKBAYRAK S., özkar S., ÜNER D.

8th International Advanced Technologies Symposium, Elazığ, Turkey, 19 - 21 October 2017

XIV. The Effect of Oxygen Vacancies on Steam Reforming of Lean Methane by NiAl2O3, CeCoO3, and Sr0.6Ce0.4Fe0.7Co0.3O3

CALISAN A., ÜNER D.

4th Anatolian School of Catalysis, İzmir, Turkey, 11 - 14 September 2017

XV. The Effect of UV Light on Desorption of Oxygen from TiO2 and 0.5 wt Pt/TiO2

ODABAŞI S., ÜNER D.

4. Anadolu Kataliz Okulu, 11 - 14 September 2017

XVI. Effect of Ru Particle Size on the Behavior of Hydrogen over Ru/SiO2 Catalysts with Various Metal Loadings

ASLAN M. Y., ÜNER D.

4th Anatolian School of Catalysis, İzmir, Turkey, 11 - 14 September 2017

XVII. H2 Molekülünün Heterojen Yapılı Kütlece 1 Pd/CeO2 Katalizörü Üzerine Oda Sıcaklığında Adsorplanmasının Tezgâh Üstü NMR Spektrometresi ile İncelenmesi

ÜNER D., volkan e.

29. ulusal k'xxmya kongresi, Turkey, 10 - 14 September 2017

XVIII. Effect of particle size and morphology on ZnO nanoparticles for photocatalytic NO oxidation kahraman o., ÜNER D.

4th Anatolian School of Catalysis, 11 - 14 September 2017

XIX. NMR Spectroscopy for catalysis

ÜNER D.

4th Anatolian School of Catalysis, 11 - 14 September 2017

XX. getting to know your catalyst

ÜNER D.

4th Anatolian School of Catalysis, 11 - 14 September 2017

XXI. Influence of Particle Size and Morphology of ZnO nanoparticles on Photocatalytic NO Oxidation Orhun K., ERKOÇ E., ÜNER D.

8th World Congress on Oxidation Catalysis, 3 - 08 September 2017

XXII. Photocatalytic Oxidation of Glycerol in Continuous Mini-Flow Reactor

Akyavaşoğlu Ö., ÜNER D., ERKOÇ E.

8th World Congress on Oxidation Calatlysis, 3 - 08 September 2017

XXIII. Transport limitations of oxygen exchange processes: an experimental study on Pt/Co304 ÇALIŞAN A., KINCAL S., ÜNER D.

13th European Congress on Catalysis, Floransa, Italy, 27 - 31 August 2017, pp.532

XXIV. Enhancing the rate of hydrogen and oxygen evolution from CeO2 during solar thermal water splitting: addition of Pd and Al2O3

ÜNER D., kaya d.

EUROPACAT 13th european congress on catalysis, 27 - 31 August 2017

XXV. Photocatalytic activity of the modified coupled semiconductors and its relationship with surface properties.

ÜNER D., khamaneh asl s.

EUROPACAT 13th European Congress on Catalysis, 27 - 31 August 2017

XXVI. photocorrosion of NT within water splitting and dye decolorization reactions

ÜNER D., khamaneh asl s.

EUROPACAT 13th european congress on catalysis, 27 - 31 August 2017

XXVII. Enhancement of hydrogen storage capacity of multi-walled carbon nanotubes with palladium doping prepared through supercritical CO2 deposition method

ERÜNAL E., ulusal f., ASLAN M. Y., GÜZEL B., ÜNER D.

second international hydrogen energies conference, 15 - 18 March 2017

XXVIII. Optimization Approach to Operation Conditions of Solar Thermochemical Water Splitting Process YAVUZYILMAZ E., ÜNER D., KINCAL S.

2nd International Hydrogen Technologies Congress, 15 - 18 March 2017

XXIX. Transport Limitations of Oxygen Exchange in Solar Thermochemical Processes: An Experimental Study on Co304

ÇALIŞAN A., KINCAL S., ÜNER D.

2nd International Hydrogen Technologies Congress, Adana, Turkey, 15 - 18 March 2017, pp.234-236

XXX. Hydrogen Storage Capacity of Palladium Doped Multi Wall Carbon Nanotubes Prepared via Supercritical CO2 Depostion Method

ERÜNAL E., Ulusal F., kaya d., ASLAN M. Y., GÜZEL B., ÜNER D.

2nd International Hydrogen Technologies Congress, Adana, Turkey, 15 - 18 March 2017

XXXI. Hydrogen Storage Capacity of Palladium Doped Multi-Walled Carbon Nanotubes Prepared via SupercriticalCO2 Deposition Method

ERÜNAL E., Ulusal F., ASLAN M. Y., GÜZEL B., ÜNER D.

2nd International Hydrogen Technologies Congress, Turkey, 15 - 18 March 2017

XXXII. ARTIFICIAL PHOTOSYNTHESIS: FROM MOLECULAR RATIONALIZATION TO INDUSTRIAL SCALE CATALYSIS

ÜNER D

49th Polish annual conference on catalysis, 15 - 17 March 2017

XXXIII. CHEMICAL REACTIVITY IN CONFINED SPACE TIMES

ÜNER D.

8th EMCC Eastern Medditerranean Collaboative Chemical Engineeringt Conference, 26 February - 01 March 2017

XXXIV. Tuncbilek linyitinin kimyasal halka yontemi ile gazlastirmasi

KANCA A., ÇALIŞAN A., ÜNER D.

Ulusal Kimya muhendisligi kongresi, Turkey, 23 - 26 August 2016

XXXV. Stokyometrik olmayan oksitler uzerinde gunes enerjisinden hidrojen uretimi

YAVUZYILMAZ E., KINCAL S., ÜNER D.

ulusal kımya muhendıslıgı kongresı, Turkey, 23 - 26 August 2016

XXXVI. Ammonia Synthesis Reaction On Ru Nanoparticles

ASLAN M. Y., AKBAYRAK S., özkar S., ÜNER D.

6th national catalysis conference, Turkey, 27 - 30 April 2016

XXXVII. The Role Of Precious Metals On Adsorption Desorption Kinetics Of Oxygen Over Reducible Oxide ÜNER D., kaya d., singh d.

6th National catalysis conference, Turkey, 27 - 30 April 2016

XXXVIII. Catalytic Tar Removal on Nickel loaded Perovskites

ÇAĞLAR B., tabari t., ÜNER D.

6th national catalysis conference, Turkey, 27 - 30 April 2016

XXXIX. Catalytic Role of Pyrite on Hydrodesulfurization of Lignite and Asphaltite

halvaci v., KANCA A., ÜNER D.

6th National Catalysis Conference, Turkey, 27 - 30 April 2016

XL. Benzene Oxidation as an Alternative Method for Assessing Photocatalytic Activity

oymak m. m., tabari t., ÜNER D.

6th national catalysis conference, Turkey, 27 - 30 April 2016

XLI. Material Performance of Co304 CeO2 and Co Ce Mixed Oxide on Oxygen Storage for Solar Thermal Hydrogen Production

ÇALIŞAN A., KAYA D., ÜNER D.

12 EUROPEAN CONGRESS ON CATALYSIS, Kazan, Russia, 30 August - 04 September 2015

XLII. Photocatalytic removal of NO under visible light irradiation over sol gel synthesized PbTiO3 nanoparticles

TABARI T., ÜNER D.

12TH EUROPEAN CONGRESS ON CATALYSIS, Kazan, Russia, 30 August - 04 September 2015

XLIII. Fickian Spillover Models Validation and Parameter Estimation

Dheerendra S., Üner N. B., ÜNER D.

12th EUROPEAN CONGRESS ON CATALYSIS, Kazan, Russia, 30 August - 04 September 2015

XLIV. Estimating and Validating Time Interrupted Behavior of Ammonia Synthesis over Ruthenium Based Catalysts

ÜNER D., ASLAN M. Y., üner n. b.

249th American Chemical Society National Meeting, Denver, United States Of America, 22 - 26 March 2015

XLV. Using nonstoichiometric Co-Pb mixed metal oxides for solar thermal synthesis of hydrogen and CO Calisan A., Kincal S., ÜNER D.

248th National Meeting of the American-Chemical-Society (ACS), San-Francisco, Costa Rica, 10 - 14 August 2014, vol.248

#### **Supported Projects**

ÜNER D., ODABAŞI S., YAVUZYILMAZ E., KAHRAMAN O., HALVACI V., ASLAN M. Y., KAYA D., ÇALIŞAN A., Project Supported by Higher Education Institutions, Adsorplanmış moleküülerin NMR spektroskopisi ile incelenmesi, 2017 - 2017

ÜNER D., AKBAYRAK S., ASLAN M. Y., Project Supported by Higher Education Institutions, Rutenyum nanokümelerinin amonyak sentezinde katlizör olarak kullanımını incelenmesi, 2016 - 2016

ÜNER D., ATEŞ C., Project Supported by Higher Education Institutions, Karışık Yapılı Metal Oksitlerde Oksijen Ve Su

Adsorpsiyon-Desorpsiyon Özelliklerinin Karakterizasyonu, 2014 - 2015

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

ÜNER D., ASLAN M. Y., ATEŞ C., Project Supported by Higher Education Institutions, Ru/SBA-15 ve Kobalt-Oksit Sentezi için Kül Fırın Alımı, 2014 - 2014

ÜNER D., ASLAN M. Y., Project Supported by Higher Education Institutions, Soy metal amonyak sentezi katalizörlerinin hidrojenle zehirlenme mekanizmasının taşma olayları ile ilişkisinin incelenmesi, 2013 - 2013

ÜNER D., Project Supported by Higher Education Institutions, Gazların Katalizör Yüzeyine Adsorplanma Isılarının Mikrokalorimetre Yöntemi İle Tayini, 2012 - 2012

ÜNER D., Project Supported by Higher Education Institutions, Gaz Fazda Benzenin Katalitik Hidrojenlenmesi, Kinetik İncelenmesi Ve Mekanizmanın Aydınlatılması., 2011 - 2011

ÜNER D., Project Supported by Higher Education Institutions, Katalitik Tepkimelerin Gaz Fazında İncelenmesi, 2011 -2011

ÜNER D., Project Supported by Higher Education Institutions, Destekli değerli metal katalizörler üzerine adsorplanmış moleküllerin drıfts analizi karekterizasyonu., 2010 - 2010

### Activities in Scientific Journals

APPLIED CATALYSIS B: ENVIRONMENTAL, Committee Member, 2022 - Continues Catalysis Reviews-Science And Engineering, Committee Member, 2016 - Continues Catalysis Communications, Committee Member, 2010 - Continues

#### Memberships / Tasks in Scientific Organizations

INTERNATIONAL ASSOCIATION FOR CATALYSIS SOCIETIES IACS, Country Representative, 2012 - Continues, France EUROPEAN FEDERATION OF CATALYSIS EFCATS, Country Representative, 2007 - Continues, Netherlands Catalysis Society of Turkey, Board Member, 2006 - Continues, Turkey

#### Scientific Refereeing

Project Supported by Public Organizations in Other Countries, Spanish Government Ministry of Science and Innovation, Spain, May 2022

Horizon Europe Project, Horizon Europe Project, REA, Belgium, November 2021

H2020 Project, ERC H2020 European Research Council Project, european research council, Belgium, May 2018 H2020 Project, ERC H2020 European Research Council Project, european research council, Belgium, March 2018

#### **Metrics**

Publication: 127 Citation (WoS): 1850 Citation (Scopus): 1960 H-Index (WoS): 23 H-Index (Scopus): 24

## **Congress and Symposium Activities**

9th eastern mediterranean conference in Chemical engineering, Invited Speaker, Ankara, Turkey, 2018

## **Invited Talks**

Storage of Solar Energy in Chemical Bonds, Conference, 9th Eastern Medditerranean Chemical Engineering Conference, Turkey, September 2018

# Non Academic Experience

University of California Berkeley Orta Doğu Teknik Üniversitesi