

## Prof. SAİM ÖZKAR

### Personal Information

**Mobile Phone:** [+90 538 826 8560](tel:+905388268560)

**Office Phone:** [+90 312 210 3212](tel:+903122103212)

**Fax Phone:** [+90 312 210 3200](tel:+903122103200)

**Email:** [sozkar@metu.edu.tr](mailto:sozkar@metu.edu.tr)

**Web:** [https://](https://metu.edu.tr/~sozkar) <http://metu.edu.tr/~sozkar>

**Address:** ODTÜ Kimya Bölümü 06800 Ankara

### Research Areas

Inorganic Chemistry, Catalysis, Coordination Chemistry, Metal olefin complexes, Solid-State Chemistry, Organometallic Chemistry, Natural Sciences

### Academic Titles / Tasks

Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Chemistry, 1988 - Continues  
Associate Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Chemistry, 1982 - 1988

Assistant Professor, Middle East Technical University, Faculty of Arts and Sciences, Department of Chemistry, 1979 - 1982

### Advising Theses

ÖZKAR S., Ruthenium(0) nanoparticles supported on bare or silica coated ferrite as highly active, magnetically isolable and reusable catalyst for hydrogen generation from the hydrolysis of ammonia borane, Postgraduate, E.Sarıca (Student), 2019

ÖZKAR S., Rhodium (0) nanoparticles supported on nano oxide crystalline materials: Preparation, characterization and catalytic use in hydrogen generation from the methanolysis of ammonia borane, Doctorate, D.ÖZHAVA (Student), 2018

ÖZKAR S., Rhodium(0) nanoparticles supported on nano oxide crystalline materials: preparation, characterization and catalytic use in hydrogen generation from the methanolysis of ammonia borane /, Doctorate, D.Özhava (Student), 2018

ÖZKAR S., Ruthenium(0) nanoparticles supported on Hafnia: A highly active and long-lived catalyst in hydrolytic dehydrogenation of Ammonia Borane, Postgraduate, E.BETÜL (Student), 2016

ÖZKAR S., Ruthenium nanoparticles supported on nanotubes/nanowires: Highly active and long lived nanocatalysts in hydrolytic dehydrogenation of ammonia borane, Doctorate, S.AKBAYRAK (Student), 2016

ÖZKAR S., Ruthenium nanoparticles supported on nanotubes/nanowires: highly active and long lived nanocatalysts in hydrolytic dehydrogenation of ammonia borane /, Doctorate, S.Akbayrak (Student), 2016

ÖZKAR S., Ruthenium(0) nanoparticles supported on graphene: Preparation, characterization and catalytic use in hydrogen generation from hydrolysis of ammonia borane, Postgraduate, F.ASİYE (Student), 2015

ÖZKAR S., Poly(N-vinyl-2-pyrrolidone) stabilized nickel(0) nanoparticles as catalyst for hydrogen generation from the methanolysis of ammonia borane, Postgraduate, N.ZÜLAY (Student), 2015

ÖZKAR S., Preparation and determination of catalytic activities of group 8 and group 9 metal ion-exchanged zeolite Y catalysts in decomposition of nitrous oxide to sole nitrogen and oxygen, Doctorate, P.EDİNÇ (Student), 2014

ÖZKAR S., Preparation and determination of catalytic activities of group 8 and group 9 metal ion-exchanged zeolite Y

catalysts in decomposition of nitrous oxide to sole nitrogen and oxygen /, Doctorate, P.EDİNÇ(Student), 2014

ÖZKAR S., Poly(4-styrenesulfonic acid-co-maleic acid) stabilized nickel(0) nanoparticles: Highly active and cost effective catalyst in hydrogen generation from the hydrolysis of hydrazine borane, Postgraduate, S.ŞENCANLI(Student), 2013

ÖZKAR S., Rhodium(0) nanoparticles supported on hydroxyapatite: preparation, characterization and catalytic use in hydrogen generation from hydrolysis of hydrazine borane and ammonia borane, Postgraduate, D.ÇELİK(Student), 2012

ÖZKAR S., Rhodium(0) nanoparticles supported on hydroxyapatite: Preparation, characterization and catalytic use in the hydrogen generation from the hydrolysis of hydrazine borane and ammonia borane, Postgraduate, D.ÇELİK(Student), 2012

ÖZKAR S., Synthesis and characterization of osmium(0) nanoclusters and their catalytic use in aerobic alcohol oxidation, Postgraduate, S.AKBAYRAK(Student), 2011

ÖZKAR S., One-pot synthesis and characterization of colloidal robust rhodium(0) nanoparticles catalyst: Exceptional activity in the dehydrogenation of ammonia borane for chemical hydrogen storage, Postgraduate, T.AYVALI(Student), 2011

ÖZKAR S., Ruthenium(III) acetylacetonate as catalyst precursor in the dehydrogenation of dimethylamine-borane, Postgraduate, E.ÜNEL(Student), 2011

ÖZKAR S., Preparation and characterization of zeolite confined cobalt(0) nanoclusters as catalyst for hydrogen generation from the hydrolysis of sodium borohydride and ammonia borane, Doctorate, M.RAKAP(Student), 2011

ÖZKAR S., Water soluble polymer stabilized iron(0) nanoclusters: A cost effective and magnetically recoverable catalyst in hydrogen generation from the hydrolysis of ammonia borane, Postgraduate, M.DİNÇ(Student), 2011

ÖZKAR S., In-situ generation of poly(n-vinyl-2-pyrrolidone)-stabilized Palladium(0) and Ruthenium(0) nanoclusters as catalysts for hydrogen generation from the methanolysis of ammonia-borane, Postgraduate, H.ERDOĞAN(Student), 2010

ÖZKAR S., Homogeneous catalysts for the hydrolysis of sodium borohydride: Synthesis, characterization and catalytic use, Doctorate, M.MASJEDİ(Student), 2010

ÖZKAR S., Synthesis and characterization of water soluble polymer stabilized transition metal(0) nanoclusters as catalyst in hydrogen generation from the hydrolysis of sodium borohydride and ammonia borane, Doctorate, Ö.METİN(Student), 2010

ÖZKAR S., The preparation and characterization of zeolite confined rhodium(0) nanoclusters: A heterogeneous catalyst for the hydrogen generation from the methanolysis of ammonia-borane, Postgraduate, S.ÇALIŞKAN(Student), 2010

ÖZKAR S., The preparation and characterization of zeolite framework stabilized ruthenium(0) nanoclusters; a superb catalyst for the hydrolysis of sodium borohydride and the hydrogenation of aromatics under mild conditions, Doctorate, M.ZAHMAKIRAN(Student), 2010

ÖZKAR S., Effect of stabilizer on the catalytic activity of cobalt(0) nanoclusters catalyst in the hydrolysis of sodium borohydride, Postgraduate, E.KOÇAK(Student), 2009

ÖZKAR S., Effect of stabilizer on the catalytic activity of Kobalt(0) Nanoclusters catalyst in the hydrolysis of Sodium Borohydride, Postgraduate, E.Koçak(Student), 2009

ÖZKAR S., Testing the ruthenium(III) acetylacetonate and 1,2-bis(diphenylphosphino)ethane system as homogeneous catalyst in the hydrolysis of sodium borohydride, Postgraduate, T.DEMİRALP(Student), 2008

ÖZKAR S., Synthesis and characterization of pentacarbonylacryloylferrocene tungsten (0), Postgraduate, D.AYŞE(Student), 2006

ÖZKAR S., Ruthenium(III) acetylacetonate; A homogeneous catalyst in the hydrolysis of sodium borohydride, Postgraduate, E.KEÇELİ(Student), 2006

ÖZKAR S., Synthesis and characterization of Pentacarbonylacryloylferrocene tungsten(0) complex, Postgraduate, D.Ayşe(Student), 2006

ÖZKAR S., Synthesis and characterization of hydrogenphosphate-stabilized nikel(0) nanoclusters as catalyst for the hydrolysis of sodium borohydride, Postgraduate, Ö.Metin(Student), 2006

ÖZKAR S., Synthesis and characterization of hydrogenphosphate-stabilized nickel(0) nanoclusters as catalyst for the hydrolysis of sodium borohydride, Postgraduate, Ö.METİN(Student), 2006

ÖZKAR S., Synthesis and characterization of tetracarbonyl[N-N'-bis(ferrocenylmethylene)ethylenediamine] molybdenum(0) complex, Postgraduate, F.SANEM(Student), 2005

ÖZKAR S., Synthesis and characterization of tetracarbonyl[6-ferrocenyl-2,2'-bipyridine]tungsten (0) complex,

Postgraduate, P.EDİNÇ(Student), 2005

ÖZKAR S., Synthesis and characterization of carbonyl-tungsten(0) complexes of [N,N'-bis(ferrocenylmethylene)ethylenediamine], Postgraduate, C.KAVAKLI(Student), 2005

ÖZKAR S., Tetracarbonyl(N,N'-bis(ferrocenylmethylene) ethylenediamine) chromium(0), Cr(CO)<sub>4</sub>(bfeda): synthesis and characterization, Postgraduate, C.Akyol(Student), 2005

ÖZKAR S., Synthesis and characterization tetracarbonyl[n,n'-bis(ferrocenylmethylene ethylenediamine)] molybdenum(0) complex, Postgraduate, F.Sanem(Student), 2005

ÖZKAR S., Synthesis and characterization carbonyl-tungsten(0) complexes [n,n'-bis(ferrocenylmethylene) ethylenediamine], Postgraduate, C.Kavaklı(Student), 2005

ÖZKAR S., Tetracarbonyl [N,N'-bis(ferrocenylmethylene) ethylenediamine] chromium(0), Cr (CO)<sub>4</sub> (BFEDA): Synthesis and characterization, Postgraduate, C.AKYOL(Student), 2005

ÖZKAR S., Zinc borate production in a batch reactor, Postgraduate, D.GÜRHAN(Student), 2005

ÖZKAR S., Synthesis and characterization of ruthenium (0) nanoparticles as catalyst in the hydrolysis of sodium borohydride, Postgraduate, M.ZAHMAKIRAN(Student), 2005

ÖZKAR S., Synthesis and characterization of ruthenium(0) metal nanoparticles as catalyst in the hydrolysis of sodium borohydride, Postgraduate, M.Zahmakıran(Student), 2005

ÖZKAR S., Synthesis and characterization of tetracarbonyl(6-ferrocenyl-2.2'-bipyridine)tungsten(0) complex, Postgraduate, P.Edinç(Student), 2005

ÖZKAR S., KAYRAN İŞÇİ C., Synthesis and characterization of tetracarbonylpyrazinetrimethylphosphitetungsten(0) complexes, Postgraduate, F.ALPER(Student), 2004

ÖZKAR S., Substitution kinetics of the pentacarbonylbis (trimethylsilyl) ethynetungsten (0) with triphenylbismuthine, Postgraduate, E.BAYRAM(Student), 2004

ÖZKAR S., Substitution kinetics of the pentacarbonylbis(trimethylsilyl)ethynetungsten(0) with triphenylbismuhine, Postgraduate, E.Bayram(Student), 2004

ÖZKAR S., Pentacarbonyl (2-ferrocenylpyridine) metal (0) complexes of group 6, Postgraduate, G.YAMAN(Student), 2002

ÖZKAR S., Synthesis and characterization of pentacarbonyl (vinylferrocene) metal (0) complexes : (Metal:chromium, molybdenum, tungsten), Postgraduate, N.Demir(Student), 2002

ÖZKAR S., Synthesis and characterization of tungsten carbonyl complexes containing an alkyne and a trialkylphosphine ligands, Postgraduate, O.DEMİRCAN(Student), 2002

ÖZKAR S., Synthesis and characterization of pentacarbonyl (vinylferrocene) metal (0) complexes (metal=chromium, molybdenum, tungsten), Postgraduate, N.DEMİR(Student), 2002

ÖZKAR S., Pentacarbonyl (2-ferrocenylpyridine) metal (0) complexes of group 6, Postgraduate, G.Yaman(Student), 2002

ÖZKAR S., Alkene and alkyne derivatives of group 6 metal carbonyls: Synthesis, structure and reactivity, Doctorate, S.SALDAMLI(Student), 2001

ÖZKAR S., Synthesis and characterization of sodium chromium silicate pigment, Postgraduate, Ö.AŞKIN(Student), 2001

ÖZKAR S., Kinetic study of the reaction between hydroxyl-terminated polybutadiene and isophorone diisocyanate in toluene by fourier transform infrored spectroscopy, Postgraduate, A.SERENAY(Student), 2000

ÖZKAR S., Kinetic study of the reaction between Hydroxyl terminated Polybutadiene and Isophorone Diisocyanate in Toluene by Fourier transform infrared spectroscopy, Postgraduate, A.Serenay(Student), 2000

ÖZKAR S., KAYRAN İŞÇİ C., Thermal catalytic hydrosilation of cojugated dienes with triethylsilane in the presence of tricarbonylarenemetal complexes (metal: chromium, molybdenum, tungsten), Postgraduate, P.ROUZİ(Student), 2000

ÖZKAR S., Substitution kinetics of cis-cyclooctene in pentacarbonyl (cis-cyclooctene) chromium (o) by tetracyanoethylene, Postgraduate, F.KOZANOĞLU(Student), 1999

ÖZKAR S., Thermal, physical, and curing characteristics of GAP based binders, Postgraduate, H.KAŞIKÇI(Student), 1999

ÖZKAR S., Kinetics of polyurethane formation reaction between glycidyl acide polymer (GAP) and desmodur N-100, Postgraduate, S.KESKİN(Student), 1999

ÖZKAR S., Kinetics of polyurethane formation reaction between glycidyl azide polymer (GAP) and desmodur N-100, Postgraduate, S.Keskin(Student), 1999

ÖZKAR S., Substitution kinetics of CIS-Cyclooctene in pentacarbonyl (CIS-Cyclooctene) Chromium(0) by tetracyanoethylene, Postgraduate, F.Kozanoğlu(Student), 1999

ÖZKAR S., Substitution kinetics of norbornodiene in tetracarbonyl (norbornadiene) metal (zero) (metal: chromium, molybdenum, tungsten) by Bis(diphenylphosphino) alkane, Doctorate, A.TEKKAYA(Student), 1997

ÖZKAR S., Substitution kinetics of norbornadiene in tetracarbonyl (norbornadiene) metal (zero) (metal : chromium, molybdenum, tungsten) by bis (diphenylphosphino) alkane, Doctorate, A.Tekkaya(Student), 1997

EROĞLU İ., ÖZKAR S., Crystallization of ammonium perchlorate, Postgraduate, S.Ündal(Student), 1997

ÖZKAR S., Crystallization of ammonium perchlorate, Postgraduate, S.TANRIKULU(Student), 1997

ÖZKAR S., Substitution kinetics of cyclooctadiene in tetracarbonyl (cyclooctadiene) molybdenum(zero) by tetraalkyldiphosphinedisulfide, Postgraduate, Ö.Öztürk(Student), 1997

ÖZKAR S., Substitution kinetics of cyclooctadiene in tetracarbonyl (cyclooctadiene) molybdenum (zero) by tetraalkyldiphosphinedisulfide, Postgraduate, Ö.ÖZTÜRK(Student), 1997

YILMAZER Ü., ÖZKAR S., Thermal and mechanical properties of rocket motor liners, Postgraduate, S.Benli(Student), 1997

ÖZKAR S., Synthesis and electrochemical study of tricarbonylcyclooctatetraene metal (0) complexes of the group 6 elements, Postgraduate, G.Atınc(Student), 1996

ÖZKAR S., Synthesis and electrochemistry of tricarbonyl cyclooctatetraenemetal (0) complexes of group 6 elements, Postgraduate, G.ATINÇ(Student), 1996

ÖZKAR S., Synthesis of the new burning rate modifier for lamprite rocket propellants, Postgraduate, A.AKKAYA(Student), 1996

BAYRAMLI E., ÖZKAR S., An investigation of the liner-propellant interface in HTPB solid rocket fuels, Postgraduate, S.Burak(Student), 1995

EROĞLU İ., ÖZKAR S., Synthesis of ammonium perchlorate, Postgraduate, A.Kadir(Student), 1995

ÖZKAR S., Substitution kinetics of cyclooctadiene in tetracarbonyl(cyclooctadiene) metal (zero)metal chromium, molybdenum, tungsten) by bis (diphenylphosphino) methane, Postgraduate, S.Saldamlı(Student), 1995

ÖZKAR S., Substitution kinetics of tetracarbonyl (n4-1,5-cyclooctadiene) molybdenum (0) by bis (diphenylphosphino) methane, Postgraduate, A.TEKKAYA(Student), 1993

ÖZKAR S., Synthesis and electrochemical study of tetracarbonyl (n1:1-diene) metal (0) complexes of the group vIb elements, Postgraduate, A.AYGÜNEY(Student), 1993

ÖZKAR S., Synthesis and electrochemical study of tetracarbonyl-(n2:2-diene) metal (0) complexes of the group vIb elements, Postgraduate, A.Aygüney(Student), 1993

ÖZKAR S., İŞÇİ H., Synthesis and spectroscopic investigations of some carbonyl-olefin-metal (0) complexes of group 6B elements, Doctorate, İ.A(Student), 1992

ÖZKAR S., Synthesis, stereochemistry and reactivity of diimine-carbonylmetal (0) complexes of 6B elements, Doctorate, C.Kayran(Student), 1991

ÖZKAR S., Synthesis, stereochemistry and reactivity of diimine-carbonylmetal (0) complexes of 6B elements, Doctorate, C.KAYRAN(Student), 1991

ÖZKAR S., Synthesis of -bis (dialkylphosphino) alkanebis (pentacarbonylmetal (0)) complexes of the 6B-elements, Doctorate, Z.ÖZER(Student), 1990

ÖZKAR S., Synthesis of u-bis(dialkylphosphino) alkane-bis(pentacarbonylmetal(0) ) complexes of the 6B-elements, Doctorate, Z.Özer(Student), 1990

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

- I. **Recent advances in heterogeneous catalysts for the effective electroreduction of carbon dioxide to carbon monoxide**  
Eren E. O., ÖZKAR S.  
Journal of Power Sources, vol.506, 2021 (Journal Indexed in SCI)
- II. **Cobalt ferrite supported platinum nanoparticles: Superb catalytic activity and outstanding reusability in hydrogen generation from the hydrolysis of ammonia borane**  
Akbarak S., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.596, pp.100-107, 2021 (Journal Indexed in SCI)
- III. **Magnetically Isolable Pt0/Co3O4 Nanocatalysts: Outstanding Catalytic Activity and High Reusability in**

## **Hydrolytic Dehydrogenation of Ammonia Borane**

Akbayrak S., ÖZKAR S.

ACS Applied Materials and Interfaces, vol.13, no.29, pp.34341-34348, 2021 (Journal Indexed in SCI)

- IV. **Magnetically separable transition metal nanoparticles as catalysts in hydrogen generation from the hydrolysis of ammonia borane**  
ÖZKAR S.  
International Journal of Hydrogen Energy, vol.46, no.41, pp.21383-21400, 2021 (Journal Indexed in SCI)
- V. **A review on platinum(0) nanocatalysts for hydrogen generation from the hydrolysis of ammonia borane**  
ÖZKAR S.  
DALTON TRANSACTIONS, 2021 (Journal Indexed in SCI)
- VI. **Rhodium(0), Ruthenium(0) and Palladium(0) nanoparticles supported on carbon-coated iron: Magnetically isolable and reusable catalysts for hydrolytic dehydrogenation of ammonia borane**  
Akbayrak S., ÇAKMAK G., ÖZTÜRK T., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.46, no.25, pp.13548-13560, 2021 (Journal Indexed in SCI)
- VII. **Tungsten(VI) oxide supported rhodium nanoparticles: Highly active catalysts in hydrogen generation from ammonia borane**  
Akbayrak S., Tonbul Y., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.46, no.27, pp.14259-14269, 2021 (Journal Indexed in SCI)
- VIII. **Highly active, robust and reusable micro-/mesoporous TiN/Si<sub>3</sub>N<sub>4</sub> nanocomposite-based catalysts for clean energy: Understanding the key role of TiN nanoclusters and amorphous Si<sub>3</sub>N<sub>4</sub> matrix in the performance of the catalyst system**  
Lale A., Mallmann M. D. , Tada S., Bruma A., ÖZKAR S., Kumar R., Haneda M., Machado R. A. F. , Iwamoto Y., Demirci U. B. , et al.  
APPLIED CATALYSIS B-ENVIRONMENTAL, vol.272, 2020 (Journal Indexed in SCI)
- IX. **Ceria Supported Nickel(0) Nanoparticles: A Highly Active and Low Cost Electrocatalyst for Hydrogen Evolution Reaction**  
DEMİR ARABACI E., ÖNAL A. M. , ÖZKAR S.  
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.167, no.10, 2020 (Journal Indexed in SCI)
- X. **Magnetically Separable Rh-0/Co<sub>3</sub>O<sub>4</sub> Nanocatalyst Provides over a Million Turnovers in Hydrogen Release from Ammonia Borane**  
Akbayrak S., Tonbul Y., ÖZKAR S.  
ACS SUSTAINABLE CHEMISTRY & ENGINEERING, vol.8, no.10, pp.4216-4224, 2020 (Journal Indexed in SCI)
- XI. **Transition metal nanoparticle catalysts in releasing hydrogen from the methanolysis of ammonia borane**  
ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.45, no.14, pp.7881-7891, 2020 (Journal Indexed in SCI)
- XII. **Synthesis of zinc borate using water soluble additives: Kinetics and product characterization**  
ÇAKAL G. Ö. , Baltacı B., BAYRAM G., ÖZKAR S., EROĞLU İ.  
JOURNAL OF CRYSTAL GROWTH, vol.533, 2020 (Journal Indexed in SCI)
- XIII. **Particle Size Distributions via Mechanism-Enabled Population Balance Modeling**  
Handwerk D. R. , Shipman P. D. , Whitehead C. B. , ÖZKAR S., Finke R. G.  
JOURNAL OF PHYSICAL CHEMISTRY C, vol.124, no.8, pp.4852-4880, 2020 (Journal Indexed in SCI)
- XIV. **Dust Effects on Ir(0)(n) Nanoparticle Formation Nucleation and Growth Kinetics and Particle Size-Distributions: Analysis by and Insights from Mechanism-Enabled Population Balance Modeling**  
Handwerk D. R. , Shipman P. D. , ÖZKAR S., Finke R. G.  
LANGMUIR, vol.36, no.6, pp.1496-1506, 2020 (Journal Indexed in SCI)
- XV. **Mechanism-Enabled Population Balance Modeling of Particle Formation en Route to Particle Average Size and Size Distribution Understanding and Control**  
Handwerk D. R. , Shipman P. D. , Whitehead C. B. , ÖZKAR S., Finke R. G.  
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.141, no.40, pp.15827-15839, 2019 (Journal Indexed in SCI)

- XVI. **Ceria supported ruthenium nanoparticles: Remarkable catalyst for H<sub>2</sub> evolution from dimethylamine borane**  
KARABOĞA S., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.48, pp.26296-26307, 2019 (Journal Indexed in SCI)
- XVII. **Magnetically separable rhodium nanoparticles as catalysts for releasing hydrogen from the hydrolysis of ammonia borane**  
Tonbul Y., Akbayrak S., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.553, pp.581-587, 2019 (Journal Indexed in SCI)
- XVIII. **LaMer's 1950 Model for Particle Formation of Instantaneous Nucleation and Diffusion-Controlled Growth: A Historical Look at the Model's Origins, Assumptions, Equations, and Underlying Sulfur Sol Formation Kinetics Data**  
Whitehead C. B., ÖZKAR S., Finke R. G.  
CHEMISTRY OF MATERIALS, vol.31, no.18, pp.7116-7132, 2019 (Journal Indexed in SCI)
- XIX. **Nanoalumina supported palladium(0) nanoparticle catalyst for releasing H<sub>2</sub> from dimethylamine borane**  
KARABOĞA S., ÖZKAR S.  
APPLIED SURFACE SCIENCE, vol.487, pp.433-441, 2019 (Journal Indexed in SCI)
- XX. **Nanoparticle Formation Kinetics and Mechanistic Studies Important to Mechanism-Based Particle-Size Control: Evidence for Ligand-Based Slowing of the Autocatalytic Surface Growth Step Plus Postulated Mechanisms**  
ÖZKAR S., Finke R. G.  
JOURNAL OF PHYSICAL CHEMISTRY C, vol.123, no.22, pp.14047-14057, 2019 (Journal Indexed in SCI)
- XXI. **Immobilized Polyoxomolybdate Nanoclusters on Functionalized SBA-15: Green Access to Efficient and Recyclable Nanocatalyst for the Epoxidation of Alkenes**  
Bagherzadeh M., Hosseini H., AKBAYRAK S., ÖZKAR S.  
CHEMISTRYSELECT, vol.4, no.19, pp.5911-5917, 2019 (Journal Indexed in SCI)
- XXII. **Group 4 oxides supported Rhodium(0) catalysts in hydrolytic dehydrogenation of ammonia borane**  
Tonbul Y., Akbayrak S., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.44, no.27, pp.14164-14174, 2019 (Journal Indexed in SCI)
- XXIII. **Ceria supported ruthenium(0) nanoparticles: Highly efficient catalysts in oxygen evolution reaction**  
DEMİR ARABACI E., AKBAYRAK S., ÖNAL A. M., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.534, pp.704-710, 2019 (Journal Indexed in SCI)
- XXIV. **Nanoceria supported rhodium(0) nanoparticles as catalyst for hydrogen generation from methanolysis of ammonia borane**  
Ozhava D., ÖZKAR S.  
APPLIED CATALYSIS B-ENVIRONMENTAL, vol.237, pp.1012-1020, 2018 (Journal Indexed in SCI)
- XXV. **Titania, zirconia and hafnia supported ruthenium(0) nanoparticles: Highly active hydrogen evolution catalysts**  
DEMİR ARABACI E., AKBAYRAK S., ÖNAL A. M., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.531, pp.570-577, 2018 (Journal Indexed in SCI)
- XXVI. **Mesoporous MnCo<sub>2</sub>O<sub>4</sub> with efficient peroxidase mimetic activity for detection of H<sub>2</sub>O<sub>2</sub>**  
Vetr F., Moradi-Shoeili Z., ÖZKAR S.  
INORGANIC CHEMISTRY COMMUNICATIONS, vol.98, pp.184-191, 2018 (Journal Indexed in SCI)
- XXVII. **"Weakly Ligated, Labile Ligand" Nanoparticles: The Case of Ir(0)(n)center dot(H+Cl)(m)**  
Mondloch J. E., ÖZKAR S., Finke R. G.  
ACS OMEGA, vol.3, no.11, pp.14538-14550, 2018 (Journal Indexed in SCI)
- XXVIII. **Ammonia borane as hydrogen storage materials**  
AKBAYRAK S., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.40, pp.18592-18606, 2018 (Journal Indexed in SCI)
- XXIX. **Preparation and characterization of a new CdS-NiFe<sub>2</sub>O<sub>4</sub>/reduced graphene oxide photocatalyst and its use for degradation of methylene blue under visible light irradiation**

- Bagherzadeh M., Kaveh R., ÖZKAR S., AKBAYRAK S.  
RESEARCH ON CHEMICAL INTERMEDIATES, vol.44, no.10, pp.5953-5979, 2018 (Journal Indexed in SCI)
- XXX. **Oxidation of o-phenylenediamine to 2,3-diaminophenazine in the presence of cubic ferrites  $MFe_2O_4$  ( $M = Mn, Co, Ni, Zn$ ) and the application in colorimetric detection of  $H_2O_2$**   
Vetr F., Moradi-Shoeili Z., ÖZKAR S.  
APPLIED ORGANOMETALLIC CHEMISTRY, vol.32, no.9, 2018 (Journal Indexed in SCI)
- XXXI. **Ceria supported manganese(0) nanoparticle catalysts for hydrogen generation from the hydrolysis of sodium borohydride**  
DUMAN S., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.32, pp.15262-15274, 2018 (Journal Indexed in SCI)
- XXXII. **Ruthenium(0) nanoparticles supported on silica coated  $Fe_3O_4$  as magnetically separable catalysts for hydrolytic dehydrogenation of ammonia borane**  
Sarica E., AKBAYRAK S., ÖZKAR S.  
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.32, pp.15124-15134, 2018 (Journal Indexed in SCI)
- XXXIII. **Synthesis, characterization, photophysical and electrochemical properties of a new non - planar perylene diimide with electron donating substituent**  
Mostafanejad S. M. , Bodapati J. B. , ÖZKAR S., İCİL H.  
OPTICAL MATERIALS, vol.82, pp.30-38, 2018 (Journal Indexed in SCI)
- XXXIV. **Nanozirconia supported ruthenium(0) nanoparticles: Highly active and reusable catalyst in hydrolytic dehydrogenation of ammonia borane**  
Tonbul Y., AKBAYRAK S., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.513, pp.287-294, 2018 (Journal Indexed in SCI)
- XXXV. **Nanoceria-Supported Ruthenium(0) Nanoparticles: Highly Active and Stable Catalysts for Hydrogen Evolution from Water**  
DEMİR ARABACI E., Akbayrak S., ÖNAL A. M. , AKBAYRAK S.  
ACS APPLIED MATERIALS & INTERFACES, vol.10, no.7, pp.6299-6308, 2018 (Journal Indexed in SCI)
- XXXVI. **Nickel(0) nanoparticles supported on bare or coated cobalt ferrite as highly active, magnetically isolable and reusable catalyst for hydrolytic dehydrogenation of ammonia borane**  
Manna J., AKBAYRAK S., ÖZKAR S.  
JOURNAL OF COLLOID AND INTERFACE SCIENCE, vol.508, pp.359-368, 2017 (Journal Indexed in SCI)
- XXXVII. **Silver Nanoparticles Synthesized by Microwave Heating: A Kinetic and Mechanistic Re-Analysis and Re-Interpretation**  
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## Supported Projects

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