Murat Kaya, Ph.D.

Atılım University

Department of Chemical Engineering and Applied Chemistry

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**PERSONAL**

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| Date of Birth | 10/09/1978 |
| **Place of Birth** | Ankara |

# EDUCATION

|  |  |
| --- | --- |
| 2004-2011 | Middle East Technical University, Chemistry, Ph.D. |
| 2002-2004 | Middle East Technical University, Chemistry, M.S. |
| 1997-2002 | Middle East Technical University, Chemistry, B.S.  |

# ACADEMIC POSITIONS

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| --- | --- |
| 09/2013- | Assoc. Prof., Department of Chemical Engineering and Applied Chemistry, Atılım University, Ankara,TURKEY |
| **04/2012/-04/2013** | Postdoctoral Research Associate, Department of Chemical Engineering,Massachusetts Institute of Technology (MIT), Cambridge, MA, USA  |
| **03/2011-03/2012** | Postdoctoral Research Fellow, Chemistry Department, Middle East Technical University (METU), Ankara, Turkey |

**RESEARCH INTERESTS**

|  |  |
| --- | --- |
|  | Photocatalytic Materials for Environmental Remediation and Energy |
|  | Assembling Nanostructures for Effective Catalysis |
|  | Preparation of Magnetic Nanoparticles, Magnetic Separation, Magnetically Separable Catalysts |
|  | Hydrogen Storage and Evolution |
|  | Preparation of Novel Nanostructures with High Lihgt to Heat Conversion and Investigation of their Fhotothermal Efficiencies |
|  | Preparation and Surface Modification of Noble Metal Nanoparticles with Different Structures to Monitor Biologically and Chemically Important Molecules, (Sensor Applications)  |

**PUBLICATIONS**

|  |  |
| --- | --- |
|  | A Bulut, M Yurderi, M Kaya, M Aydemir, A Baysal, F Durap, M Zahmakiran, Amine Functionalized Graphene Nanosheets Supported PdAuNi Alloy Nanoparticles: Efficient Nanocatalyst for the Formic Acid Dehydrogenation, , New Journal of Chemistry, 42, 16103-16114, 2018  |
|  | A Bulut, M Yurderi, O Alal, H Kivrak, M Kaya, M Zahmakiran, Synthesis, characterization, and enhanced formic acid electrooxidation activity of carbon supported MnOx promoted Pd nanoparticles, Advanced Powder Technology, 29, 6, 1409-1416,2018 |
|  | I B Baguc, I E Ertas, M Yurderi, A Bulut, Zahmakiran, M Kaya, Nanocrystalline Metal Organic Framework (MIL-101) Stabilized Copper Nanoparticles: Highly Efficient Nanocatalyst for the Hydrolytic Dehydrogenation of Methylamine Borane, Inorganica Chimica Acta, 483, 431-439, 2018 |
|  | IB Baguc, M Celebi, K Karakas, IE Ertas, MN Keles, M Kaya, M Zahmakiran, Nanohydrotalcite Supported Ruthenium Nanoparticles: Highly Efficient Heterogeneous Catalyst for the Oxidative Valorization of Lignin Model Compounds, Chemistry Select, 2 (31), 10191-10198, 2017 |
|  | B Cabir, M Yurderi, N Caner, MS Agirtas, M Zahmakıran, M Kaya, Methylene blue photocatalytic degradation under visible light irradiation on copper phthalocyanine-sensitized TiO2 nanopowders, , Materials Science and Engineering: B, 224 ,9-17,2017 |
|  | M Celebi, K Karakas, IE Ertas, M Kaya, M Zahmakiran, Palladium Nanoparticles Decorated Graphene Oxide: Active and Reusable Nanocatalyst for the Catalytic Reduction of Hexavalent Chromium (VI), ChemistrySelect,2(27),8312-8319,2017 |
|  | I B Baguc, S Saglam, I E Ertas, M N Keles, M Celebi, M Kaya, M Zahmakiran, Keggin Type‐Polyoxometalate Decorated Ruthenium Nanoparticles: Highly Active and Selective Nanocatalyst for the Oxidation of Veratryl Alcohol as a Lignin Model Compound, ChemistrySelect 2(8) 2487-2494, 2017 |
|  | N Caner, A Bulut, M Yurderi, I E Ertas, H Kivrak, M Kaya, M Zahmakiran, Atomic layer deposition-SiO2 layers protected PdCoNi nanoparticles supported on TiO2 nanopowders: Exceptionally stable nanocatalyst for the dehydrogenation of formic acid’’, Applied Catalysis B: Environmental, 210,470-483, 2017 |
|  | Y Karatas, A Bulut, M Yurderi, I E Ertas, O Alal, M Gulcan, M Celebi, H Kivrak, M Kaya, M Zahmakiran, PdAu-MnOx nanoparticles supported on amine-functionalized SiO2 for the room temperature dehydrogenation of formic acid in the absence of additives, Applied Catalysis B: Environmental 180,586–595,2016 |
|  | A Bulut, M Yurderi, I E Ertas, M Celebi, M Kaya, M Zahmakiran, Carbon dispersed copper-cobalt alloy nanoparticles: A costeffective heterogeneous catalyst with exceptional performance in the hydrolytic dehydrogenation of ammonia-borane’’ Applied Catalysis B: Environmental 180, 121–129,2016 |
|  | M Celebi, M Yurderi, A Bulut, M Kaya, M Zahmakiran, Palladium nanoparticles supported on amine-functionalized SiO2for the catalytic hexavalent chromium reduction, Applied Catalysis B: Environmental 180,53–64,2016 |
|  | A Bulut, M Yurderi, Y Karatas, Z Say, H Kivrak, M Kaya, M Gülcan, E Ozensoy, M Zahmakiran, MnOx-Promoted PdAg Alloy Nanoparticles for the Additive-Free Dehydrogenation of Formic Acid at Room Temperature, ACS Catal., 5 (10),6099–6110,2015 |
|  | M Yurderi, A Bulut, N Caner, M Celebi, M Kaya, M Zahmakiran, Amine grafted silica supported CrAuPd alloy nanoparticles: superb heterogeneous catalysts for the room temperature dehydrogenation of formic acid, Chem. Commun., , 51, 11417- 11420, 2015 |
|  | G Aygar, M Kaya, N Özkan, S Kocabıyık, M Volkan, Preparation of silica coated cobaltferrite magnetic nanoparticles for the purification of histidine-tagged proteins, Journal of Physics and Chemistry of Solids, , 87, 64-71, 2015 |
|  | M Yurderi, A Bulut, l E Ertaş, M Zahmakiran, M Kaya, Supported Copper-Copper Oxide Nanoparticles as Active, Stable and Low-Cost Catalyst in the Methanolysis of Ammonia-Borane for Chemical Hydrogen Storage, Applied Catalysis B: Environmental, 165,169-175,2015 |
|  | A Bulut, M Yurderi, Y Karatas, M Zahmakiran, H Kivrak, M Gulcan, M Kaya, Pd-MnOxnanoparticles dispersed on amine-grafted silica: Highlyefficient nanocatalyst for hydrogen production from additive-freedehydrogenation of formic acid under mild conditions, Applied Catalysis B: Environmental, 164, 324-333,2015 |
|  | S Akbayrak, M Kaya, M Volkan, S Özkar, Ruthenium(0) nanoparticles supported on magnetic silica coated cobalt ferrite: Reusable catalyst in hydrogen generation from the hydrolysis of ammonia-borane, Journal of Molecular Catalysis A: Chemical, 394,253-261,2014 |
|  | M Yurderi, A, M Zahmakiran, M Kaya, Carbon supported trimetallic PdNiAg nanoparticles as highly active, selective and reusable catalyst in the formic acid decomposition, Applied Catalysis B-Environmental, 514,160–161,2014 |
|  | Y Karatas, M Yurderi, M Gulcan, M Zahmakiran, M Kaya, Palladium(0) Nanoparticles Supported on Hydroxyapatite Nanospheres: Active, Long- Lived and Reusable Nanocatalyst for Hydrogen Generation from the Dehydrogenation of Aqueous Ammonia-Borane Solution, Journal of Nanoparticle Research, 16,2547(1-12),2014 |
|  | H Durak, M Gulcan, MZahmakiran, S Ozkar, M Kaya,Hydroxyapatite-nanosphere supported ruthenium(0) nanoparticle catalyst for hydrogen generation from ammonia-borane solution: kinetic studies for nanoparticle formation and hydrogen evolution, RSC Advances, , 4, 28947- 28955,2014 |
|  | S Akbayrak, M Kaya, M Volkan, S Özkar, Palladium(0) nanoparticles supported on silica-coated cobalt ferrite:A highly active, magnetically isolable and reusable catalyst forhydrolytic dehydrogenation of ammonia borane’’Applied Catalysis B: Environmental, 147, 387-393, 2014 |
|  | Ü Doğan, M Kaya, A Cihaner, M Volkan, Ag nanostructures on a Poly(3,4-ethylenedioxythiophene) Film Prepared with Electrochemical Route: A Controllable Roughened SERS Substrate with High Repeatability and Stability, Electrochimica Acta, 85, 220-227, 2012 |
|  | M Kaya, M Volkan, New Approach for the Surface Enhanced Resonance Raman Scattering (SERRS) Detection of Dopamine at Picomolar (pM) Levels in the Presence of Ascorbic Acid, Analytical Chemistry,84(18), 7729-7735,2012 |
|  | M Kaya, M Zahmakiran, M Volkan, S Ozkar, Copper(0) Nanoparticles Supported on Silica-Coated Cobalt Ferrite Magnetic Particles: Cost Effective Catalyst in the Hydrolysis of Ammonia-Borane with an Exceptional Reusability Performance, ACS Applied Materials & Interfaces, 4(8), 3866-3873,2012 |
|  | M Kaya, M Volkan, Germanium Determination by Flame Atomic Absorption Spectrometry: An Increased Vapor Pressure-Chloride Generation System,Talanta, 2011, 84, 1, 122 |
|  | B Köksel, M Kaya, A Cihaner, M Volkan, A M Önal, Synthesis of N-Polyethereal Polypyrroles and Their Application for the Preconcentration of Rare Earth Ions, J. App. Poly. Sci., 108, 2707-2711,2008 |
|  | B Tural, M Kaya, N Özkan, M Volkan, Preparation and Characterization of Ni-NTA Bearing PMAA Coated Superparamagnetic Magnetite Nanoparticles, J. Nanosci. Nanotech., 8, 695-701, 2008 |
|  | S Karabıçak, M Kaya, T Vo-Dinh, M Volkan, Silver Nanoparticle-doped Polyvinyl Alcohol Coating as a Medium for Surface-enhanced Raman Scattering Analysis, J. Nanosci. Nanotech., 8, 955-960, 2008 |

**PROJECTS**

|  |  |
| --- | --- |
|  | Eşzamanlı Çevre Islahına ve Hidrojen Gazı Üretimine Yönelik Çok Fonksiyonlu Fotokatalitik Nanokompozit Malzemelerin Hazırlanması, TÜBİTAK 1001, 115Z550 |
|  | 18f-Fdg Nin Pet-Mr Görüntüleme Uygulamalarında Multi-Modal Görüntüleme Ajanı Olarak Kullanılmasına Yönelik Manyetik Nanoparçacıkların Hazırlanması, TÜBİTAK 1001, 215Z238 |
|  | Geniş yüzey yüksek kalite organik ince film kaplama, TÜBİTAK 2232, 117C020,  |
|  | Yakın Kızılötesi Bölgede Yüksek Işık-Isı Çevrimine Sahip Özgün Nanoyapıların Hazırlanması, Fototermal Etkinliklerinin ve Toksisitelerinin Araştırılması, TÜBİTAK 1001, 217Z111 |
|  | Yüksek Kükürt İçerikli Polimerik Malzemelerin Sentezi ve Uygulamaları, TÜBİTAK 1001 |
|  | Hidrojen üretiminde formik asidin dehidrojenlenmesini katalizleyecek manyetik özellige sahip nanokatalizörlerin hazırlanması, tanımlanması ve katalitik etkinliklerinin incelenmesi, ATÜ-BAP |
|  | Kendi kendini temizleyen yüzeyler: su sevmeyen yüzeyler için yeni bir yaklasım, ATÜ-BAP |

# CONFERENCE PRESENTATIONS

|  |  |
| --- | --- |
|  | Gonca Cakmak Demircigil, Elif Asik, Murat Kaya, Mürvet Volkan, Mesude Iscan Genotoxicity of Cobalt Ferrite Nanoparticles on MDA-231 Cells Using Comet Assay, 48th Congress of the European-Societies-of-Toxicology (EUROTOX) Toxicology Letters, 211,SI, 206,2012 |
|  | Elif Asik, Murat Kaya, Tuba Nur Alp, Mürvet Volkan, Mesude Iscan Cytotoxicity of Cobalt Ferrite Nanoparticles On Breast Cancer Cell Lines, 48th Congress of the European-Societies-of-Toxicology (EUROTOX), Toxicology Letters, 211,SI, 206,2012 |
|  | Yeliz Akpinar, Murat Kaya, Mürvet Volkan, Usage of Silica Coated Magnetic Nanoparticles and SERS Nanotags for Gene Detection, 22nd IUBMB Congress/37th FEBS Congress, FEBS Journal, 279, SI, 350,2012 |
|  | Murat Kaya, Mürvet Volkan, Determination of Germanium at Trace Level by Interference Free Chloride Generation Atomic Absorption Spectrometry, III Aegean Analytical Chemistry Days, Polihnitos, Lesvos, Greece, Sep 29th-Oct 3rd 2002 |
|  | Murat Kaya, Mürvet Volkan, Atomic Spectrometric Method for the Determination of Trace Amounts of Germanium through the Vaporization of Germanium as Germanium Tetrachloride, 2nd Black Sea Basin Conference on Analytical Chemistry, , Sile, Istanbul, Turkey, 14-17 September 2003  |
|  | Seher Karabıçak, Murat Kaya, Tuan Vo-Dinh, Mürvet Volkan, Silver Nanoparticle-doped Polyvinyl Alcohol Coating as a Medium for Surface-enhanced Raman Scattering Analysis, International Workshop on Nano-structured Materials, NANOMAT 2006, Antalya, Turkey, June 21-23, 2006 |
|  | Bilsen Tural, Murat Kaya, Mürvet Volkan, Preparation and Characterization of Maghemite and Magnetite Nanoparticles Designed Specifically as a Magnetic Platform for Histidine Separation, International Workshop on Nano-structured Materials, NANOMAT 2006, , Antalya, Turkey, June 21-23, 2006  |
|  | Serap Tekin, Murat Kaya, Mürvet Volkan, Sensor Application of Ferrozine Doped Sol-gel Beads for Speciation Studies of Iron, Europtrode IX – Dublin,. Dublin, Ireland, March 30th – April 2nd, 2008 |
|  | Murat Kaya, Mürvet Volkan, Synthesis of hollow gold-silver double shell and gold core silver shell nanoparticles for molecular sensing using surface-enhanced Raman scattering (SERS) spectroscopy, Colloquium Spectroscopicum Internationale XXXVI - Budapest, Hungary, August 30-September 3, 2009 |
|  | Gözde Kerman, Muharrem Timuçin, Murat Kaya, Mürvet Volkan, Nuhan Puralı, Petek Korkusuz, Sema Hakkı, Feza Korkusuz, Trace Element Release from Si-HAP Containing Ceramics, BIOTECH 2009 International Symposium on Biotechnology: Developments and Trend, Middle East Technical University, Ankara, Turkey, 27-30 September 2009 |
|  | Murat Kaya, Mürvet Volkan, Surface Enhanced Raman Scattering (SERS) Detection of Biologically Important Compounds Utilizing Noble Metal Nanoparticles with Tunable Optical Properties, ECASIA'0913th European Conference on Applications of Surface and Interface Analysis, Antalya Turkey, October 18-23, 2009 |
|  | Zehra Tatlici, Umit Zengin, Murat Kaya, Mürvet Volkan, Preparation and Characterization of Silica Coated Magnetite Nanoparticles and Labeling with Tc-99 for Magneticly Targeted Radioactive Imaging, 7th Aegean Analytical Chemistry Days, AACD2010 Conference, Mytilene, Lesvos, Greece, 29th September-3th October 2010 |
|  | Murat Kaya, Serap Kaya, Mürvet Volkan, Colloidal Hybrid Nanostructures: A New Type of Bifuntional Nanoparticles, 2012 MRS Fall Meeting & Exhibit, Hynes Convention Center, Boston, MA, USA, November 25-30, 2012 |
|  | Üzeyir Doğan, Murat Kaya, Atilla Cihaner and Mürvet Volkan, Silver Nanoparticles Embedded in a PEDOT Film Prepared via Electrochemical Route: A Controllable Roughned Optically Active Nanomaterial, 2012 MRS Fall Meeting & Exhibit, Hynes Convention Center, Boston, MA, USA, November 25-30, 2012 |
|  | Yeliz Akpinar, Murat Kaya, Mürvet Volkan, Preparatıon and Characterization of CoFe2O4@SiO2@Au Nanoparticles, 9th Aegean Analytical Chemistry Days, , Chios, Greece, AACD 2012, September 29-October 3, 2014 |
|  | Canan Karabay, Ceren Uzun, Murat Kaya, Preparation of Noble Metal and Polymer Added Titanium Based Magnetic Photocatalytic Nanocomposite Material and Usage in Environmental Remediation, 10th Aegean Analytical Chemistry Days, Çanakkale, Turkey, September 29 th-October 02, 2016 |
|  | Ceren Uzun, Murat Kaya, Mürvet Volkan, Multiplexed and Sensitive Detection of Glucose via Fluorescence and Surface Enhanced Raman Spectroscopy, 10th Aegean Analytical Chemistry Days, Çanakkale, Turkey, September 29 th-October 02, 2016 |
|  | Raisan Kadhim, Canan Karabay, Talat Al-Aqbi, Murat Kaya, Preparation and Characterization of Silver-PESeE Film Deposited on ITO Glass Surface as a Surface Enhanced Raman Scattering Substrate, 10th Aegean Analytical Chemistry Days, , Çanakkale, Turkey, September 29 th-October 02,2016 |
|  | Murat Kaya, Mürvet Volkan, Gerçek Örneklerde Eser Miktarlardaki Germanyumun Klörür Oluşturma- Alevli AAS Yöntemi Kullanılarak Tayini. "II. Ulusal Analitik Kimya Kongresi", İnönü Universitesi, Malatya, 2-4 Eylül, 2004, |
|  | L. Sezen Keser, Murat Kaya, Mürvet Volkan, Nano Boyutta Gümüş Küre, Çubuk ve Tel Yapıların Kimyasal Sentezi ve SERS Uygulamaları. "XI. Ulusal Spektroskopi Kongresi", , Gazi Üniversitesi, Ankara, 2009 |
|  | Recep Yüksel, Murat Kaya, Mürvet Volkan, Bimetalik Altın-Gümüş Nanoparçacıkların Sentezi ve SERS Uygulamaları. "XI. Ulusal Spektroskopi Kongresi", , Gazi Üniversitesi, Ankara, 2009  |
|  | Murat Kaya, Mürvet Volkan, Preparation of Hollow Gold-Silver Double Shell Nanospheres and Gold Core Silver Shell Nanoparticles for SERS Applications, 5th Nanoscience and Nanotechnology Conference (NanoTR5), Eskisehir, Turkey, June 08-12, 2009 |
|  | Ceren Uzun, Yeliz Akpinar, Murat Kaya, Mürvet Volkan, Synthesis and Characterization of Surface Enhanced Raman Scattering Tags with Ag and Au Core-Ag Shell Nanostructures, NanoTR7, 2011, Nanoscience and Nanotechnology Conference, Sabanci University, Istanbul, Turkey,June 27-July 1, 2011 |
|  | Ceren Uzun, Yeliz Akpınar, Murat Kaya, Mürvet Volkan, Raman-Dye-Labeled Nanoparticle Probes for DNA Studies, NanoTR8, Nanoscience and Nanotechnology Conference, Hacettepe University, Ankara, Turkey, 25-29 June 2012 |
|  | Üzeyir Doğan, Murat Kaya, Atilla Cihaner and Mürvet Volkan, Performance of Silver Doped PEDOT Polymer Film as a SERS Substrate, 6th Nanoscience and Nanotechnology Conference (NanoTR6), IYTE, İzmir, Turkey, 15-18 June 2010, |
|  | Gülfem Aygar, Zeynep Ergül, Lütfiye Sezen Keser, Murat Kaya, Mürvet Volkan, Comparison of Magnetic Behavior of Cobalt, Cobalt-Ferrite and Iron Oxide Nanoparticles with Silica Coatings, 6th Nanoscience and Nanotechnology Conference (NanoTR6), , IYTE, İzmir, Turkey, 15-18 June 2010 |
|  | Lütfiye Sezen Keser, Murat Kaya, Mürvet Volkan, DNA Purification with Aminosilane Modified Magnetic Cobalt Nanoparticles, 5th Nanoscience and Nanotechnology Conference (NanoTR5), Eskisehir, Turkey, June 08-12, 2009 |
|  | Seda Kibar, Murat Kaya, Mürvet Volkan, Preparation and Characterization of Silaca Coated-Dye Doped Ag Nanoparticles, 5th Nanoscience and Nanotechnology Conference (NanoTR5), Eskisehir, Turkey, June 08-12, 2009 |
|  | Gülfem Aygar, Murat Kaya, Mürvet Volkan, Preparation of Silica and PMAA Coated Cobalt Ferrite (CoFe2O4) Magnetic Nanoparticles for the Purification of Histidine-Tagged Proteins, 5th Nanoscience and Nanotechnology Conference (NanoTR5), Eskisehir, Turkey, June 08-12, 2009, |
|  | Murat Kaya, Mürvet Volkan, Pakizan Tasman, Çiğdem Ay, Preparation and Characterization of Phenylboronic Acid Modified Iron Oxide Nanoparticles for PET-MRI Applications, NANOTR14, İzmir, 2018 |
|  | Ceren Uzun, Murat Kaya, Mürvet Volkan, Preparation of Noble Metal Nanoparticle Loaded Titanium Dioxide as Photocatalyst, NANOTR14, İzmir, 2018 |
|  | Büşra Kesimal, Atilla Cihaner, Murat Kaya, Poli(4-vinilpiridin) İçeren Kükürt Esaslı Polimerlerin Fotokatalitik Etkinliklerinin Araştırılması, Ulusal Polimer Kongresi, Eskişehir, 2018 |

**THESES SUPERVISED**

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| --- | --- |
|  | MS Thesis, Palladium-Copper Bimetallic Nanoparticles Supported on Silica Coated-Cobalt Ferrite Magnetic Particles For Hydrolytic Dehydrogenation of Ammonia Borane, 2015 |
|  | MS Thesis, Preparation and Characterization of Silver-PESeE Film Deposited on ITO Glass Surface as a Surface Enhanced Raman Scattering Substrate, 2015 |
|  | MS Thesis, Preparation and Photocatalytic Application of Magnetic-PEDOT-TiO2 Nanocomposite Material, 2016 |
|  | MS Thesis, Preparation of Silver-Copper Bimetallic Nanoparticles Added Silica Coated-Cobalt Ferrite Magnetic Nanoparticles for Hydrogen Production from Ammonia Borane, 2016 |
|  | MS Thesis, Hydrogen Production from Ammonia Borane by Using Palladium-Nickel Bimetallic Nanoparticles Supported on Silica Coated-Cobalt Ferrite Magnetic Nanoparticles, 2016 |
|  | MS Thesis, Investigation of the Photocatalytic Activity of Palladium Nanoparticles Added PEDOT, 2017 |
|  | MS Thesis, Determination of Photocatalytic Degradation Products of Dye Molecules Founded in Textile Wastewater, 2017 |
|  | MS Thesis, Preparation of Copper Nanoparticles Added Polythiophene for Dehydrogenation of Ammonia Borane, 2017 |
|  | MS Thesis, Preparation and Characterization of Palladium Nanoparticles Added Polythiophene for Hydrogen Production from Ammonia Borane, 2017 |
|  | MS Thesis, Preparation of Nanocomposite Materials for Photocatalytic Water Treatment, 2017 |
|  | MS Thesis, Langmuir and Langmuir Blodgett Studies of Cadmium Selenide (CdSe) Quantum Dots, 2017 |
|  | MS Thesis, Preparation and Investigation of Photocatalytic Activity of Silver Nanoparticle Added Magnetic-PEDOT Nanocomposite Material, 2018 |