

Eda (Özkaraoğlu) Yılmaz

CONTACT INFORMATION

Bilkent Üniversitesi
Ulusal Nanoteknoloji Araştırma Merkezi
06800 Ankara, Türkiye

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EDUCATION

Ph.D. in Chemistry, October 2011
Bilkent University, Ankara, Turkey

Thesis: Preparation and Characterization of Polymer Composites Containing Gold Nanoparticles
Advisor: Prof. Dr. Şefik Süzer

BS in Chemistry, May 2006
Bilkent University, Ankara, Turkey

ACADEMIC EXPERIENCE

Bilkent University, National Nanotechnology Research Center, Ankara, Turkey

Principle Investigator

January, 2014 – Present

RIKEN, Wako Campus, Saitama, Japan

Postdoctoral Researcher

November, 2011 – November, 2013

Bilkent University, Chemistry Department, Ankara, Turkey

Teaching Assistant, Analytical Chemistry Laboratory

2010 – 2011

Teaching Assistant, Physical Chemistry Laboratory

2009 – 2010

General Coordinator, Freshman General Chemistry Laboratory

2007 – 2009

Teaching Assistant, Freshman General Chemistry Laboratory

2006 – 2007

RESEARCH INTERESTS

- Next Generation Rechargeable Lithium Batteries
- Lithium-Oxygen Battery
- Rechargeable Sodium Batteries
- Metal and Metal Oxide Nanoparticle Catalysts
- X-ray Photoelectron Spectroscopy

RESEARCH PROJECTS

TUBITAK, 1001 Project, *Principal Investigator*

December, 2015 - December, 2017

Project Title: "Development of Metal Oxide Nanoparticle Catalysts for Sodium-Oxygen Battery",
Total Budget: 123.800 USD.

TUBITAK, COST Project, *Principal Investigator*

February, 2015 - February, 2017

Project Title: "Preparation of Silicon-Carbon Nanofiber Composite Anode Materials for Lithium-ion Batteries with High Energy Capacity", Total Budget: 100.600 USD.

TUBITAK, 1001 Project, *Principal Investigator*

October, 2014 - October, 2016

Project Title: "Development of Stable and High Capacity Cathode Materials for Lithium-Oxygen Battery", Total Budget: 89.520 USD.

TUBITAK, 2232 RI Grant, *Principal Investigator*

February, 2014 - February, 2016

Project Title: "Development of Highly Efficient Catalysts for Lithium-Oxygen Battery", Total Budget: 30.000 USD.

PUBLICATIONS

Okur, F.; Eren, H.; Biyikli, N.; **Yilmaz, E.** "Conformal Ultrathin TiO_2 Coatings on Carbon Nanotubes for Stable $Li - O_2$ Battery Cathodes", Submitted.

Balci, F.M.; Kudu, O.U.; **Yilmaz, E.**; Dag, O. "Synthesis of Mesoporous Lithium Titanate Thin Films and Monoliths as an Anode Material for High Rate Lithium Ion-Batteries", **Chemistry A European Journal**, Just Accepted, DOI: 10.1002/chem.201604253.

Mohamed, A.; Osman, T.A.; Toprak, M.S.; Muhammed, M.; **Yilmaz, E.**; Uheida, A. "Visible light photocatalytic reduction of $Cr(VI)$ by surface modified CNT/titanium dioxide composites nanofibers", **Journal of Molecular Catalysis A: Chemical**, 2016, 424, 45.

Susapto, H. H.; Kudu, U.; Garifullin, R.; **Yilmaz, E.**; Guler, M. O. "One-Dimensional Peptide Nanostructure Templated Growth of Iron Phosphate Nanostructures for Lithium-Ion Battery Cathodes", **ACS Applied Materials and Interfaces**, 2016, 8 (27), 17421.

Yilmaz, E.; Yogi, C.; Yamanaka, K.; Ohta, T.; Byon, H.R. "Promoting Formation of Noncrystalline Li_2O_2 in $Li - O_2$ Battery with RuO_2 Nanoparticles", **Nano Letters**, 2013, 13, 4679.

Lim, H.; **Yilmaz, E.**; Byon, H.R. "Real-Time XRD Studies of $Li - O_2$ Electrochemical Reaction in Nonaqueous Lithium-Oxygen Battery", **The Journal of Physical Chemistry Letters**, 2012, 3, 3210.

Yilmaz, E.; Sezen, H.; Suzer, S. "Probing the charge build-up and dissipation on thin PMMA film surfaces at the molecular level by XPS", **Angewandte Chemie International Edition**, 2012, 51, 5488.

Majeski, M.W.; Pleticha, F.D.; Bolotin, I.L.; Hanley, L.; **Yilmaz, E.**; Suzer, S. "Photoresponse of PbS Nanoparticle - Quaterthiophene Films Prepared by Gaseous Deposition as Probed by XPS", **Journal of Vacuum Science and Technology A**, 2012, 30, 04D109.

Yilmaz, E.; Ertas, G.; Bengu, E.; Suzer, S. "Photo-Patterning of PMMA films with Gold Nanoparticles: Diffusion of $AuCl_4^-$ Ions", **The Journal of Physical Chemistry C**, 2010, 114, 18401.

Yilmaz, E.; Suzer, S. "Au nanoparticles in PMMA matrix: In situ synthesis and the effect of Au nanoparticles on PMMA conductivity", **Applied Surface Science**, 2010, 256, 6630.

Ozkaraglu, E.; Tunc, K.; Suzer, S. "Preparation of Au and Au-Pt nanoparticles within PMMA matrix using UV and X-ray irradiation", **Polymer**, 2009, 50, 462.

Ozkaraglu, E.; Tunc, I.; Suzer, S. "X-ray induced reduction of Au and Pt ions on silicon substrates", **Surface & Coatings Technology**, 2007, 201, 8202.

Karadas, F.; Ertas, G.; **Ozkaraglu, E.**; Suzer, S.; "X-ray-induced production of gold nanoparticles on a SiO_2/Si system and in a poly(methyl methacrylate) matrix", **Langmuir**, 2005, 21, 437.

CONFERENCE PRESENTATIONS

Okur, F.; Eren, H.; Sagkal, S.; Biyikli, N.; **Yilmaz, E.** "Thin Film Coatings on Multiwalled Carbon Nanotubes for Lithium-Oxygen Battery Cathodes: Eliminating the Carbon Surface", **Poster Presentation**, ECS Conference on Electrochemical Energy Conversion Storage with SOFC-XIV, July 26-31 2015, Glasgow, UNITED KINGDOM.

Yilmaz, E.; Yogi, C.; Yamanaka, K.; Ohta, T.; Byon, H. R. "Evaluation of Lithium-Oxygen Battery Performances using XANES Spectroscopy", **Oral Presentation**, The 30th European Conference on Surface Science, August 31-September 5 2014, Antalya, TURKEY.

Yilmaz, E.; Byon, H. R. " RuO_2 Nanoparticles as Oxygen Evolution Catalysts for $Li - O_2$ Battery Cathode", **Oral Presentation**, The 93rd Chemical Society of Japan Annual Meeting, March 22-25 2013, Kusatsu, JAPAN

Yilmaz, E.; Byon, H. R. “*RuO₂ Nanoparticles as Oxygen Evolution Catalysts for Li–O₂ Battery Cathode*”, **Oral Presentation**, The 53rd Battery Symposium in Japan, November 14-16 2012, Fukuoka, JAPAN

Yilmaz, E.; Byon H. R. “*Binder-free and Well-ordered Multi-walled Carbon Nanotube Electrode for Li–O₂ Battery*”, **Poster Presentation**, The 16th International Meeting on Lithium Batteries, June 17-22 2012, Jeju, SOUTH KOREA

Yilmaz, E.; Suzer, S. “*UV Induced Synthesis and XPS Characterization of Gold Nanoparticle-PMMA Composites*”, **Poster Presentation**, AVS 57th International Symposium & Exhibition, October 17-22 2010, Albuquerque, New Mexico, USA

Yilmaz, E.; Suzer, S. “*Photo-patterning of PMMA Films with Gold Nanoparticles*”, **Oral Presentation**, 6th Nanoscience and Nanotechnology Conference, June 15-18 2010, Izmir, TURKEY

Ozkaraoglu, E.; Suzer, S. “*Gold Nanoparticles in PMMA Matrix: in-situ Synthesis and Gold Nanoparticle-PMMA interactions*”, **Oral Presentation**, 13th European Conference on Applications of Surface and Interface Analysis, October 18-23 2009, Antalya, TURKEY

Ozkaraoglu, E.; Suzer, S. “*Gold Nanoparticles in PMMA Matrix: in-situ Synthesis and Gold Nanoparticle-PMMA interactions*”, **Oral Presentation**, 8th International Conference on Advanced Polymers via Macromolecular Engineering, October 4-7 2009, Dresden, GERMANY

Ozkaraoglu, E.; Suzer, S. “*Gold Nanoparticles in PMMA Matrix: in-situ Synthesis and Gold Nanoparticle-PMMA interactions*”, **Oral Presentation**, 26th European Conference on Surface Science, August 30 - September 4 2009, Parma, ITALY

Ozkaraoglu, E.; Suzer, S. “*UV Induced in-situ Synthesis of Gold Nanoparticles within PMMA Films*”, **Oral Presentation**, 5th Nanoscience and Nanotechnology Conference, June 9-11 2009, Eskisehir, TURKEY

Ozkaraoglu, E.; Tunc, I.; Suzer, S. “*UV and X-Ray Induced Production of Au and Pt Mono/Bimetallic Nanoparticles within Polymer Films*”, **Poster Presentation**, 12th European Conference on Applications of Surface and Interface Analysis, September 9-14 2007, Brussels, BELGIUM

Ozkaraoglu, E.; Tunc, I.; Suzer, S. “*Synthesis and Characterization of Gold Nanoparticles with UV radiation and/or X-rays within Polymer Films*”, **Oral Presentation**, 10th National Spectroscopy Conference, July 4-7 2007, Izmir, TURKEY

ACADEMIC
ADVISEES

Dr. Cevriye Koz, *Postdoctoral Researcher*, Group Member since July, 2015

Dr. Bhushan Patil, *Postdoctoral Researcher*, Group Member since November, 2015

Kıvanç Çoban, *M.Sc. Student*, Admitted to MSN Program in September, 2014

Ömer Ulaş Kudu, *M.Sc. Student*, Admitted to MSN Program in February, 2015

Mohammed Fathi Tovini, *M.Sc. Student*, Admitted to MSN Program in September, 2015

Türkan Gamze Ulusoy Ghobadi, *Ph.D. Student*, (Co-advised with Dr. Ferdi Karadaş)

TEACHING

MSN 533 - Nanomaterials for Energy Conversion and Storage
Fall 2016-2017 Term

MSN 533 - Nanomaterials for Energy Conversion and Storage
Fall 2015-2016 Term

MSN 533 - Nanomaterials for Energy Conversion and Storage
Spring 2014-2015 Term

INVITED
TALKS

December 2016, Sakarya University, National Battery Workshop for Electric Vehicles

December 2014, ASELSAN, Electric Vehicle Technologies Workshop

April 2014, Sabanci University, Material Science and Engineering Department

April 2014, Bosphorus University, Chemical Engineering Department

April 2014, Middle East Technical University, Chemistry Department

June 2013, Ritsumeikan University, Synchrotron Research Center

HONORS AND
AWARDS

2010, Recipient of AVS Dorothy M. and Earl S. Hoffman Travel Grant for AVS 57th International Symposium Exhibition

2007, Best Teaching Assistant Award, Bilkent University, Chemistry Department

2006-2011, Ph.D. Scholarship recipient of The Scientific and Technological Research Council of Turkey (TUBITAK)

2002-2006, Full Scholarship from Bilkent University (education, accommodation, stipend)

2002, Being at the top 0.1% of 1,500,000 among high school students at the Turkish University Entrance Exam

2002, Ranked 1st in graduation from high school