

## ASU ZIYLAN-YAVAS

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### Personal Information

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Date of Birth : 29.03.1982  
Place of Birth : Turkey / Istanbul  
Citizenship : Turkish  
Marital Status : Married

### Education and Qualifications

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Bogazici University 2009-2017	PhD in Environmental Technology Thesis Title: <i>Removal of Analgesic and Anti-Inflammatory Drugs in Drinking Water by Conventional and Advanced Treatment Methods</i> Supervisor: Prof. Nilsun H. Ince Degree: 3.93/4.00
Bogazici University February 2006-2009	Master's Degree in Environmental Sciences Thesis Title: <i>Pretreatment of Biocide Containing Wastewaters by Advanced Oxidation Processes</i> Supervisor: Prof. Nilsun H. Ince Degree: 3.83/4.00
Yildiz Technical University June 2005	Bachelor's Degree in Environmental Engineering Thesis Title: <i>The Application of Integrated Environmental Quality and Risk Management Systems in an Automotive Industry</i> Supervisor: Prof. Beyza Ustun Degree: 3.33/4.00

**Language Skills** : English (e-YDS: 86.25, IELTS Academic :6.0)

**Computer & Technical Skills** : Good command of Microsoft Office tools (Word, Excel and PowerPoint)  
Good usage of graphical/statistic programs: GraphPad Prizm, ChemOffice, CorelDraw (beginner)  
Competent with instrumental devices (High Pressure Liquid Chromatography, Total Organic Carbon Analyzer, Ultrasonic Reactors, Respirometry, Spectrophotometry, Microtox Analyzer, Gas Chromatography, Particle Size Analysis-DLS method)

### Honors and Awards

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**2017** Doctoral Dissertation Award, Scientific Research Projects Commission, Bogazici University, Turkey.  
**2016** Academic Incentive Award (Score: 100/100), The Council of Higher Education, Turkey.  
**2016** Best Poster Presentation, 15<sup>th</sup> Meeting of the European Society of Sonochemistry, Istanbul, Turkey.  
**2015** Academic Incentive Award (Score: 85/100), The Council of Higher Education, Turkey.  
**2015** Best Oral Presentation, 1<sup>st</sup> Annual Graduate Symposium, Institute of Environmental Sciences, Bogazici University, Istanbul, Turkey.  
**2015** 10<sup>th</sup> Year Award in Environmental Engineering Profession by UCTEA.

### Association Memberships

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American Chemical Society  
European Society of Sonochemistry  
Chamber of Environmental Engineers, Union of Chamber of Turkish Engineers and Architects (UCTEA)

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## Publications

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### Research Papers

1. Sesil Agopcan Cinar, Asu Ziylan-Yavas, Saron Catak, Nilsun H. Ince, Viktorya Aviyente, Hydroxyl radical-mediated degradation of diclofenac revisited: A computational approach to assessment of reaction mechanisms and by-products. *Environmental Science and Pollution Research* 24 (2017) 18458-18469.
2. Asu Ziylan-Yavas, Nilsun H. Ince, Catalytic ozonation of paracetamol using commercial and Pt-supported nanocomposites of Al<sub>2</sub>O<sub>3</sub>. *Ultrasonic Sonochemistry* 40 (Part B) (2018) 175-182.
3. Asu Ziylan-Yavas, Nilsun H. Ince, Single, Simultaneous and Sequential Applications of Ultrasonic Frequencies to Decompose and Mineralize Ibuprofen. *Ultrasonic Sonochemistry* 40 ( Part B ) (2018) 17-23.
4. Asu Ziylan-Yavas, Nilsun H. Ince. Enhanced photo-degradation of paracetamol on n-platinum-supported TiO<sub>2</sub>: The effect of ultrasound and •OH/hole scavengers, *Chemosphere* 162 (2016) 324-332.
5. Asu Ziylan-Yavas, Yoshiteru Mizukoshi, Yasuaki Maeda, Nilsun H. Ince. Supporting of pristine TiO<sub>2</sub> with noble metals to enhance the oxidation and mineralization of paracetamol by sonolysis and sonophotolysis. *Applied Catalysis B* 172 (2015) 7-17.
6. Asu Ziylan, Nilsun H. Ince. Catalytic ozonation of ibuprofen with ultrasound and Fe-based catalysts. *Catalysis Today* 240 (2015) 2-8.
7. Asu Ziylan, Şifa Doğan, Sesil Agopcan, Rana Kidak, Viktorya Aviyente, Nilsun H. Ince. Sonochemical degradation of diclofenac: byproduct assessment, reaction mechanisms and environmental considerations. *Environmental Science and Pollution Research* 21 (9) (2014) 5929-5939.
8. Asu Ziylan, Nilsun H. Ince. Ozonation-based advanced oxidation for pre-treatment of water with residuals of anti-inflammatory medication. *Chemical Engineering Journal* 220 (2013) 151-160.
9. Asu Ziylan, Yuri Koltypin, Aharon Gedanken, Nilsun H. Ince. More on sonolytic and sonocatalytic decomposition of Diclofenac using zero-valent iron. *Ultrasonics Sonochemistry* 20 (2013) 580–586.
10. Dila Aksoy, Asu Ziylan, Nilsun H. Ince, Havva Yagci Acar, Miray Demirer, Nadim K. Copt. Impact of dilution on the transport of polyacrylic acid-supported magnetite nanoparticles in porous media. *Journal of Contaminant Hydrology* 126 (2011) 248–257.
11. Asu Ziylan, Nilsun H. Ince. The occurrence and fate of anti-inflammatory and analgesic pharmaceuticals in sewage and fresh water: treatability by conventional and non-conventional processes. *Journal of Hazardous Materials* 187 (2011) 24–36.

### Books and Book Chapters

- Book Chapter     Nilsun H. Ince, Asu Ziylan,” Single and hybrid processes with ultrasound for decolorization of wasted dye baths and decontamination of dying process effluent”. *Dyes Removal from Waste Water Using Green Technologies*, Ed. S. K. Sharma, Scrivener Publishing LLC, 100 Cummings Center, Suite 541J, Beverly, MA 01915-6106, 28 Feb 2015.
- Abstract Book     *Abstract Book of 15<sup>th</sup> Meeting of European Society of Sonochemistry*, Ed. Nilsun H. Ince, Asu Ziylan-Yavas, Bogazici University Publishing, Istanbul, Turkey, June 2016.

### Conference Presentations

1. Degradability of Ibuprofen, Diclofenac and Paracetamol by Singly and Simultaneously Operated Ultrasound, Advanced Oxidation Technologies for Treatment of Water, Air and Soil, (AOTs-22), Holiday Inn, Perimeter, Atlanta, Georgia, November 13-16, 2016.
2. Enhanced Photo-Degradation of Paracetamol on nPt-Supported TiO<sub>2</sub>: The Effect of Ultrasound, Advanced Oxidation Technologies for Treatment of Water, Air and Soil, (AOTs-22), Holiday Inn, Perimeter, Atlanta, Georgia, November 13-16, 2016.

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3. Decolorization of Reactive Orange 16 by Simultaneous and Sequential Operation of 40 kHz and 200 kHz, Advanced Oxidation Technologies for Treatment of Water, Air and Soil, (AOTs-22), Holiday Inn, Perimeter, Atlanta, Georgia, November 13-16, 2016.
  4. The effect of ultrasonic frequency and specific power density on the sonochemical reactivity: Color removal of azo-dyes, 252<sup>nd</sup> American Chemical Society National Meeting and Exposition, Philadelphia, USA, 21-25 August, 2016.
  5. Elimination of pharmaceutical residues by ultrasound-assisted AOPs, 15th Meeting of European Society of Sonochemistry, Istanbul, Turkey, 27 June-1 July.
  6. The effect of ultrasound on catalytic ozonation of paracetamol with alumina and its metal-supported nanocomposites, 15th Meeting of European Society of Sonochemistry, Istanbul, Turkey, 27 June-1 July.
  7. Pretreatment of hexahydrotriazine in cooling water by ultrasound-assisted AOPs, 15th Meeting of European Society of Sonochemistry, Istanbul, Turkey, 27 June-1 July.
  8. Comparative study on the catalytic degradation of paracetamol by Pd-TiO<sub>2</sub> and TiO<sub>2</sub> induced advanced oxidation processes, 250th American Chemical Society National Meeting & Exposition, Boston, USA, 16-20 August 2015.
  9. Supporting of TiO<sub>2</sub> with metallic nanoparticles to improve the decomposition of paracetamol by photocatalysis: The effect of ultrasound, 250th American Chemical Society National Meeting & Exposition, Boston, USA, 16-20 August 2015.
  10. Sonocatalytic degradation of paracetamol with Pd-Supported TiO<sub>2</sub> nanoparticles: The effect of persulfate addition, The 20th International Conference on Advanced Oxidation Technologies San Diego, CA, USA, 17-20 Nov, 2014
  11. The impact of metallic nanoparticles of TiO<sub>2</sub> on sono-photocatalytic degradation of analgesic pharmaceuticals: A case study with paracetamol, The 20th International Conference on Advanced Oxidation Technologies San Diego, CA, USA, 17-20 Nov, 2014.
  12. Catalytic ozonation of ibuprofen in the presence of iron catalysts and ultrasound, European Conference on Environmental Applications of Advanced Oxidation Processes, Almeria, Spain, 10/2013
  13. Sonocatalytic destruction of paracetamol using Pd-supported TiO<sub>2</sub> nanoparticles, 14th Meeting of the European Society of Sonochemistry Avignon University, France, 2-6 June, 2014
  14. Integrated utilization of triglycerides by sonochemical and photocatalytical reforming, 14th Meeting of the European Society of Sonochemistry, Avignon University, France, 2-6 June, 2014
  15. Sonolytic degradation of ibuprofen in the suspensions of nano-sized palladium and gold, The 19th International Conference on Advanced Oxidation Technologies San Diego, CA, USA, 19-23 Nov, 2013
  16. Elimination of single and binary solutions of diclofenac (DCF) and ibuprofen (IBP) in the presence and absence of humic acid (HA) by ultrasound and ultrasound assisted processes, The 19<sup>th</sup> International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, San Diego, California; USA; 11/2013.
  17. Degradation of ibuprofen by various advanced oxidation processes: Evaluation of by-product formation, The 3rd European Conference on Environmental Applications of Advanced Oxidation Processes, Almeria, Spain, 27-30 October, 2013.
  18. Elimination of pharmaceuticals in water by ozonation and sonolysis: A novel approach to water treatment, The 18th International Conference on Advanced Oxidation Technologies, Jacksonville, FL, USA, 11-15 Nov, 2012.
  19. Byproduct formation of Diclofenac (DCF) in the presence and absence of humic acid (HA) under high frequency ultrasound, 18th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, Jacksonville, USA, 2012.
  20. Nanoparticles of zero valent iron for removal of diclofenac in water, 4th National Catalyst Conference, Kocaeli, TURKEY, 2012.
  21. Removal of diclofenac by sonolysis and sonocatalysis, 17th International Conference on Advanced Oxidation Technologies for Treatment of Water, Air and Soil, San Diego, USA, 2011.

22. Transport of super paramagnetic iron oxide nanoparticles in porous media, IAHR International Groundwater Symposium, Istanbul, 2008.

### Journals served for Manuscript Reviewing

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Environmental Progress  
Environmental Science: Nano  
Catalysis Today  
Institute of Science and Technology Journal, Canakkale Onsekiz Mart University

### Research Experiences

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Newly Synthesized TiO<sub>2</sub> based Nanoparticles and Their Photocatalytic Activity, The Scientific Research Project of Bogazici University (BAP), Project Code: 10380 (15Y00D5), 2015-2017.

Synthesis and Use of Metallic Nanoparticles in Water Treatment. The Scientific Research Project of Bogazici University (BAP), Project Code: 8381, 2014-2016.

Pharmaceutical Removal in Drinking Water by Conventional and Advanced Oxidation Processes, The Scientific Research Project of Bogazici University (BAP), Project Code: 12Y00D8, 2012-2015.

Integration of Advanced Oxidation and Nanoparticle Technologies for Removing Analgesics and Anti-inflammatory Pharmaceuticals in Water, The Scientific Research Project of Bogazici University (BAP), Project Code: 10Y00D6, 2010-2012.

The Pretreatment of Biocide Containing Wastewaters by Advanced Oxidation Techniques. The Scientific Research Project of Bogazici University (BAP), Project Code: 08HY102, 2008-2009.

Assessment of Two Novel Methods: Ultrasound (US) and Nanoparticle Technologies in Remediation of Soil and Groundwater, The Scientific and Technological Research Council of Turkey (TUBITAK), Project Code:104I130 (2008).

### Short Stay Research

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***Sonolytical preparation of nanoparticles and their catalytic activities.*** Metal supported- (Pt-, Au-, Pd-, Au/Pd-nanoparticles) TiO<sub>2</sub> and Al<sub>2</sub>O<sub>3</sub> nanocomposites were synthesized by sonochemical reduction method and tested for hydrogen generation using photocatalytic degradation of glycerol, ethanol and methanol at Prof Yasuaki Maeda's laboratory. Research was funded by SATREPS project (JST and JICA), International Cooperation Program of Osaka Prefecture University, Japan, 8th May-12th June 2013.

***Treatment of pharmaceutical residual diclofenac by AOPs and determination of byproducts,*** Department of Environmental Engineering, Faculty of Engineering, UKU, Turkey, Jan-Feb, 2012.

### Summer Schools

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Summer School in High Energy Processing Ultrasound & Microwave Technologies, AMPHERE 2015, Cracow University of Technology, Faculty of Chemical Engineering and Technology, Crakow, Poland, 09-12 September 2015.

Summer School on Renewable Energy, Renet, Bogazici University, Istanbul, Turkey, July, 2009.

### Professional Experience

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April 2018- Present	Instructor, Ph.D Bogazici University, Institute of Environmental Science, Istanbul, Turkey
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July 2009- Feb 2017	Research Assistant Bogazici University, Institute of Environmental Science, Istanbul, Turkey
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2007-2008	Project Assistant (Freelance) Application of Large Scale Environmental Management System* Bilecik 1st Organized Industrial Zone, Bilecik, Turkey
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2007	Quality Management Consultant (Freelance) Establishment of ISO 9001:2000 based on Navigation Undersecretariat Laws of Turkey Private Gökova Yatch and Navigator Education Center, Mugla, Turkey
2006-2008	Project Assistant (Freelance) Application of Large Scale Environmental Management System Gebze/Taysad Organized Industrial Zone, Kocaeli, Turkey
2004-2005	Student Intern/Consultant (Freelance) Establishment of Integrated Environmental and Risk Management System Galsan Mold and Plastic Manufacturing Plant, Kocaeli, Turkey

### **Licences/Certifications**

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Lecturing with the Patent Teaching Kit: Train the Trainer Workshop certified by European Patent Institute and Bogazici University, 2012.

Risk Assessment and Management for Continuous Improvement certified by ALP&ASSOCIATES Incorporated, METU, Ankara, August 15-16, 2007.

ISO 9001:2000 Quality Auditor/Lead Auditor Course certified by IRCA, ALBERK Kalite Ekspertiz Gözetim Yazılım Eğitim ve Teknik Belgelendirme Hizmetleri Ltd Şti, Istanbul, 2006.

ISO 14001 Environmental Management and OHSAS 18001 Occupational Healths and Safety Course, TÜV Rheinland, Istanbul, 2005.

Failure Mode Effects Analysis, Sistem Yönetim Danışmanlığı Ltd. Şti., Istanbul, 2005.

### **References**

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#### ***Prof. Nilsun H. Ince***

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Institute of Environmental Sciences  
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#### ***Prof. Yasuaki Maeda***

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Research Organization for University-Community  
Collaborations  
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#### ***Prof. Isil Balcioglu***

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Phone:0902123597036

### **Personal Interests**

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Sailing	Basic Sailing Course certified by ISS, 2016 Introduction to Sailing, Alesta Yelken, 2009
Scuba Diving	One Star Scuba Diver certified by CMAS, 2008
Cooking	Chocolate Making, Sheraton, 2014 Sushi Making, MSA, 2015 The Culture of Wine, BUMED, 2013 Homemade Pasta Cooking, Sheraton, 2013
Terrarium	Floral Design and Terrarium Class, Mia Fiorista, 2015
Photography	Introduction to Digital Photography, Tamer Gunal, 2014
Conference Organization	Member, 15 <sup>th</sup> European Society of Sonochemistry, Istanbul, Turkey, 2016. Member, 2 <sup>st</sup> Annual Graduate Symposium, Institute of Environmental Sciences, Bogazici University, Istanbul, Turkey, 2016. Member, 1 <sup>st</sup> Annual Graduate Symposium, Institute of Environmental Sciences, Bogazici University, Istanbul, Turkey, 2015.

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Chair, VII. National Symposium of Student Approaches to Environmental Problems, Erzurum, Turkey, 2005.

Member, Process of Building up Environmental Management Unit in Küçükçekmece Lake and Basin and Benefits to Region Workshop”, Istanbul, Turkey, 2004.

Chair of Student Club

Student Club of Environmental Technology, Yildiz Technical University, Istanbul, Turkey, 2004-2005.

Physical Education

Yoga, Pilates