

## Assoc. Prof. ÖZGE YÜKSEL ORHAN

### Personal Information

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### International Researcher IDs

ORCID: 0000-0003-0135-0363

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Yoksis Researcher ID: 166761

### Education Information

Doctorate, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği, Turkey 2010 - 2015

Postgraduate, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği, Turkey 2007 - 2010

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği, Turkey 2003 - 2007

### Foreign Languages

German, B1 Intermediate

English, C1 Advanced

### Dissertations

Doctorate, Karbon dioksit gazının iyonik sıvı- CO<sub>2</sub> tutan organik sıvı hibrit çözücülere absorpsiyonunun kinetiği, Hacettepe Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2015

### Research Areas

Chemical Engineering and Technology, Process and Reactor Design, Chemical Reaction Engineering, Engineering and Technology

### Academic Titles / Tasks

Research Assistant, Hacettepe University, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2009 - Continues

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

- I. **Enhancing CO<sub>2</sub> desorption efficiency with Non-Aqueous Catalyst-Enhanced Tri-Blend amines**  
YÜKSEL ORHAN Ö., Hugul A., ULUS F. N., YAVUZ ERSAN H.  
FUEL, 2024 (SCI-Expanded)
- II. **Low-energy electrochemical CO<sub>2</sub>-amine desorption driven by the proton-coupled**

**electron transfer reaction (PCET)**

Zhao F., Deng Y., Li M., Lv C., Aminabhavi T. M., YÜKSEL ORHAN Ö., Liu H.  
CHEMICAL ENGINEERING JOURNAL, 2024 (SCI-Expanded)

- III. **Response Surface Optimization of Nonaqueous Hexanol-Based Trisolvant Amine Blends for Energy-Efficient CO<sub>2</sub> Desorption**  
Hugul A. E., Ulus N., YÜKSEL ORHAN Ö., YAVUZ ERSAN H.  
Energy Technology, 2024 (SCI-Expanded)
- IV. **Reduced energy consumption and enhanced CO<sub>2</sub> desorption performance of non-aqueous ionic-liquid-containing amine blends with zeolites**  
Ulus N., Yüksel Orhan Ö.  
JOURNAL OF MOLECULAR LIQUIDS, vol.359, 2022 (SCI-Expanded)
- V. **Modeling and Optimizing N/O-Enriched Bio-Derived Adsorbents for CO<sub>2</sub> Capture: Machine Learning and DFT Calculation Approaches**  
Rahimi M., Abbaspour-Fard M. H., Rohani A., YÜKSEL ORHAN Ö., Li X.  
INDUSTRIAL & ENGINEERING CHEMISTRY RESEARCH, vol.61, no.30, pp.10670-10688, 2022 (SCI-Expanded)
- VI. **Optimization of novel nonaqueous hexanol-based monoethanolamine/methyl diethanolamine solvent for CO<sub>2</sub> absorption**  
Ulus N., Ali S. A. S., Khalifa O., YÜKSEL ORHAN Ö., Elkamel A.  
INTERNATIONAL JOURNAL OF ENERGY RESEARCH, vol.46, no.7, pp.9000-9019, 2022 (SCI-Expanded)
- VII. **Effects of various anions and cations in ionic liquids on CO<sub>2</sub> capture**  
YÜKSEL ORHAN Ö.  
JOURNAL OF MOLECULAR LIQUIDS, vol.333, 2021 (SCI-Expanded)
- VIII. **Effect of non-aqueous solvents on kinetics of carbon dioxide absorption by (Bu<sub>3</sub>P)-Bu-t/B(C<sub>6</sub>F<sub>5</sub>)<sub>3</sub> frustrated Lewis pairs**  
Cihan N., YÜKSEL ORHAN Ö., YAVUZ ERSAN H.  
SEPARATION AND PURIFICATION TECHNOLOGY, vol.258, 2021 (SCI-Expanded)
- IX. **The development of reaction kinetics for CO<sub>2</sub> absorption into novel solvent Frustrated Lewis (FLPs)**  
Yüksel Orhan Ö., Cihan N., Şahin V., Karabakan A., Alper E.  
SEPARATION AND PURIFICATION TECHNOLOGY, vol.252, 2020 (SCI-Expanded)
- X. **The enhanced enzymatic performance of carbonic anhydrase on the reaction rate between CO<sub>2</sub> and aqueous solutions of sterically hindered amines**  
Cihan N., YÜKSEL ORHAN Ö.  
GREENHOUSE GASES-SCIENCE AND TECHNOLOGY, vol.10, no.5, pp.925-937, 2020 (SCI-Expanded)
- XI. **Kinetics and mechanism of reaction between carbon disulfide and novel aqueous amines solutions**  
YÜKSEL ORHAN Ö., Cihan F. N., Alper E.  
INTERNATIONAL JOURNAL OF GLOBAL WARMING, vol.18, no.3-4, pp.401-409, 2019 (SCI-Expanded)
- XII. **Kinetics of reaction between CO<sub>2</sub> and ionic liquid-carbon dioxide binding organic liquid hybrid systems: Analysis of gas-liquid absorption and stopped flow experiments**  
YÜKSEL ORHAN Ö., Alper E.  
CHEMICAL ENGINEERING SCIENCE, vol.170, pp.36-47, 2017 (SCI-Expanded)
- XIII. **Innovative Carbon Dioxide-Capturing Organic Solvent: Reaction Mechanism and Kinetics**  
YÜKSEL ORHAN Ö., Tankal H., KAYI H., Alper E.  
CHEMICAL ENGINEERING & TECHNOLOGY, vol.40, no.4, pp.737-744, 2017 (SCI-Expanded)
- XIV. **The Absorption Kinetics of CO<sub>2</sub> into Ionic Liquid-CO<sub>2</sub> Binding Organic Liquid and Hybrid Solvents**  
YÜKSEL ORHAN Ö., Ume C. S., Alper E.  
ENERGY EFFICIENT SOLVENTS FOR CO<sub>2</sub> CAPTURE BY GAS-LIQUID ABSORPTION: COMPOUNDS, BLENDS AND ADVANCED SOLVENT SYSTEMS, pp.241-261, 2017 (SCI-Expanded)
- XV. **Kinetics of CO<sub>2</sub> capture by carbon dioxide binding organic liquids: Experimental and molecular modelling studies**  
Orhan O. Y., Tankal H., Kayi H., ALPER E.  
INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL, vol.49, pp.379-386, 2016 (SCI-Expanded)

- XVI. **Experimental and theoretical investigation of the reaction between CO<sub>2</sub> and carbon dioxide binding organic liquids**  
Tankal H., YÜKSEL ORHAN Ö., Alper E., ÖZDOĞAN T., KAYI H.  
TURKISH JOURNAL OF CHEMISTRY, vol.40, no.5, pp.706-719, 2016 (SCI-Expanded)
- XVII. **Kinetics of CO<sub>2</sub> Capture by Carbon Dioxide Binding Organic Liquids**  
YÜKSEL ORHAN Ö., KAYI H., Alper E.  
ENERGY, TRANSPORTATION AND GLOBAL WARMING, pp.591-603, 2016 (SCI-Expanded)
- XVIII. **Kinetics of Carbon Dioxide Binding by Promoted Organic Liquids**  
Orhan O. Y., ALPER E.  
CHEMICAL ENGINEERING & TECHNOLOGY, vol.38, no.8, pp.1485-1489, 2015 (SCI-Expanded)
- XIX. **Kinetics and performance studies of a switchable solvent TMG (1,1,3,3-tetramethylguanidine)/1-propanol/carbon dioxide system**  
YÜKSEL ORHAN Ö., Ozturk M. C., Seker A., Alper E.  
TURKISH JOURNAL OF CHEMISTRY, vol.39, no.1, pp.13-24, 2015 (SCI-Expanded)
- XX. **Kinetics of carbon dioxide binding by 1,1,3,3-tetramethylguanidine in 1-hexanol**  
Ozturk M. C., YÜKSEL ORHAN Ö., Alper E.  
INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL, vol.26, pp.76-82, 2014 (SCI-Expanded)

### Articles Published in Other Journals

- I. **CO<sub>2</sub> utilization: Developments in conversion processes**  
Alper E., YÜKSEL ORHAN Ö.  
Petroleum, vol.3, no.1, pp.109-126, 2017 (Scopus)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Kinetics of carbon dioxide absorption by nonaqueous solutions of promoted sterically hindered amines**  
Gordesli Duatepe F. P., YÜKSEL ORHAN Ö., Alper E.  
13th International Conference on Greenhouse Gas Control Technologies (GHGT), Lausanne, Switzerland, 14 - 18 November 2016, vol.114, pp.57-65

### Supported Projects

- YÜKSEL ORHAN Ö., Cihan F. N., Project Supported by Higher Education Institutions, Sterik Engelli Aminlerin Sulu Çözeltilerine Karbondioksit Absorpsiyon Hızının Enzimatik Arttırılması, 2018 - 2021
- YÜKSEL ORHAN Ö., KOÇUM İ. C., TANYOLAÇ D., Project Supported by Higher Education Institutions, BİR OZON JENERATÖRÜ, 2016 - 2021
- YÜKSEL ORHAN Ö., Project Supported by Higher Education Institutions, "CO<sub>2</sub> hidrojenasyonu için seçici katalitik süreçlerin modellenmesi", 2017 - 2018
- YÜKSEL ORHAN Ö., ALPER E., Project Supported by Higher Education Institutions, CO<sub>2</sub> ile iyonik sıvı-karbon dioksit tutan organik sıvı hibrid sistemler arasındaki reaksiyon kinetiği, 2017 - 2017
- YÜKSEL ORHAN Ö., Project Supported by Higher Education Institutions, Petrokimya Tesislerinde Proses Atığı CO<sub>2</sub>'den Yararlanma, 2017 - 2017
- YÜKSEL ORHAN Ö., ALPER E., Project Supported by Higher Education Institutions, Yeni geliştirilen karbon dioksit tutan organik sıvıların absorpsiyon ve ultrasonik desorpsiyon performanslarının incelenmesi, 2016 - 2017
- TUBITAK Project, Karbon dioksit yakalayan organik sıvıların reaksiyon kinetiği ve mekanizmasının deneysel ve moleküler modelleme yöntemleriyle incelenmesi, 2014 - 2016

YÜKSEL ORHAN Ö., ALPER E., KAYI H., Project Supported by Higher Education Institutions, Karbon Dioksit Gazının CO2 Tutan Organik Sıvılara Absorpsiyonunun Kinetiği, 2015 - 2015

## **Metrics**

Publication: 22

Citation (WoS): 92

Citation (Scopus): 591

H-Index (WoS): 6

H-Index (Scopus): 9

## **Non Academic Experience**

Ghent Üniversitesi

Ruhr Üniversitesi