

## Asst. Prof. ŞENİZ UÇAR

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAR-8334-2021

ScopusID: 56946552200

Yoksis Researcher ID: 183122

### Education Information

Doctorate, Norwegian University of Science and Technology, Natural Science Faculty, Department of Chemical Engineering, Norway 2013 - 2017

Postgraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Chemistry, Turkey 2009 - 2012

Undergraduate, Middle East Technical University, Faculty of Arts and Sciences, Department of Chemistry, Turkey 2005 - 2009

### Research Areas

Material science and engineering, Composites, Biomaterials, Nanomaterials, Physical Chemistry

### Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2023 - Continues

### Courses

Research Methods and Ethics in Metallurgical and Materials Engineering, Postgraduate, 2023 - 2024

THERMODYNAMICS OF MATERIALS I, Undergraduate, 2023 - 2024

FUNDAMENTALS OF MATERIALS SCIENCE AND ENGINEERING, Undergraduate, 2022 - 2023

MATERIALS ENGINEERING DESIGN II, Undergraduate, 2022 - 2023

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

- Exploiting Saturation Regimes and Surface Effects to Tune Composite Design: Single Platelet Nanocomposites of Peptoid Nanosheets and CaCO<sub>3</sub>**  
UÇAR Ş., Nielsen A. R., Mojsoska B., Dideriksen K., Andreassen J., Zuckermann R. N., Sand K. K.

ACS Applied Materials and Interfaces, vol.16, no.15, pp.19496-19506, 2024 (SCI-Expanded)

- II. **Predicting Silica Deposition from Superheated, Pressurized Steam Using Numerical Modeling of Nucleation, Agglomeration and Deposition**  
Bordvik S., van Erp T. S., UÇAR Ş., Næss E.  
Energies, vol.16, no.19, 2023 (SCI-Expanded)
- III. **Investigation of magnetite particle characteristics in relation to crystallization pathways**  
Kristiansen A. B., Church N., Ucar Ş.  
POWDER TECHNOLOGY, vol.415, 2023 (SCI-Expanded)
- IV. **The Effect of Reaction Conditions and Presence of Magnesium on the Crystallization of Nickel Sulfate**  
Jenssen I. B., Bockman O., Andreassen J., Ucar Ş.  
CRYSTALS, vol.11, no.12, 2021 (SCI-Expanded)
- V. **Investigating the effects of process parameters on the filtration performance of ferric hydroxide in a continuous MSMR reactor**  
Jenssen I. B., Ucar Ş., Dotterud O. M., Bockman O., Andreassen J.  
HYDROMETALLURGY, vol.202, 2021 (SCI-Expanded)
- VI. **Crystallization kinetics and growth of struvite crystals by seawater versus magnesium chloride as magnesium source: towards enhancing sustainability and economics of struvite crystallization**  
Shaddel S., Grini T., Andreassen J., Osterhus S. W., Ucar Ş.  
CHEMOSPHERE, vol.256, 2020 (SCI-Expanded)
- VII. **Struvite crystallization by using raw seawater: Improving economics and environmental footprint while maintaining phosphorus recovery and product quality**  
Shaddel S., Grini T., Ucar Ş., Azrague K., Andreassen J., Osterhus S. W.  
WATER RESEARCH, vol.173, 2020 (SCI-Expanded)
- VIII. **Precipitation of silver particles with controlled morphologies from aqueous solutions**  
Wang L., Andreassen J., Ucar Ş.  
CRYSTENGCOMM, vol.22, no.3, pp.478-486, 2020 (SCI-Expanded)
- IX. **Formation of Hydroxyapatite via Transformation of Amorphous Calcium Phosphate in the Presence of Alginate Additives**  
Ucar Ş., Bjornoy S. H., Bassett D. C., Strand B. L., Sikorski P., Andreassen J.  
CRYSTAL GROWTH & DESIGN, vol.19, no.12, pp.7077-7087, 2019 (SCI-Expanded)
- X. **Enhancing efficiency and economics of phosphorus recovery process by customizing the product based on sidestream characteristics - an alternative phosphorus recovery strategy**  
Shaddel S., Ucar Ş., Andreassen J., Osterhus S. W.  
WATER SCIENCE AND TECHNOLOGY, vol.79, no.9, pp.1777-1789, 2019 (SCI-Expanded)
- XI. **Engineering of struvite crystals by regulating supersaturation - Correlation with phosphorus recovery, crystal morphology and process efficiency**  
Shaddel S., Ucar Ş., Andreassen J., Osterhus S. W.  
JOURNAL OF ENVIRONMENTAL CHEMICAL ENGINEERING, vol.7, no.1, 2019 (SCI-Expanded)
- XII. **Transformation of brushite to hydroxyapatite and effects of alginate additives**  
Ucar Ş., Bjornoy S. H., Bassett D. C., Strand B. L., Sikorski P., Andreassen J.  
JOURNAL OF CRYSTAL GROWTH, vol.468, pp.774-780, 2017 (SCI-Expanded)
- XIII. **Letter to the Editor re "Characterization of alginate-brushite in-situ hydrogel composites"**  
Bjornoy S. H., Bassett D. C., Ucar Ş., Andreassen J., Sikorski P.  
MATERIALS SCIENCE AND ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS, vol.70, pp.930-931, 2017 (SCI-Expanded)
- XIV. **A correlative spatiotemporal microscale study of calcium phosphate formation and transformation within an alginate hydrogel matrix**  
Bjornoy S. H., Bassett D. C., Ucar Ş., Strand B. L., Andreassen J., Sikorski P.  
ACTA BIOMATERIALIA, vol.44, pp.254-266, 2016 (SCI-Expanded)
- XV. **Gelling kinetics and in situ mineralization of alginate hydrogels: A correlative spatiotemporal characterization toolbox**

Bjornoy S. H., Mandaric S., Bassett D. C., Aslund A. K. O., Ucar Ş., Andreassen J., Strand B. L., Sikorski P.  
ACTA BIOMATERIALIA, vol.44, pp.243-253, 2016 (SCI-Expanded)

- XVI. **Modified chitosan scaffolds: Proliferative, cytotoxic, apoptotic, and necrotic effects on Saos-2 cells and antimicrobial effect on Escherichia coli**  
Ucar Ş., ERMİŞ ŞEN M., Hasirci N.  
JOURNAL OF BIOACTIVE AND COMPATIBLE POLYMERS, vol.31, no.3, pp.304-319, 2016 (SCI-Expanded)
- XVII. **Corrosion and degradation in MEA based post-combustion CO2 capture**  
Fytianos G., Ucar Ş., Grimstvedt A., Hyldbakk A., Svendsen H. F., Knuutila H. K.  
INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL, vol.46, pp.48-56, 2016 (SCI-Expanded)
- XVIII. **Controlled mineralisation and recrystallisation of brushite within alginate hydrogels**  
Bjornoy S. H., Bassett D. C., Ucar Ş., Andreassen J., Sikorski P.  
BIOMEDICAL MATERIALS, vol.11, no.1, 2016 (SCI-Expanded)
- XIX. **Nucleation and Growth of Brushite in the Presence of Alginate**  
Ucar Ş., Bjornoy S. H., Bassett D. C., Strand B. L., Sikorski P., Andreassen J.  
CRYSTAL GROWTH & DESIGN, vol.15, no.11, pp.5397-5405, 2015 (SCI-Expanded)
- XX. **Chitosan-based wet-spun scaffolds for bioactive agent delivery**  
Ucar Ş., Yilgor P., Hasirci V., Hasirci N.  
JOURNAL OF APPLIED POLYMER SCIENCE, vol.130, no.5, pp.3759-3769, 2013 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Formation of Calcium Phosphate Minerals in the Presence of Fetuin-A**  
Ucar S.  
Celal Bayar Üniversitesi Fen Bilimleri Dergisi, vol.18, no.3, pp.233-238, 2022 (Peer-Reviewed Journal)

## Books & Book Chapters

- I. **Nucleation**  
Uçar Ş., Andreassen J.  
in: Fabrication and Application of Nanomaterials, Sulalit Bandyopadhyay, Editor, McGraw Hill Higher Education , New York, pp.13-30, 2019
- II. **Crystal Growth**  
Uçar Ş., Andreassen J.  
in: Fabrication and Application of Nanomaterials, Sulalit Bandyopadhyay, Editor, McGraw Hill Higher Education , New York, pp.31-48, 2019

## Refereed Congress / Symposium Publications in Proceedings

- I. **Impurity Uptake During Cooling Crystallization of Nickel Sulfate**  
Jenssen I. B., Ucar Ş., Bockman O., Dotterud O. M., Andreassen J.  
Symposium on Rare Metal Extraction and Processing held during the 149th TMS Annual Meeting and Exhibition / Magnesium Technology Symposium held during the 149th TMS Annual Meeting and Exhibition, California, United States Of America, 23 - 27 February 2020, pp.191-199
- II. **Corrosion evaluation of MEA solutions by SEM-EDS, ICP-MS and XRD**  
Fytianos G., Ucar Ş., Grimstvedt A., Svendsen H. F., Knuutila H.  
8th Trondheim Conference on CO2 Capture, Transport and Storage (TCCS), Trondheim, Norway, 16 - 18 June 2015, vol.86, pp.197-204

## **Supported Projects**

UÇAR Ş., TUBITAK Project, MINPROTECT: Understanding Role of Mineral Host in Protein Protection, Storage and Delivery in Biohybrids, 2023 - 2026

## **Scientific Refereeing**

ACTA BIOMATERIALIA, SCI Journal, November 2023

JOURNAL OF CLEANER PRODUCTION, SCI Journal, August 2023

MATERIALS LETTERS, National Scientific Refreed Journal, June 2023

## **Congress and Symposium Activities**

BIWIC – International Workshop on Industrial Crystallization, Invited Speaker, Stockholm, Sweden, 2023