

Asst. Prof. Cem Örnek

Personal Information

Email: cornek@itu.edu.tr

Web: <https://avesis.itu.edu.tr/cornek>

International Researcher IDs

ORCID: 0000-0002-3029-6493

Publons / Web Of Science ResearcherID: J-6006-2015

ScopusID: 55921055500

Yoksis Researcher ID: 329991

Education Information

Postgraduate, The University of Manchester, School of Materials, School of Materials, United Kingdom 2011 - 2015

Undergraduate, Fachhochschule Aalen-Hochschule für Technik, Mechanical Engineering, Mechanical Engineering, Germany 2007 - 2011

Foreign Languages

Turkish, C1 Advanced

French, A2 Elementary

German, C1 Advanced

English, C1 Advanced

Swedish, B2 Upper Intermediate

Arabic, A2 Elementary

Dissertations

Doctorate, Performance Characterisation of Duplex Stainless Steel in Nuclear Waste Storage Environment, The University of Manchester, School of Materials, School of Materials, 2016

Academic Titles / Tasks

Assistant Professor, Istanbul Technical University, Kimya-Metalurji, Metalurji Ve Malzeme Mühendisliği, 2021 - Continues

Published journal articles indexed by SCI, SSCI, and AHCI

- I. Time-resolved grazing-incidence X-ray diffraction measurement to understand the effect of hydrogen on surface strain development in super duplex stainless steel
Ornek C., Larsson A., Harlow G. S., Zhang F., Kroll R., Carla F., Hussain H., Kivisakk U., Engelberg D. L., Lundgren E., et al.
Scripta Materialia, vol.187, pp.63-67, 2020 (SCI-Expanded)
- II. Lateral variation of the native passive film on super duplex stainless steel resolved by synchrotron

- hard X-ray photoelectron emission microscopy**
Langberg M., Zhang F., Granas E., Ornek C., Cheng J., Liu M., Wiemann C., Gloskovskii A., Keller T. F., Schlueter C., et al.
Corrosion Science, vol.174, 2020 (SCI-Expanded)
- III. Anodisation of aluminium alloy AA7075-Influence of intermetallic particles on anodic oxide growth**
Zhang F., Ornek C., Nilsson J., Pan J.
CORROSION SCIENCE, vol.164, 2020 (SCI-Expanded)
- IV. Real-Time Corrosion Monitoring of Aluminum Alloy Using Scanning Kelvin Probe Force Microscopy**
Ornek C., Leygraf C., Pan J.
Journal of the Electrochemical Society, vol.167, no.8, 2020 (SCI-Expanded)
- V. Characterization of Native Oxide and Passive Film on Austenite/Ferrite Phases of Duplex Stainless Steel Using Synchrotron HAXPEEM**
Langberg M., Ornek C., Zhang F., Cheng J., Liu M., Granaes E., Wiemann C., Gloskovskii A., Matveyev Y., Kulkarni S., et al.
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.166, no.11, 2019 (SCI-Expanded)
- VI. Stress Corrosion Cracking and Hydrogen Embrittlement of Type 316L Austenitic Stainless Steel Beneath MgCl₂ and MgCl₂: FeCl₃ Droplets**
Ornek C.
CORROSION, vol.75, no.6, pp.657-667, 2019 (SCI-Expanded)
- VII. Redefining passivity breakdown of super duplex stainless steel by electrochemical operando synchrotron near surface X-ray analyses**
Langberg M., Ornek C., Evertsson J., Harlow G. S., Linpe W., Rullik L., Carla F., Felici R., Bettini E., Kivisakk U., et al.
NPJ MATERIALS DEGRADATION, vol.3, no.1, 2019 (SCI-Expanded)
- VIII. Influence of Surface Strain on Passive Film Formation of Duplex Stainless Steel and Its Degradation in Corrosive Environment**
Ornek C., Langberg M., Evertsson J., Harlow G., Linpe W., Rullik L., Carla F., Felici R., Kivisakk U., Lundgren E., et al.
JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.166, no.11, 2019 (SCI-Expanded)
- IX. Nickel fluoride as a surface activation agent for electroless nickel coating of anodized AA1050 aluminum alloy**
Kocabas M., Ornek C., Curioni M., CANSEVER N.
SURFACE & COATINGS TECHNOLOGY, vol.364, pp.231-238, 2019 (SCI-Expanded)
- X. On the Volta potential measured by SKPFM - fundamental and practical aspects with relevance to corrosion science**
Ornek C., Leygraf C., Pan J.
CORROSION ENGINEERING SCIENCE AND TECHNOLOGY, vol.54, no.3, pp.185-198, 2019 (SCI-Expanded)
- XI. Corrosion inhibition of aluminium alloy AA6063-T5 by vanadates: Local surface chemical events elucidated by confocal Raman micro-spectroscopy**
Kharitonov D. S., Sommertune J., Ornek C., Ryl J., Kurilo I. I., Claesson P. M., Pan J.
CORROSION SCIENCE, vol.148, pp.237-250, 2019 (SCI-Expanded)
- XII. Experimental and modelling study of the effect of tempering on the susceptibility to environment-assisted cracking of AISI 420 martensitic stainless steel**
Anantha K. H., Ornek C., Ejnermark S., Thuvander A., Medvedeva A., Sjostrom J., Pan J.
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- XIII. Passive film characterisation of duplex stainless steel using scanning Kelvin probe force microscopy in combination with electrochemical measurements**
Ornek C., Leygraf C., Pan J.
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- XIV. Toward Understanding the Effects of Strain and Chloride Deposition Density on Atmospheric Chloride-Induced Stress Corrosion Cracking of Type 304 Austenitic Stainless Steel Under MgCl₂ and FeCl₃:MgCl₂ Droplets**
Ornek C., Engelberg D. L.

- CORROSION, vol.75, no.2, pp.167-182, 2019 (SCI-Expanded)
- XV. In-situ synchrotron GIXRD study of passive film evolution on duplex stainless steel in corrosive environment
 Ornek C., Langberg M., Evertsson J., Harlow G., Linpe W., Rullik L., Carla F., Felici R., Bettini E., Kivisakk U., et al.
 CORROSION SCIENCE, vol.141, pp.18-21, 2018 (SCI-Expanded)
- XVI. Hydrogen embrittlement of super duplex stainless steel - Towards understanding the effects of microstructure and strain
 Ornek C., Reccagni P., Kivisakk U., Bettini E., Engelberg D. L., Pan J.
 INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.43, no.27, pp.12543-12555, 2018 (SCI-Expanded)
- XVII. Volta Potential Evolution of Intermetallics in Aluminum Alloy Microstructure Under Thin Aqueous Adlayers: A combined DFT and Experimental Study
 Ornek C., Liu M., Pan J., Jin Y., Leygraf C.
 TOPICS IN CATALYSIS, vol.61, no.9-11, pp.1169-1182, 2018 (SCI-Expanded)
- XVIII. Microstructure and functionality of a uniquely graded super duplex stainless steel designed by a novel arc heat treatment method
 Hosseini V. A., Karlsson L., Ornek C., Reccagni P., Wessman S., Engelberg D.
 MATERIALS CHARACTERIZATION, vol.139, pp.390-400, 2018 (SCI-Expanded)
- XIX. Time-dependent in situ measurement of atmospheric corrosion rates of duplex stainless steel wires
 Ornek C., Leonard F., McDonald S. A., Prajapati A., Withers P. J., Engelberg D. L.
 NPJ MATERIALS DEGRADATION, vol.2, no.1, 2018 (SCI-Expanded)
- XX. Corrosion Inhibition of Aluminum Alloy AA6063-T5 by Vanadates: Microstructure Characterization and Corrosion Analysis
 Kharitonov D. S., Ornek C., Claesson P. M., Sommertune J., Zharskii I. M., Kurilo I. I., Pan J.
 JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.165, no.3, 2018 (SCI-Expanded)
- XXI. Additive manufacturing - a general corrosion perspective
 Ornek C.
 CORROSION ENGINEERING SCIENCE AND TECHNOLOGY, vol.53, no.7, pp.531-535, 2018 (SCI-Expanded)
- XXII. 748 K (475 A degrees C) Embrittlement of Duplex Stainless Steel: Effect on Microstructure and Fracture Behavior
 Ornek C., Burke M. G., Hashimoto T., Engelberg D. L.
 METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, vol.48A, no.4, pp.1653-1665, 2017 (SCI-Expanded)
- XXIII. In Situ AFM Study of Localized Corrosion Processes of Tempered AISI 420 Martensitic Stainless Steel: Effect of Secondary Hardening
 Anantha K. H., Ornek C., Ejnermark S., Medvedeva A., Sjostrom J., Pan J.
 JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.164, no.13, 2017 (SCI-Expanded)
- XXIV. Correlative Microstructure Analysis and In Situ Corrosion Study of AISI 420 Martensitic Stainless Steel for Plastic Molding Applications
 Anantha K. H., Ornek C., Ejnermark S., Medvedeva A., Sjostrom J., Pan J.
 JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.164, no.4, 2017 (SCI-Expanded)
- XXV. Characterization of 475 degrees C Embrittlement of Duplex Stainless Steel Microstructure via Scanning Kelvin Probe Force Microscopy and Magnetic Force Microscopy
 Ornek C., Walton J., Hashimoto T., Ladwein T. L., Lyon S. B., Engelberg D. L.
 JOURNAL OF THE ELECTROCHEMICAL SOCIETY, vol.164, no.6, 2017 (SCI-Expanded)
- XXVI. Atmospheric-Induced Stress Corrosion Cracking of Grade 2205 Duplex Stainless Steel-Effects of 475 degrees C Embrittlement and Process Orientation
 Ornek C., Idris S. A. M., Reccagni P., Engelberg D. L.
 METALS, vol.6, no.7, 2016 (SCI-Expanded)
- XXVII. Towards understanding the effect of deformation mode on stress corrosion cracking susceptibility of grade 2205 duplex stainless steel
 Ornek C., Engelberg D. L.

- MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.666, pp.269-279, 2016 (SCI-Expanded)
- XXVIII. An experimental investigation into strain and stress partitioning of duplex stainless steel using digital image correlation, X-ray diffraction and scanning Kelvin probe force microscopy
Örnek C., Engelberg D. L.
JOURNAL OF STRAIN ANALYSIS FOR ENGINEERING DESIGN, vol.51, no.3, pp.207-219, 2016 (SCI-Expanded)
- XXIX. Low-Temperature Environmentally Assisted Cracking of Grade 2205 Duplex Stainless Steel Beneath a MgCl₂:FeCl₃ Salt Droplet
Örnek C., Zhong X., Engelberg D. L.
CORROSION, vol.72, no.3, pp.384-399, 2016 (SCI-Expanded)
- XXX. Correlative EBSD and SKPFM characterisation of microstructure development to assist determination of corrosion propensity in grade 2205 duplex stainless steel
Örnek C., Engelberg D. L.
JOURNAL OF MATERIALS SCIENCE, vol.51, no.4, pp.1931-1948, 2016 (SCI-Expanded)
- XXXI. SKPFM measured Volta potential correlated with strain localisation in microstructure to understand corrosion susceptibility of cold-rolled grade 2205 duplex stainless steel
Örnek C., Engelberg D. L.
CORROSION SCIENCE, vol.99, pp.164-171, 2015 (SCI-Expanded)
- XXXII. Probing propensity of grade 2205 duplex stainless steel towards atmospheric chloride-induced stress corrosion cracking
Engelberg D. L., Örnek C.
CORROSION ENGINEERING SCIENCE AND TECHNOLOGY, vol.49, no.6, pp.535-539, 2014 (SCI-Expanded)
- XXXIII. Correlative Tomography
Burnett T. L., McDonald S. A., Gholinia A., Geurts R., Janus M., Slater T., Haigh S. J., Örnek C., Almuaili F., Engelberg D. L., et al.
SCIENTIFIC REPORTS, vol.4, 2014 (SCI-Expanded)

Articles Published in Other Journals

- I. 475 degrees C Embrittlement of Duplex Stainless Steel-A Comprehensive Microstructure Characterization Study
Örnek C., Burke M. G., Hashimoto T., Lim J. J. H., Engelberg D. L.
MATERIALS PERFORMANCE AND CHARACTERIZATION, vol.6, no.3, pp.409-436, 2017 (ESCI)
- II. Effect of "475°C embrittlement" on the corrosion behaviour of grade 2205 duplex stainless steel investigated using local probing techniques
Örnek C., Engelberg D., Lyon S., Ladwein T.
Corrosion Management, no.115, pp.9-11, 2013 (Scopus)

Refereed Congress / Symposium Publications in Proceedings

- I. Assessment of the influence of hydrogen on the microstructure of TIG welded grade 2205 duplex stainless steel
Reccagni P., Örnek C., Lu Q., Gittos M., Engelberg D.
European Corrosion Congress, EUROCORR 2016, Montpellier, France, 11 - 15 September 2016, vol.1, pp.31-36
- II. On the effect of local strain and stress on environment-assisted cracking susceptibility of grade 2205 duplex stainless steel
Örnek C., Engelberg D.
European Corrosion Congress, EUROCORR 2015, Graz, Austria, 6 - 10 September 2015, vol.1, pp.72
- III. Effect of "475°C embrittlement" on the corrosion behaviour of grade 2205 duplex stainless steel

investigated using local probing techniques

Örnek C., Engelberg D., Lyon S., Ladwein T.

European Corrosion Congress, EUROCORR 2013, Estoril, Portugal, 1 - 05 September 2013

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