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Ögrenim Bilgisi

Doktora 2011 - 2015	Koç Üniversitesi, Makine Mühendisliği, Türkiye

Yabancı Diller

İngilizce, C1 İleri

Yaptığı Tezler

Doktora, Utilizing Multi-Scale Modeling and Experimentation to Uncover the Role of Micro-Deformation Mechanisms on the Performance of High-Strength Steels, Koç Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği, 2015

Akademik Unvanlar / Görevler

Doç.Dr. 2019 - Devam Ediyor	Abdullah Gül Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği
Yrd.Doç.Dr. 2016 - 2019	Abdullah Gül Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği
Öğretim Görevlisi Dr. 2016 - 2016	Kyushu Üniversitesi, Engineering , Mechanical Engineering
Araştırma Görevlisi Dr. 2015 - 2016	Purdue University, Engineering , Aeronautics And Astronautics
Araştırma Görevlisi 2011 - 2015	Koç Üniversitesi, Mühendislik Fakültesi, Makine Mühendisliği

Desteklenen Projeler

1. BAL B., BALTACIOĞLU M. F., Yükseköğretim Kurumları Destekli Proje, Aluminyum 7075 Alaşımının Hidrojen Gevrekliği Davranışına Gerinim Hızı Etkisinin Araştırılması, 2022 - Devam Ediyor
2. Bal B., TÜBİTAK Projesi, Deneysel ve hesaplamalı yöntemler ile atomik hidrojen neden olduğu hasarın kapsamlı araştırılması, 2021 - 2022
3. BAL B., Yükseköğretim Kurumları Destekli Proje, Yüksek manganlı östenitik çeliklerin mekanik davranışlarının deneysel yöntemler ile belirlenmesi ve çok ölçekli modelleme yöntemi ile araştırılması, 2017 - 2019
4. BAL B., Yükseköğretim Kurumları Destekli Proje, Hafif ve Kompakt Giyilebilir Robotik Diz Dış-İskeletinin Tasarımı ve Geliştirilmesi, 2017 - 2019

SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler

1. **The Effect of Strain Rate on the Hydrogen Embrittlement Susceptibility of Aluminum 7075**
   BALTACIOĞLU M. F., Cetin B., BAL B.
   Journal of Engineering Materials and Technology, cilt.145, sa.2, 2023 (SCI-Expanded)
2. **Finite Element Analysis of the Stress Distribution Associated With Different Implant Designs for Different Bone Densities**
   LEBLEBİCİOĞLU KURTULUŞ İ., KILIÇ K., BAL B., Kilavuz A.
   JOURNAL OF PROSTHODONTICS-IMPLANT ESTHETIC AND RECONSTRUCTIVE DENTISTRY, cilt.31, sa.7, ss.614-622, 2022 (SCI-Expanded)
3. **Investigations of strain rate, size, and crack length effects on the mechanical response of polycaprolactone electrospun membranes**
   Bayram F. C., KAPÇI M. F., Yuruk A., İŞOĞLU İ. A., BAL B.
   PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART E-JOURNAL OF PROCESS MECHANICAL ENGINEERING, cilt.235, sa.6, ss.1957-1970, 2021 (SCI-Expanded)
4. **Development of an optical measurement system for surface depth measurements and study of focus effect on determination of steel inclusion content by EN-10247**
   Durkaya G., KURTULDU H., Cetin B., BAL B.
   OPTICAL ENGINEERING, cilt.60, sa.10, 2021 (SCI-Expanded)
5. **Experimental and Molecular Dynamics Simulation-Based Investigations on Hydrogen Embrittlement Behavior of Chromium Electroplated 4340 Steel**
   Dogan O., KAPÇI M. F., Esat V., BAL B.
   JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME, cilt.143, sa.4, 2021 (SCI-Expanded)
6. **The role of hydrogen in the edge dislocation mobility and grain boundary-dislocation interaction in alpha-Fe**
   KAPÇI M. F., Schoen J. C., BAL B.
   INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, cilt.46, sa.64, ss.32695-32709, 2021 (SCI-Expanded)
7. **Assessment of biocompatibility of novel TiTaHf-based high entropy alloys for utility in orthopedic implants**
   Gurel S., Nazarahari A., Canadinc D., Cabuk H., Bal B.
   Materials Chemistry and Physics, cilt.266, 2021 (SCI-Expanded)
8. **Effect of pre-rolling temperature on the interfacial properties and formability of steel-steel bilayer sheet in Single Point Incremental Forming**
   Hassan M., Hussain G., Ali A., Ilyas M., Malik S., Khan W. A., BAL B.
   PROCEEDINGS OF THE INSTITUTION OF MECHANICAL ENGINEERS PART B-JOURNAL OF ENGINEERING MANUFACTURE, cilt.235, sa.3, ss.406-416, 2021 (SCI-Expanded)
9. **Fracture behavior of novel biomedical Ti-based high entropy alloys under impact loading**
   Gurel S., Yagci M. B., Canadinc D., Gerstein G., Bal B., Maier H. J.
   MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, cilt.803, 2021 (SCI-Expanded)

10. **Corrosion behavior of novel Titanium-based high entropy alloys designed for medical implants**
Gurel S., Yagci M. B., Bal B., Canadinc D.
Materials Chemistry and Physics, cilt.254, 2020 (SCI-Expanded)
11. **A detailed investigation of the effect of hydrogen on the mechanical response and microstructure of Al 7075 alloy under medium strain rate impact loading**
BAL B., Okdem B., Bayram F. C., AYDIN M.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, cilt.45, sa.46, ss.25509-25522, 2020 (SCI-Expanded)
12. **Lateral Angular Co-Extrusion: Geometrical and Mechanical Properties of Compound Profiles**
Thuerer S. E., Peddinghaus J., Heimes N., Bayram F. C., BAL B., Uhe J., Behrens B., Maier H. J., Klose C.
METALS, cilt.10, sa.9, 2020 (SCI-Expanded)
13. **Strain rate and hydrogen effects on crack growth from a notch in a Fe-high-Mn steel containing 1.1 wt% solute carbon**
Najam H., Koyama M., BAL B., Akiyama E., Tsuzaki K.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, cilt.45, sa.1, ss.1125-1139, 2020 (SCI-Expanded)
14. **The Precise Determination of the Johnson-Cook Material and Damage Model Parameters and Mechanical Properties of an Aluminum 7068-T651 Alloy**
BAL B., Karaveli K. K., Cetin B., Gumus B.
JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME, cilt.141, sa.4, 2019 (SCI-Expanded)
15. **Experimental investigation on chloroprene and acrylonitrile butadiene rubber types reinforced with nano-materials**
Dogan O., Esat V., BAL B.
MATERIALS RESEARCH EXPRESS, cilt.6, sa.8, 2019 (SCI-Expanded)
16. **On the detailed mechanical response investigation of PHBV/PCL and PHBV/PLGA electrospun mats**
BAL B., Tugluca I. B., Koc N., İŞOĞLU İ. A.
MATERIALS RESEARCH EXPRESS, cilt.6, sa.6, 2019 (SCI-Expanded)
17. **Lowering Strain Rate Simultaneously Enhances Carbon- and Hydrogen-Induced Mechanical Degradation in an Fe-33Mn-1.1C Steel**
Tugluca I. B., Koyama M., Shimomura Y., BAL B., Canadinc D., Akiyama E., Tsuzaki K.
METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, cilt.50, sa.3, ss.1137-1141, 2019 (SCI-Expanded)
18. **Microstructure and tribological properties of TiTaHfNbZr high entropy alloy coatings deposited on Ti-6Al-4V substrates**
Tuten N., Canadinc D., Motallebzadeh A., BAL B.
INTERMETALLICS, cilt.105, ss.99-106, 2019 (SCI-Expanded)
19. **Microstructure and tribological properties of TiTaHfNbZr high entropy alloy coatings deposited on Tie6Ale4V substrates**
Tüten N., CANADINC D., Motallebzadeh A., BAL B.
INTERMETALLICS, cilt.105, ss.99-106, 2019 (SCI-Expanded)
20. **On the Utility of Crystal Plasticity Modeling to Uncover the Individual Roles of Microdeformation Mechanisms on the Work Hardening Response of Fe-23Mn-0.5C TWIP Steel in the Presence of Hydrogen**
Bal B., Koyama M., Canadinc D., Gerstein G., Maier H. J., Tsuzaki K.
JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME, cilt.140, sa.3, 2018 (SCI-Expanded)
21. **A Study of Different Microstructural Effects on the Strain Hardening Behavior of Hadfield Steel**
BAL B.
INTERNATIONAL JOURNAL OF STEEL STRUCTURES, cilt.18, sa.1, ss.13-23, 2018 (SCI-Expanded)
22. **High-concentration carbon assists plasticity-driven hydrogen embrittlement in a Fe-high Mn steel with a relatively high stacking fault energy**
Tugluca I. B., Koyama M., BAL B., Canadinc D., Akiyama E., Tsuzaki K.

MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, cilt.717, ss.78-84, 2018 (SCI-Expanded)

23. **Numerical Investigation of the Role of Volumetric Transformation Strain on the Relaxation Stress and the Corresponding Hydrogen Interstitial Concentration in Niobium Matrix**
BAL B.
ADVANCES IN MATERIALS SCIENCE AND ENGINEERING, 2017 (SCI-Expanded)
24. **A New Venue Toward Predicting the Role of Hydrogen Embrittlement on Metallic Materials**
BAL B., Sahin İ., Uzun A., Canadinc D.
METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, sa.11, ss.5409-5422, 2016 (SCI-Expanded)
25. **Effect of strain rate on hydrogen embrittlement susceptibility of twinning-induced plasticity steel pre-charged with high-pressure hydrogen gas**
Bal B., Koyama M., Gerstein G., Maier H. J., Tsuzaki K.
INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, cilt.41, sa.34, ss.15362-15372, 2016 (SCI-Expanded)
26. **Incorporation of dynamic strain aging into a Visco-Plastic Self-Consistent model for predicting the negative strain rate sensitivity of Hadfield steel**
BAL B., Gumus B., Canadinc D.
JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME, cilt.138, ss.1-8, 2016 (SCI-Expanded)
27. **Twinning activity in high-manganese austenitic steels under high velocity loading**
Gumus B., Bal B., GERSTEIN G., Canadinc D., MAIER H. J.
MATERIALS SCIENCE AND TECHNOLOGY, cilt.32, sa.5, ss.463-465, 2016 (SCI-Expanded)
28. **Twinning activities in high-Mn austenitic steels under high-velocity compressive loading**
Gumus B., Bal B., GERSTEIN G., Canadinc D., MAIER H. J., GUNER F., ELMADAGLI M.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, cilt.648, ss.104-112, 2015 (SCI-Expanded)
29. **Experimental and Numerical Evaluation of Thickness Reduction in Steel Plate Heat Exchangers**
Onal O., Bal B., Canadinc D., Akdari E.
JOURNAL OF ENGINEERING MATERIALS AND TECHNOLOGY-TRANSACTIONS OF THE ASME, cilt.137, sa.4, 2015 (SCI-Expanded)
30. **On the micro-deformation mechanisms active in high-manganese austenitic steels under impact loading**
Bal B., Gumus B., GERSTEIN G., Canadinc D., MAIER H. J.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, cilt.632, ss.29-34, 2015 (SCI-Expanded)
31. **Microstructure-based modeling of the impact response of a biomedical niobium-zirconium alloy**
Onal O., Bal B., Toker S. M., Mirzajanzadeh M., Canadinc D., MAIER H. J.
JOURNAL OF MATERIALS RESEARCH, cilt.29, sa.10, ss.1123-1134, 2014 (SCI-Expanded)

Diğer Dergilerde Yayınlanan Makaleler

1. **Investigation of Hydrogen Diffusion Profile of Different Metallic Materials for a Better Understanding of Hydrogen Embrittlement**
KAPÇI M. F., BAL B.
Gazi University Journal of Science, cilt.36, sa.4, ss.1775-1784, 2023 (ESCI)
2. **Accurate Prediction of Residual Stresses in Machining of Inconel 718 Alloy through Crystal Plasticity Modelling**
Kesriklioglu S., Kapci M. F., Büyükçapar R., Cetin B., Yilmaz O. D., Bal B.
Afyon Kocatepe Üniversitesi Fen Ve Mühendislik Bilimleri Dergisi, cilt.23, sa.1, ss.247-259, 2023 (Hakemli Dergi)
3. **DETERMINATION OF MATERIAL RESPONSE AND OPTIMIZATION OF JOHNSON-COOK DAMAGE**

PARAMETERS OF ALUMINIUM 7075 ALLOY
BAL B.
Selçuk Üniversitesi Mühendislik, Bilim ve Teknoloji Dergisi, cilt.6, sa.2, ss.343-354, 2018 (Hakemli Dergi)

Kitap & Kitap Bölümleri

1. **Potential Effects of Short-Range Order on Hydrogen Embrittlement of Stable Austenitic Steels—A Review**
   Bal B.
   Advances in Hydrogen Embrittlement Study, Prof. Dr. Vladimir A. Polyanskiy,Prof. Dr. Alexander K. Belyaev, Editör, Springer, London/Berlin , London, ss.1-18, 2021

Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

1. **Detailed Comparison of Hydrogen Concentration Modelling in Different Metal Matrices**
   BAL B., Ali S. F., Malik F.
   International Energy and Engineering Conference 2019, 24 - 25 Eylül 2019
2. **Effect of Hydrogen on Impact Response of Ductile Cast Iron**
   Najam H., BAL B., Çetin B.
   International Energy and Engineering Conference 2019, 24 - 25 Eylül 2019
3. **EFFECT OF HEAT TREATMENTS ON THE BOND STRENGTH OF COLD ROLL BONDED SN COATED STEELS**
   BAL B., Kapcı M. F.
   ZEUGMA II. ULUSLARARASI MULTİDİSİPLİNER ÇALIŞMALAR KONGRESİ, 18 - 20 Ocak 2019
4. **Better Understanding of Hydrogen Embrittlement**
   BAL B., Tuğluca İ. B., Koyama M., Tsuzaki K.
   2018 STLE Tribology Frontiers Conference, 28 - 31 Ekim 2018
5. **The Mechanical Responses of Lightweight Aluminum Alloys and Their Applications**
   Karaveli K. K., BAL B.
   3th International Conference on Material Science and Technology in Cappadocia (IMSTEC'18), 17 - 19 Eylül 2018
6. **A COMPARATIVE STUDY ON HYDROGEN EMBRITTELEMENT MECHANISMS**
   BAL B., Yerlitaş M., Çetin B., Meço H.
   The 18th International Conference on Machine Design and Production, 3 - 06 Temmuz 2018
7. **Effects of chemical composition and hydrogen charging on the mechanical response of slip-dominated high manganese austenitic steel**
   Tuğluca İ. B., BAL B., Koyama M.
   The Internatinonal Conference on Materials Science, Mechanical and Automotive Engineerings and Technology, 10 - 12 Nisan 2018
8. **COMPARING THE MECHANICAL RESPONSE OF Al 7075 AND Al7068**
   Karaveli K. K., Gümüş B., BAL B.
   The Internatinonal Conference on Materials Science, Mechanical and Automotive Engineerings and Technology, 10 - 12 Nisan 2018
9. **MATERIAL SELECTION FOR KNEE EXOSKELETON FRAME**
   Najam H., BAL B., ÜNAL R.
   The Internatinonal Conference on Materials Science, Mechanical and Automotive Engineerings and Technology, 10 - 12 Nisan 2018
10. **The Hydrogen Embrittlement Susceptibility of High Strength Steels**
    BAL B., İŞOĞLU İ. A., Koyama M.
    Advances in Functional Materials, 14 - 17 Ağustos 2017

11. **HYDROGEN EMBRITTLEMENT SUSCEPTIBILITY OF TWIP STEEL**
    BAL B.
    International Energy and Engineering Conference, 13 - 14 Ekim 2016
12. **OPTIMISATION OF AUTOMOBILE INTERIOR DESIGN PARAMETERS TO MITIGATE THE EFFECTS OF FULL-FRONTAL AND OBLIQUE COLLISIONS**
    Tarhan M., BAL B., ESAT V.
    15. ULUSLARARASI MAKİNA TASARIM VE İMALAT KONGRESİ (UMTİK 2012), 19 - 22 Haziran 2012

Verdiği Dersler

Machine Elements , Lisans, 2015 - 2016
Materials Science, Lisans, 2015 - 2016

Bilimsel Hakemlikler

Journal of Process Mechanical Engineering, SCI Kapsamındaki Dergi, Mayıs 2016
Metallurgical and Materials Transactions A, SCI Kapsamındaki Dergi, Mart 2016
Fatigue & Fracture of Engineering Materials & Structures, SCI Kapsamındaki Dergi, Kasım 2015
Journal of Mechanics Engineering and Automation, Diğer İndekslerce Taranan Dergi, Ekim 2015

Metrikler

Yayın: 47
Atıf (WoS): 117
Atıf (Scopus): 114
H-İndeks (WoS): 6
H-İndeks (Scopus): 7

Kongre ve Sempozyum Katılımı Faaliyetleri

Uluslararası Enerji ve Mühendislik Konferansı 2016, Davetli Konuşmacı, Gaziantep, Türkiye, 2016
Centre for research on i-s interaction and mechanical property in steel, Davetli Konuşmacı, Fukuoka, Japonya, 2016
International Conference on Processing and Manufacturing of Advanced Materials, Davetli Konuşmacı, Nevada, Amerika Birleşik Devletleri, 2013
The 15th International Conference on Machine Design and Production, Davetli Konuşmacı, Denizli, Türkiye, 2012

Araştırma Alanları

Makina Mühendisliği, Mekanik, Katı Cisimler Mekaniği , Kırılma Mekaniği , Sonlu Elemanlar Yöntemi , Mekanik Testler, Sürekli Ortam Mekaniği, Metalurji ve Malzeme Mühendisliği, Malzeme Bilimi ve Mühendisliği, Malzeme Testi ve Kontrolü, Mekanik Özellikler, Mekanik Metalurji, Metalik Malzemeler, Yapı-Özellik İlişkisi , Mühendislik ve Teknoloji