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Personal Information

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Education Information

Doctorate, Purdue University, School Of Materials Engineering, United States Of America 2008 - 2012

Postgraduate, Purdue University, School Of Materials Engineering, United States Of America 2006 - 2008

Undergraduate Minor, Middle East Technical University, Faculty of Engineering, Makine Mühendisliği Bölümü, Turkey 2003 - 2006

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, Turkey 2001 - 2005

Dissertations

Doctorate, Extrusion machining: A thermo-mechanical process for producing strips of alloys having limited workability, Purdue University, School Of Materials Engineering, 2012

Postgraduate, Hot-Pressing of Ultrafine Grained Tantalum Chip Powders with In-Situ Oxygen Gettering, Purdue University, School Of Materials Engineering, 2008

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2018 - Continues

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2014 - 2018

Lecturer PhD, Purdue University, 2012 - 2013

Research Assistant, Purdue University, 2006 - 2012

Academic and Administrative Experience

Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2017 - Continues

Advising Theses

EFE M., Production of photocatalytically active TiO_2 - P_2O_5 glasses by the Sol-gel process, Postgraduate, Y.Cansın(Student), 2019

EFE M., Controlling and modelling of twin induced strain localization in rolling of magnesium AZ31, Postgraduate, K.İsmail(Student), 2019

EFE M., Microstructural origins of strain heterogeneity in formability of aluminum alloys, Doctorate, B.Güler(Student),

2019

EFE M., Investigation of texture development and Portevin-Le Chatelier bands in 5754 aluminum alloy, Postgraduate, O.Berk(Student), 2019

EFE M., Damage in dual phase steels under industrial forming conditions., Postgraduate, M.Çobanoğlu(Student), 2019

EFE M., Multiscale & in-situ forming analysis of az31 magnesium alloy under different strain paths, Postgraduate, K.ALKAN(Student), 2018

EFE M., GRAIN SIZE DEPENDENCE OF TWIN-DOMINANT DEFORMATION IN ROLLED MAGNESIUM AZ31 INVESTIGATED BY IN SITU MICROSCOPIC IMAGE CORRELATION, Postgraduate, S.UÇAR(Student), 2017

EFE M., Dynamic strain aging of dual phase steels in forming applications, Postgraduate, B.BAYRAMIN(Student), 2017

EFE M., Large strain and small-scale biaxial testing of sheet metals, Postgraduate, Y.SEYMEN(Student), 2016

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Stable, Ductile and Strong Ultrafine HT-9 Steels via Large Strain Machining**
El-Atwani O., Kim H., Gigax J. G., Harvey C., Aytuna B., Efe M., Maloy S. A.
NANOMATERIALS, vol.11, no.10, 2021 (SCI-Expanded)
- II. **The role of intermetallic particles on mode I crack propagation mechanisms in metal plates**
Tekoğlu C., Çelik Ş., Duran H., EFE M., Baier-Stegmaier S., Nielsen K.
Engineering Fracture Mechanics, vol.253, 2021 (SCI-Expanded)
- III. **Excessive damage increase in dual phase steels under high strain rates and temperatures**
Cobanoglu M., Ertan R. K., ŞİMŞİR C., EFE M.
INTERNATIONAL JOURNAL OF DAMAGE MECHANICS, vol.30, no.2, pp.283-296, 2021 (SCI-Expanded)
- IV. **Strong strain path dependence of strain localizations and fracture in magnesium AZ31 sheet**
Alkan K., Aytuna O. B., GÜLER B., EFE M.
JOURNAL OF MAGNESIUM AND ALLOYS, vol.8, no.2, pp.472-479, 2020 (SCI-Expanded)
- V. **Micro- and mesoscale mechanical properties of an ultra-fine grained CrFeMnNi high entropy alloy produced by large strain machining**
Gigax J. G., El-Atwani O., McCulloch Q., Aytuna B., EFE M., Fensin S., Maloy S. A., Li N.
SCRIPTA MATERIALIA, vol.178, pp.508-512, 2020 (SCI-Expanded)
- VI. **Efficient fabrication of ultrafine-grained 316L stainless steel surfaces for orthopaedic applications**
Tufan Y., Demir E. C., Efe M., Ercan B.
Materials Science and Technology (United Kingdom), vol.35, pp.1891-1897, 2019 (SCI-Expanded)
- VII. **Does sink efficiency unequivocally characterize how grain boundaries impact radiation damage ?**
El-Atwani O., Martinez E., Esquivel E., EFE M., Taylor C., Wang Y. Q., Uberuaga B. P., Matoy S. A.
PHYSICAL REVIEW MATERIALS, vol.2, no.11, 2018 (SCI-Expanded)
- VIII. **Nanohardness measurements of heavy ion irradiated coarse- and nanocrystalline-grained tungsten at room and high temperature**
El-Atwani O., Weaver J. S., Esquivel E., EFE M., Chancey M. R., Wang Y. Q., Maloy S. A., Mara N.
JOURNAL OF NUCLEAR MATERIALS, vol.509, pp.276-284, 2018 (SCI-Expanded)
- IX. **Twinning-induced shear banding and its control in rolling of magnesium**
Atik K., EFE M.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.725, pp.267-273, 2018 (SCI-Expanded)
- X. **Loop and void damage during heavy ion irradiation on nanocrystalline and coarse grained tungsten: Microstructure, effect of dpa rate, temperature, and grain size**
El-Atwani O., Esquivel E., EFE M., Aydoğan E., Wang Y. Q., Martinez E., Maloy S. A.
Acta Materialia, vol.149, pp.206-219, 2018 (SCI-Expanded)
- XI. **Detailed transmission electron microscopy study on the mechanism of dislocation loop rafting in tungsten**
El-Atwani O., Aydoğan E., Esquivel E., EFE M., Wang Y. Q., Maloy S. A.

Acta Materialia, vol.147, pp.277-283, 2018 (SCI-Expanded)

- XII. **Softening due to Grain Boundary Cavity Formation and its Competition with Hardening in Helium Implanted Nanocrystalline Tungsten**
Cunningham W. S., Gentile J. M., El-Atwani O., Taylor C. N., EFE M., Maloy S. A., Trelewicz J. R.
SCIENTIFIC REPORTS, vol.8, 2018 (SCI-Expanded)
- XIII. **Forming and fracture limits of sheet metals deforming without a local neck**
GÜLER B., EFE M.
JOURNAL OF MATERIALS PROCESSING TECHNOLOGY, vol.252, pp.477-484, 2018 (SCI-Expanded)
- XIV. **Dynamic strain aging in DP steels at forming relevant strain rates and temperatures**
BAYRAMIN B., Simsir C., EFE M.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.704, pp.164-172, 2017 (SCI-Expanded)
- XV. **Large Strain and Small-Scale Biaxial Testing of Sheet Metals**
Seymen Y., GÜLER B., EFE M.
EXPERIMENTAL MECHANICS, vol.56, no.9, pp.1519-1530, 2016 (SCI-Expanded)
- XVI. **Flow transitions and flow localization in large-strain deformation of magnesium alloy**
Sagapuram D., EFE M., Trumble K. P., Chandrasekar S.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.659, pp.295-305, 2016 (SCI-Expanded)

Refereed Congress / Symposium Publications in Proceedings

- I. **Investigation of Portevin-LeChatelier Bands in 5754 Aluminum Alloy under Various Strain Paths**
Aytuna O. B., EFE M.
1st International Workshop on Plasticity, Damage and Fracture of Engineering Materials (IWPDF), Ankara, Turkey, 22 - 23 August 2019, vol.21, pp.120-129
- II. **Production of Photocatalytically Active TiO₂ – P2O₅ Glasses by the Sol-gel Process**
öztürk Y. C., Bouziani A., EFE M., PARK J., KALEM V., ÖZTÜRK A.
19. Uluslararası Metalurji ve Malzeme Kongresi, İstanbul, Turkey, 25 - 27 October 2018, vol.1, pp.412-415
- III. **MULTI-SCALE CHARACTERIZATION OF DEFORMATION IN ALUMINUM**
GÜLER B., EFE M.
13th ASME International Manufacturing Science and Engineering Conference, Texas, United States Of America, 18 - 22 June 2018
- IV. **Grain-Scale Investigations of Deformation Heterogeneities in Aluminum Alloys**
GÜLER B., Simsek U., YALÇINKAYA T., EFE M.
21st International ESAFORM Conference on Material Forming (ESAFORM), Palermo, Italy, 23 - 25 April 2018, vol.1960
- V. **Formability analysis of sheet metals by cruciform testing**
GÜLER B., Alkan K., EFE M.
36th IDDRG Conference on Materials Modelling and Testing for Sheet Metal Forming, Munich, Germany, 2 - 06 July 2017, vol.896
- VI. **A Material Perspective on Consequence of Deformation Heating During Stamping of DP Steels**
ŞİMŞİR C., Cetin B., EFE M., Davut K., Bayramin B.
36th IDDRG Conference on Materials Modelling and Testing for Sheet Metal Forming, Munich, Germany, 2 - 06 July 2017, vol.896
- VII. **Large Strain Cruciform Biaxial Testing for FLC Detection**
GÜLER B., EFE M.
20th International ESAFORM Conference on Material Forming, Dublin, Ireland, 26 - 28 April 2017, vol.1896
- VIII. **Enabling shear textures and fine-grained structures in Magnesium sheet by machining-based deformation processing**

Sagapuram D., EFE M., Trumble K. P., Chandrasekar S.

6th International Conference on Nanomaterials by Severe Plastic Deformation (NanoSPD), Metz, France, 30 June - 04 July 2014, vol.63

Supported Projects

EFE M., H2020 Project, In-Situ Observation and Control of Microstructure and Surface Defect Evolution during Magnesium Sheet Forming, 2014 - 2018

EFE M., Project Supported by Higher Education Institutions, ÇİFT FAZLI ÇELİKLERİN YÜKSEK SICAKLIK VE ENDÜSTRİYEL DEFORMASYON HIZLARINDA ŞEKİLLENDİRİLEBİLİRLİĞİ, 2017 - 2017

EFE M., Project Supported by Higher Education Institutions, HAFİF AĞIRLIKLI ALAŞIMLARIN YÜKSEK SICAKLIKLARDAKİ ANLIK ŞEKİLLENDİRME ANALİZİ, 2017 - 2017

EFE M., Project Supported by Higher Education Institutions, MAGNEZYUM LEVHA ŞEKİLLENDİRİLMESİ SIRASINDA İÇ YAPININ VE OLUŞAN KUSURLARIN İNCELENMESİ VE KONTRI-OL ALTINA ALINMASI, 2017 - 2017

EFE M., Project Supported by Higher Education Institutions, FOTOKATALİTİK OLARAK AKTİF TiO₂-P2O₅ CAMLARININ SOL-JEL SÜRECİYLE ÜRETİMİ, 2017 - 2017

EFE M., ERCAN B., GÜLER B., Project Supported by Higher Education Institutions, Nanotanecik yapılı titanyumun üretimi ve biyoyumluluğu, 2016 - 2017

EFE M., GÜLER B., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016

EFE M., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016

Patent

EFE M., Large strain extrusion machining processes and bulk forms produced therefrom, Patent, CHAPTER B Implementation of Operations; Transport, Standard Registration, 2017

Metrics

Publication: 25

Citation (WoS): 263

Citation (Scopus): 193

H-Index (WoS): 9

H-Index (Scopus): 7