

Asst. Prof. EDA AYDOĞAN GÜNGÖR

Personal Information

Office Phone: [+90 312 210 5925](tel:+903122105925)

Email: aydogane@metu.edu.tr

Web: <https://avesis.metu.edu.tr/aydogane>

International Researcher IDs

ScholarID: KiBoFJUAAAAJ

ORCID: 0000-0002-4923-7549

Publons / Web Of Science ResearcherID: AAZ-9143-2020

ScopusID: 55821920300

Yoksis Researcher ID: 203903

Education Information

Doctorate, 2012 - 2016

Postgraduate, Middle East Technical University, Turkey 2010 - 2012

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, Turkey 2005 - 2010

Research Areas

Engineering and Technology

Academic Titles / Tasks

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2020 - Continues

Assistant Professor, Sabanci University, Faculty Of Engineering And Natural Sciences, ., 2018 - 2020

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2010 - 2012

Courses

fundamentals of materials science and engineering, Undergraduate, 2021 - 2022

High Strength Alloys, Postgraduate, 2021 - 2022

MATERIALS PROCESSING LABORATORY, Undergraduate, 2021 - 2022

Advising Theses

Aydoğan Güngör E., Development and production of ductile tizrnbnhfta refractory high entropy alloy system for extreme environments, Postgraduate, L.KORAY(Student), 2022

Dericioğlu A. F., Aydoğan Güngör E., High temperature mechanical properties of ceramic dispersoid reinforced 17-4 PH

stainless steel produced by selective laser melting, Postgraduate, A.ÖZSOY(Student), 2021

Jury Memberships

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, August, 2021

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, June, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, June, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, June, 2021

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Orta Doğu Teknik Üniversitesi, January, 2021

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, September, 2020

Post Graduate, Post Graduate, Orta Doğu Teknik Üniversitesi, July, 2020

Doctorate, Doctorate, Orta Doğu Teknik Üniversitesi, July, 2020

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Laser powder bed fusion of oxide dispersion-strengthened IN718 alloys: A complementary study on microstructure and mechanical properties**
YALÇIN M., Gokbayrak A., Duygulu O., Derin C. B., Poplawsky J., El-Atwani O., AYDOĞAN GÜNGÖR E.
Materials Science and Engineering: A, vol.903, 2024 (SCI-Expanded)
- II. **Development and directed energy deposition of high strength Hf5Mo15Nb35Ta25Ti20 refractory high entropy alloys**
ÖZALP A., OKUYUCU C., Koc B., El-Atwani O., AYDOĞAN GÜNGÖR E.
Materials Characterization, vol.209, 2024 (SCI-Expanded)
- III. **The effect of additively and subtractively created center internal features on microstructure and mechanical performance of inconel-718 parts**
IŞIK M., Emami Tabrizi I., Khan R. M. A., Yildiz M., AYDOĞAN GÜNGÖR E., Koc B.
Rapid Prototyping Journal, vol.30, no.2, pp.287-304, 2024 (SCI-Expanded)
- IV. **Tailoring the microstructure and mechanical properties of IN718 alloy via a novel scanning strategy implemented in laser powder bed fusion**
KALELİ ALAY T., Cagirci M., Yalcin M. Y., Yagmur A., TİRKEŞ S., AYDOĞAN GÜNGÖR E., GÜR C. H.
Materials Science and Engineering: A, vol.884, 2023 (SCI-Expanded)
- V. **Development and thermal stability of Cr10Mo25Ta25Ti15V25 refractory high entropy alloys**
Tukac O. U., ÖZALP A., AYDOĞAN GÜNGÖR E.
JOURNAL OF ALLOYS AND COMPOUNDS, vol.930, 2023 (SCI-Expanded)
- VI. **Design of oxygen-doped TiZrHfNbTa refractory high entropy alloys with enhanced strength and ductility**
Iroc L., Tukac O., Tanrisevdi B., El-Atwani O., Tunes M., KALAY Y. E., AYDOĞAN GÜNGÖR E.
Materials and Design, vol.223, 2022 (SCI-Expanded)
- VII. **Development and additive manufacturing of oxide dispersion strengthened inconel 718: Thermochemical and experimental studies**
Yesim Yalcin M., Bora Derin D., AYDOĞAN GÜNGÖR E.
Journal of Alloys and Compounds, vol.914, 2022 (SCI-Expanded)
- VIII. **Selective laser melting of Nano-TiN reinforced 17-4 PH stainless steel: Densification, microstructure and mechanical properties**
Ozsoy A., AYDOĞAN GÜNGÖR E., DERİCİOĞLU A. F.

- IX. **In-situ radiation response of additively manufactured modified Inconel 718 alloys**
AYDOĞAN GÜNGÖR E., El-Atwani O., Erdem B., Li M., Devaraj A., Koc B., Chen W. -, Maloy A.
ADDITIVE MANUFACTURING, vol.51, 2022 (SCI-Expanded)
- X. **Enhancement of Nanostructured Ferritic Alloy 14YWT Properties via Heat Treatment for Post-Consolidation Processing**
Rietema C. J., Saleh T. A., Hoelzer D. T., Eftink B. P., Aydogan E., Clarke K. D., Clarke A. J., Maloy S. A.
Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science, vol.52, no.7, pp.2821-2829, 2021 (SCI-Expanded)
- XI. **Tensile properties and microstructure of additively manufactured Grade 91 steel for nuclear applications**
Eftink B. P., Vega D. A., El Atwani O., Sprouster D. J., Yoo Y. S. J., Steckley T. E., Aydogan E., Cady C. M., Al-Sheikhly M., Lienert T. J., et al.
Journal of Nuclear Materials, vol.544, 2021 (SCI-Expanded)
- XII. **In Situ Micro-Pillar Compression to Examine Radiation-Induced Hardening Mechanisms of FeCrAl Alloys**
Cui Y., Aydogan E., Gigax J. G., Wang Y., Misra A., Maloy S. A., Li N.
Acta Materialia, vol.202, pp.255-265, 2021 (SCI-Expanded)
- XIII. **In-situ observation of nano-oxide and defect evolution in 14YWT alloys**
Aydogan E., El-Atwani O., Li M., Maloy S.
Materials Characterization, vol.170, 2020 (SCI-Expanded)
- XIV. **Nitrogen effects on radiation response in 12Cr ferritic/martensitic alloys**
Aydogan E., Gigax J. G., Parker S. S., Eftink B. P., Chancey M., Poplawsky J., Maloy S. A.
Scripta Materialia, vol.189, pp.145-150, 2020 (SCI-Expanded)
- XV. **Damage relief of ion-irradiated Inconel alloy 718 via annealing**
Fincher C. D., Turman H., French A., Chancey M., Gigax J., Aydogan E., Zhao D., Yadav D., Xie K., Wang Y., et al.
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS, vol.479, pp.157-162, 2020 (SCI-Expanded)
- XVI. **alpha ' formation kinetics and radiation induced segregation in neutron irradiated 14YWT nanostructured ferritic alloys**
Aydogan E., Martinez E., March K., El-Atwani O., Krumwiede D. L., Hosemann P., Saleh T., Maloy S. A.
SCIENTIFIC REPORTS, vol.9, 2019 (SCI-Expanded)
- XVII. **Impact of composition modification induced by ion beam Coulomb-drag effects on the nanoindentation hardness of HT9**
Gigax J. G., Kim H., Aydogan E., Price L. M., Wang X., Maloy S. A., Garner F. A., Shao L.
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS, vol.444, pp.68-73, 2019 (SCI-Expanded)
- XVIII. **Response of 14YWT alloys under neutron irradiation: A complementary study on microstructure and mechanical properties**
Aydogan E., Weaver J. S., Carvajal-Nunez U., Schneider M. M., Gigax J. G., Krumwiede D. L., Hosemann P., Saleh T. A., Mara N. A., Hoelzer D. T., et al.
ACTA MATERIALIA, vol.167, pp.181-196, 2019 (SCI-Expanded)
- XIX. **Effect of High-Density Nanoparticles on Recrystallization and Texture Evolution in Ferritic Alloys**
Aydogan E., Rietema C. J., Carvajal-Nunez U., Vogel S. C., Li M., Maloy S. A.
CRYSTALS, vol.9, no.3, 2019 (SCI-Expanded)
- XX. **Unprecedented irradiation resistance of nanocrystalline tungsten with equiaxed nanocrystalline grains to dislocation loop accumulation**
El-Atwani O., Esquivel E., Aydogan E., Martinez E., Baldwin J. K., Li M., Uberuaga B. P., Maloy S. A.
ACTA MATERIALIA, vol.165, pp.118-128, 2019 (SCI-Expanded)
- XXI. **Microstructure and mechanical properties of FeCrAl alloys under heavy ion irradiations**

- Aydogan E., Weaver J. S., Maloy S. A., El-Atwani O., Wang Y. Q., Mara N. A.
JOURNAL OF NUCLEAR MATERIALS, vol.503, pp.250-262, 2018 (SCI-Expanded)
- XXII. **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., Aydogan E., Wang Y. Q., Martinez E., Maloy S. A.
Acta Materialia, vol.149, pp.206-219, 2018 (SCI-Expanded)
- XXIII. **Detailed transmission electron microscopy study on the mechanism of dislocation loop rafting in tungsten**
El-Atwani O., Aydogan E., Esquivel E., EFE M., Wang Y. Q., Maloy S. A.
Acta Materialia, vol.147, pp.277-283, 2018 (SCI-Expanded)
- XXIV. **High temperature microstructural stability and recrystallization mechanisms in 14YWT alloys**
Aydogan E., El-Atwani O., Takajo S., Vogel S. C., Maloy S. A.
ACTA MATERIALIA, vol.148, pp.467-481, 2018 (SCI-Expanded)
- XXV. **Effect of tube processing methods on microstructure, mechanical properties and irradiation response of 14YWT nanostructured ferritic alloys**
Aydogan E., Maloy S. A., Anderoglu O., Sun C., Gigax J. G., Shao L., Garner F. A., Anderson I. E., Lewandowski J. J.
ACTA MATERIALIA, vol.134, pp.116-127, 2017 (SCI-Expanded)
- XXVI. **Stability of nanosized oxides in ferrite under extremely high dose self ion irradiations**
Aydogan E., Almirall N., Odette G. R., Maloy S. A., Anderoglu O., Shao L., Gigax J. G., Price L., Chen D., Chen T., et al.
JOURNAL OF NUCLEAR MATERIALS, vol.486, pp.86-95, 2017 (SCI-Expanded)
- XXVII. **Effect of self-ion irradiation on the microstructural changes of alloy EK-181 in annealed and severely deformed conditions**
Aydogan E., Chen T., Gigax J. G., Chen D., Wang X., Dzhumaev P. S., Emelyanova O. V., Ganchenkova M. G., Kalin B. A., Leontiva-Smirnova M., et al.
JOURNAL OF NUCLEAR MATERIALS, vol.487, pp.96-104, 2017 (SCI-Expanded)
- XXVIII. **Characterization of phase properties and deformation in ferritic-austenitic duplex stainless steels by nanoindentation and finite element method**
Schwarm S. C., Kolli R. P., Aydogan E., Mburu S., Ankem S.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.680, pp.359-367, 2017 (SCI-Expanded)
- XXIX. **Beam-contamination-induced compositional alteration and its neutron-atypical consequences in ion simulation of neutron-induced void swelling**
Gigax J. G., Kim H., Aydogan E., Garner F. A., Maloy S., Shao L.
MATERIALS RESEARCH LETTERS, vol.5, no.7, pp.478-485, 2017 (SCI-Expanded)
- XXX. **Radiation response of alloy T91 at damage levels up to 1000 peak dpa**
Gigax J. G., Chen T., Kim H., Wang J., Price L. M., Aydogan E., Maloy S. A., Schreiber D. K., Toloczko M. B., Garner F. A., et al.
JOURNAL OF NUCLEAR MATERIALS, vol.482, pp.257-265, 2016 (SCI-Expanded)
- XXXI. **Temperature dependent dispersoid stability in ion-irradiated ferritic-martensitic dual-phase oxide-dispersion-strengthened alloy: Coherent interfaces vs. incoherent interfaces**
Chen T., Gigax J. G., Price L., Chen D., Ukai S., Aydogan E., Maloy S. A., Garner F. A., Shao L.
ACTA MATERIALIA, vol.116, pp.29-42, 2016 (SCI-Expanded)
- XXXII. **Effect of tube processing methods on the texture and grain boundary characteristics of 14YWT nanostructured ferritic alloys**
Aydogan E., Pal S., Anderoglu O., Maloy S. A., Vogel S. C., Odette G. R., Lewandowski J. J., Hoelzer D. T., Anderson I. E., Rieken J. R.
MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.661, pp.222-232, 2016 (SCI-Expanded)
- XXXIII. **Effect of shock loading on the microstructure, mechanical properties and grain boundary characteristics of HT-9 ferritic/martensitic steels**
Aydogan E., Anderoglu O., Maloy S. A., Livescu V., Gray G. T., Perez-Bergquist S., Williams D. J.

MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.651, pp.75-82, 2016 (SCI-Expanded)

- XXXIV. **Surface modification of low activation ferritic-martensitic steel EK-181 (Rusfer) by high temperature pulsed plasma flows**
Emelyanova O. V., Dzhumaev P. S., Yakushin V. L., Kalin B. A., Ganchenkova M. G., Khein A. T., Leontyeva-Smirnova M. V., Valiev R. Z., Enikeev N. A., Shao L., et al.
NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS, vol.365, pp.218-221, 2015 (SCI-Expanded)
- XXXV. **Microstructural changes and void swelling of a 12Cr ODS ferritic-martensitic alloy after high-dpa self-ion irradiation**
Chen T., Aydogan E., Gigax J. G., Chen D., Wang J., Wang X., Ukai S., Garner F. A., Shao L.
JOURNAL OF NUCLEAR MATERIALS, vol.467, pp.42-49, 2015 (SCI-Expanded)
- XXXVI. **The influence of ion beam rastering on the swelling of self-ion irradiated pure iron at 450 degrees C**
Gigax J. G., Aydogan E., Chen T., Chen D., Shao L., Wu Y., Lo W. Y., Yang Y., Garner F. A.
JOURNAL OF NUCLEAR MATERIALS, vol.465, pp.343-348, 2015 (SCI-Expanded)
- XXXVII. **Morphology and magnetic properties of barium hexaferrite ceramics synthesized in x wt% NaCl-(100-x) wt% KCl molten salts**
Aydogan E., Kaya S., DERİCİOĞLU A. F.
Ceramics International, vol.40, pp.2331-2336, 2014 (SCI-Expanded)

Articles Published in Other Journals

- I. **PRODUCTION OF OXIDE DISPERSION STRENGTHENED INCONEL 718 ALLOYS USING CONVENTIONAL POWDER METALLURGY AND ADDITIVE MANUFACTURING METHODS**
Aydogan E.
Konya mühendislik bilimleri dergisi (Online), vol.11, no.3, pp.678-692, 2023 (Peer-Reviewed Journal)
- II. **Development of advanced low N ferritic/martensitic steel for reactor applications**
Rietema C., Clarke A., Saleh T., AYDOĞAN GÜNGÖR E., Anderoglu O., Clarke K.
Transactions of American Nuclear Society, 2018 (Peer-Reviewed Journal)
- III. **Post irradiation examination of fast neutron irradiated 14YWT tubes at nuclear science user facilities**
Saleh T., Krumwiede D., AYDOĞAN GÜNGÖR E., Quintana M., Romero T., Hosemann P., Maloy S.
Transactions of American Nuclear Society, 2017 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Radiation effects on HT9 tempered martensitic steels as a function of nitrogen content and deformation**
AYDOĞAN GÜNGÖR E., gigax j., Parker S., Clausen B., Brown D., Wang Y., Chancey M., Eftink B., Maloy S.
TMS 2019, 10 - 14 March 2019
- II. **Additively manufactured grade 91 steel for reactor applications**
Eftink B., Vega D., Yoo Y., Janish M., AYDOĞAN GÜNGÖR E., Steckley T., Ortega M., Cady C., Lienert T., Maloy S.
TMS 2019, 10 - 14 March 2019
- III. **Neutron irradiation studies on 14YWT nanostructured ferritic alloys**
AYDOĞAN GÜNGÖR E., Martinez Saez E., Weaver J., gigax j., Shao L., Garner F., Maloy S.
TMS 2019, 10 - 14 March 2019
- IV. **Microstructure and mechanical properties of high dose self-ion irradiated nanostructured ferritic alloys produced by various processing methods**
AYDOĞAN GÜNGÖR E., Anderoglu O., Maloy S., Shao L., gigax j., Price L., Chen D., Odette R., Hoelzer D., Lewandowski

J., et al.

THERMEC 2018, 8 - 13 July 2018

- V. **Radiation Effects on HT9 Tempered Martensitic Steels as a Function of Initial Dislocation Density**
AYDOĞAN GÜNGÖR E., Clausen B., Brown D., Wang Y., Eftink B., Chen D., Maloy S.
TMS 2018, 11 - 15 March 2018
- VI. **Progress in Developing High Dose Radiation Tolerant Ferritic Steels for Nuclear Applications**
Maloy S., AYDOĞAN GÜNGÖR E., Eftink B., Saleh T., Toloczko M., Byun T. S., Lavender C., Odette R., Alam M., Pal S., et al.
TMS 2018, 11 - 15 March 2018
- VII. **Development of advanced low N ferritic/martensitic steel for reactor applications**
Rietema C., Clarke A., Saleh T., Aydogan E., Anderoglu O., Clarke K.
2018 Transactions of the American Nuclear Society, ANS 2018, Florida, United States Of America, 11 - 15 November 2018, vol.119, pp.512-514
- VIII. **Effect of processing methods on texture evolution and recrystallization studies on 14YWT nanostructured ferritic alloys**
AYDOĞAN GÜNGÖR E., Vogel S., Takajo S., Maloy S., Yablinski C.
ICOTOM 18, 5 - 10 November 2017
- IX. **Ion Irradiations and Microstructural Characterization of Optimized FeCrAl Cladding Tubes**
AYDOĞAN GÜNGÖR E., Weaver J., Maloy S., Wang Y., Mara N., ElAtwani O.
SES 2017, 25 - 28 July 2017
- X. **Stability of 14YWT nanostructured ferritic alloys under irradiation and thermal aging**
AYDOĞAN GÜNGÖR E., Maloy S., Vogel S., Yablinski C., Anderoglu O., Almirall N., Odette R., Shao L., Garner F.
TMS 2017, 26 - 02 February 2017
- XI. **Post irradiation examination of fast neutron irradiated 14YWT tubes at nuclear science user facilities**
Saleh T., Krumwiede D., Aydogan E., Quintana M., Romero T., Hosemann P., Maloy S.
2017 Transactions of the American Nuclear Society, ANS 2017, California, United States Of America, 11 - 15 June 2017, vol.116, pp.394-395
- XII. **High dose self-ion irradiation studies on 14YWT nanostructured ferritic alloys**
AYDOĞAN GÜNGÖR E., Maloy S., Anderoglu O., Almirall N., Odette R., Shao L., Garner F.
CAARI 2016, 30 October - 04 November 2016
- XIII. **Microstructure and Mechanical Properties of High Dose Self-ion Irradiated Nanostructured Ferritic Alloys**
AYDOĞAN GÜNGÖR E., Anderoglu O., Maloy S., gigax j., Price L., Chen D., chen t., Wang X., Garner F., Shao L.
TMS 2016, 14 - 18 February 2016
- XIV. **Effect of Tube Processing Methods on Microstructure and Mechanical Properties of Nanostructured Ferritic Alloys**
AYDOĞAN GÜNGÖR E., Anderoglu O., Maloy S.
TMS 2016, 14 - 18 February 2016
- XV. **Microstructure and Mechanical Property Evolution during Tube Processing of Oxide Dispersion Strengthened (ODS) Ferritic Steels**
AYDOĞAN GÜNGÖR E., Anderoglu O., Maloy S., Vogel S., chen t., Shao L., Odette R., Hoelzer D., Lewandowski J., Anderson I., et al.
TMS 2015, 15 - 19 March 2015
- XVI. **Swelling Resistance of Several Variants of Ferritic Alloy EK-181 at High Doses During Self Ion Irradiation**
AYDOĞAN GÜNGÖR E., chen t., Chen D., gigax j., Wang X., Wei C., Shao L., Dzhumaev P., Emelyanova O., Ganchenkova M., et al.
TMS 2015, 15 - 19 March 2015
- XVII. **Role of Shock Loading and Annealing on the Microstructural and Mechanical Properties of F/M HT-9 Steels**

AYDOĞAN GÜNGÖR E., Anderoglu O., Maloy S., Coughlin D.

MRS Fall 2014, 30 November - 05 December 2014

XVIII. Formation Kinetics, Morphology and Magnetic Properties of BaHF Ceramics Synthesized in x wtNaCl-(100-x) wt KCl Molten Salts

Kaya S., AYDOĞAN GÜNGÖR E., DERİCİOĞLU A. F.

Advanced Materials World Congress (AMWC), 16 September - 19 June 2013

XIX. Processing Characterization of Textured Barium Ferrite Ceramics

Kaya S., AYDOĞAN GÜNGÖR E., DERİCİOĞLU A. F.

IMMC 2012, 13 - 15 September 2012

XX. Developing Pathways for Bioinspired Bulk Nano-Laminar Composites

AYDOĞAN GÜNGÖR E., DERİCİOĞLU A. F.

Junior Euromat 2010, 26 - 30 July 2010

Scientific Refereeing

JOURNAL OF NUCLEAR MATERIALS, SCI Journal, October 2020

JOURNAL OF NUCLEAR MATERIALS, SCI Journal, September 2020

Metrics

Publication: 60

Citation (WoS): 723

Citation (Scopus): 803

H-Index (WoS): 16

H-Index (Scopus): 17

Scholarships

Uluslararası Lider Araştırmacılar Ödülü, TÜBİTAK, 2020 - Continues

Awards

Aydoğan Güngör E., For Women in Science, Loreal-Unesco, October 2021

Non Academic Experience

Los Alamos Ulusal Laboratuvarı