

## **Personal Information**

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## **International Researcher IDs**

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Publons / Web Of Science ResearcherID: AAM-2022-2020

ScopusID: 36056389500

Yoksis Researcher ID: 116043

## **Education Information**

Doctorate, Iowa State University, Materials Science, United States Of America 2004 - 2009

Postgraduate, Middle East Technical University, Graduate School of Natural and Applied Sciences, Metalurji Ve Malzeme Mühendisliği (Yıl) (Tezli), Turkey 2001 - 2003

Undergraduate, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, Turkey 1997 - 2001

## **Research Areas**

Metallurgical and Materials Engineering, Engineering and Technology

## **Academic Titles / Tasks**

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

Associate Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2015 - 2020

Assistant Professor, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2011 - 2015

Lecturer PhD, Ames Laboratory Doe, 2009 - 2010

Research Assistant, Iowa State University of Science and Technology, 2004 - 2009

Research Assistant, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2001 - 2004

## **Academic and Administrative Experience**

Director of the Center, Middle East Technical University, Presidency Office, Toplum Bilim ve Bilim Uygulama ve Araştırma Merkezi, 2018 - Continues

Director of the Center, Middle East Technical University, Presidency Office, Kariyer Planlama Uygulama ve Araştırma Merkezi, 2018 - Continues

Middle East Technical University, Presidency Office, 2016 - Continues

Middle East Technical University, Bilim, Teknoloji, Mühendislik Ve Matematik Eğitimi Uygulama Ve Araştırma Merkezi, 2015 - Continues

Deputy Head of Department, Middle East Technical University, Faculty of Engineering, Department of Metallurgical and Materials Engineering, 2015 - 2016

## **Advising Theses**

KALAY Y. E., A wafer level vacuum packaging technologyfor MEMS based long-wave infrared sensors, Doctorate, G.DEMİRHAN(Student), 2022

KALAY Y. E., IMPACT OF POST-GROWTH ANNEALING ON THE DEFECTS IN CDZNTE CRYSTALS, Postgraduate, MUYSAL(Student), 2022

KALAY Y. E., Development of LSF-based dual-phase cathodes for intermediate temperature solid oxide fuel cells, Postgraduate, R.BABAZADEH(Student), 2022

KALAY Y. E., Al-Ge eutectic bonding for wafer-level vacuum packaging of mems devices, Postgraduate, B.GÜREL(Student), 2022

KALAY Y. E., Local structures of the Al – Re marginal metallic glasses and liquids: A molecular dynamics study, Postgraduate, D.SARITÜRK(Student), 2022

KALAY Y. E., Search for new cathode compositions for mildly acidic Zn-MnO<sub>2</sub> batteries, Postgraduate, Y.AKBAS(Student), 2022

KALAY Y. E., The effects of chemical short-range order on crystallization pathway in ternary marginal glass forming alloys, Postgraduate, E.ERDAL(Student), 2021

KALAY Y. E., Development of high strength lightweight high entropy alloys (LWHEAs), Doctorate, G.Polat(Student), 2020

KALAY Y. E., Structural and mechanical characterization of scale-up FeCoCrNi, FeCoCrNiCuX, AND FeCoCrNiAlx high entropy alloys (HEAs), Postgraduate, Z.Anlı(Student), 2020

Kalay Y. E., Özberç S., Micromechanical characterization of metallic glass — crystalline nanocomposite coatings, Postgraduate, M.ABOUD(Student), 2018

Kalay Y. E., Özberç S., Experimental investigation of the mechanical properties of nanolayered metals, Postgraduate, A.TUNCAY(Student), 2018

KALAY Y. E., ÖZTÜRK T., Utilization of (La,Sr)CoO<sub>3</sub>/(La,Sr)2CoO<sub>4</sub> heterostructures as cathode for it-SOFCs, Postgraduate, Z.ÇAĞRI(Student), 2017

KALAY Y. E., ÖZTÜRK T., Combinatorial development of LSC-113/LSC-214 cathode materials for intermediate temperature solid oxide fuel cells, Postgraduate, D.SARI(Student), 2017

ÖZTÜRK T., KALAY Y. E., Utilization of (La<sub>1-x</sub>Sr<sub>x</sub>)CoO<sub>3-δ</sub>/(La<sub>1-y</sub>Sr<sub>y</sub>)<sub>2</sub>CoO<sub>4±δ</sub> heterostructures as cathode for it-SOFCs, Postgraduate, Z.Çağrı(Student), 2017

KALAY Y. E., Production and characterization of CuZr-RE based bulk amorphous/nanocrystal composite, Postgraduate, F.SIKAN(Student), 2017

Kalay Y. E., Akdeniz M. V., Development of rare-earth free permanent magnets, Doctorate, A.MERVE(Student), 2017

KALAY Y. E., Production and characterization of aluminium-rare earth based bulk amorphous/nanocrystalline composite, Postgraduate, M.Kutsal(Student), 2016

KALAY Y. E., AKIN T., BONDING MATERIAL DEVELOPMENT AT WAFER LEVEL VACUUM PACKAGING FOR MEMS DEVICES BY TRANSIENT LIQUID PHASE (TLP) METHOD, Postgraduate, E.CAN(Student), 2016

KALAY Y. E., Local atomic structure in Al-RE marginal metallic glasses, Postgraduate, M.ÖVÜN(Student), 2016

KALAY Y. E., Characterization of Cd<sub>1-X</sub>Zn<sub>X</sub>Te single crystals, Postgraduate, B.YAŞAR(Student), 2016

KALAY Y. E., Production and characterization of aluminum-rare earth based bulk amorphous/nanocrystalline composite, Postgraduate, M.KUTSAL(Student), 2016

KALAY Y. E., Investigations of solid state phase transformations in manganese-aluminum alloys, Postgraduate, Ö.ACAR(Student), 2016

KALAY Y. E., Kalay Y., Investigation of solid state phase transformations in manganese-aluminum alloys, Postgraduate, Ö.Acar(Student), 2016

KALAY Y. E., The Mechanism of brittle fracture in CN3MN grade superaustenitic stainless steel /, Postgraduate, M.Başkan(Student), 2015

KALAY Y. E., TURAN R., Investigation of extended defects in cadmium zinc telluride crystals grown by Vertical Gradient Freeze (VGF) technique, Postgraduate, Ç.DOĞRU(Student), 2015

KALAY Y. E., The mechanism of brittle fracture in CN3MN grade superaustenitic stainless steel, Postgraduate, M.BAŞKAN(Student), 2015

KALAY Y. E., GÜR C. H., Investigation of microstructural homogeneity and thermal stability of equal channel angular pressed and aged 2024 Al alloy, Doctorate, G.KOTAN(Student), 2014

KALAY Y. E., Nanocrystallization in marginal glass forming alloys, Postgraduate, T.DEMİRTAŞ(Student), 2013

KALAY Y. E., Structural and dynamical evolution of nanocrystals, Postgraduate, C.YILDIRIM(Student), 2013

KALAY Y. E., Development of new lead-free solders for electronics industry, Postgraduate, A.KANTARCIOĞLU(Student), 2012

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

- I. Engineering Oxygen Vacancies in  $(\text{FeCrCoMnZn})_3\text{O}_4\text{-}\delta$  High Entropy Spinel Oxides Through Altering Fabrication Atmosphere for High-Performance Rechargeable Zinc-Air Batteries  
Özgür Ç., Erdil T., Geyikci U., Okuyucu C., Lökçü E., Kalay Y. E., Toparlı Ç.  
*Global Challenges*, vol.8, no.1, 2024 (SCI-Expanded)
- II. Nanomechanical properties of Al-Tb marginal metallic glass  
OKUYUCU C., Ulucan T. H., Abboud M., Motallebzadeh A., ÖZERİNÇ S., Kalay İ., KALAY Y. E.  
*Materials Science and Engineering: A*, vol.888, 2023 (SCI-Expanded)
- III. 3D printing of hexagonal boron nitride nanosheets/polylactic acid nanocomposites for thermal management of electronic devices  
Gorur M. C., Doganay D., Durukan M. B., Cicek M. O., Kalay Y. E., Kincal C., Solak N., Ünalan H. E.  
*COMPOSITES PART B-ENGINEERING*, vol.265, 2023 (SCI-Expanded)
- IV. A Molecular Dynamics Study on the Local Structure of Al<sub>90</sub>Sm<sub>10</sub> Marginal Metallic Glass and Liquid  
SARITÜRK D., KALAY Y. E.  
*Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, vol.54, no.6, pp.2320-2328, 2023 (SCI-Expanded)
- V. Facile Synthesis and Origin of Enhanced Electrochemical Oxygen Evolution Reaction Performance of 2H-Hexagonal Ba<sub>2</sub>CoMnO<sub>6</sub>-delta as a New Member in Double Perovskite Oxides  
Erdil T., Lökçü E., Yıldız İ., Okuyucu C., Kalay Y. E., Toparlı Ç.  
*ACS OMEGA*, vol.7, no.48, pp.44147-44155, 2022 (SCI-Expanded)
- VI. Design of oxygen-doped Ti<sub>2</sub>ZrHfNbTa 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. Grain size stabilization of oxide dispersion strengthened CoCrFeNi-Y(2)O<sub>3</sub> high entropy alloys synthesized by mechanical alloying  
Tekin M., Polat G., KALAY Y. E., KOTAN H.  
*JOURNAL OF ALLOYS AND COMPOUNDS*, vol.887, 2021 (SCI-Expanded)
- VIII. Highly stable silver-platinum core-shell nanowires for H<sub>2</sub>O<sub>2</sub> detection  
Koylan S., Tunca S., Polat G., Durukan M. B., Kim D., Kalay Y. E., Ko S. H., Ünalan H. E.  
*NANOSCALE*, vol.13, no.30, pp.13129-13141, 2021 (SCI-Expanded)
- IX. The Anomalous Nucleation in Al-Tb Metallic Glasses  
Ulucan T. H., Kalay İ., Kalay Y. E.  
*Metallurgical and Materials Transactions A: Physical Metallurgy and Materials Science*, vol.52, no.2, pp.700-710, 2021 (SCI-Expanded)
- X. Wafer-Level Low-Temperature Solid-Liquid Inter-Diffusion Bonding With Thin Au-Sn Layers for MEMS Encapsulation  
Temel O., KALAY Y. E., AKIN T.  
*JOURNAL OF MICROELECTROMECHANICAL SYSTEMS*, vol.30, no.1, pp.64-71, 2021 (SCI-Expanded)
- XI. Design of Novel Non-equiautomic Cu-Ni-Al-Ti Composite Medium-Entropy Alloys  
POLAT G., Erdal Z. A., KALAY Y. E.  
*JOURNAL OF MATERIALS ENGINEERING AND PERFORMANCE*, vol.29, no.5, pp.2898-2908, 2020 (SCI-Expanded)
- XII. Effect of Sm on Crystallization Kinetics of Cu-Zr-Al Metallic Glasses  
Sikan F., Polat G., Kalay İ., Kalay Y. E.  
*THERMOCHIMICA ACTA*, vol.683, 2020 (SCI-Expanded)
- XIII. Investigation of phase selection hierarchy in Mn-Al alloys  
Genc A. M., Acar O., Turan S., Kalay İ., Savaci U., KALAY Y. E.  
*Intermetallics*, vol.115, 2019 (SCI-Expanded)
- XIV. Effect of Sm on thermal and mechanical properties of Cu-Zr-Al bulk metallic glasses  
Sikan F., Atabay S. E., Motallebzadeh A., Özerinç S., Kalay İ., Kalay Y. E.  
*MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING*, vol.743, pp.168-174, 2019 (SCI-Expanded)
- XV. Segregation resistant nanocrystalline/amorphous (La, Sr) Co<sub>03</sub>-(La,Sr)2Co<sub>04</sub> composite cathodes for IT-SOFCs  
Sari D., Yasar B., Piskin F., KALAY Y. E., ÖZTÜRK T.  
*Journal of the Electrochemical Society*, vol.166, no.15, 2019 (SCI-Expanded)
- XVI. Combinatorial development of nanocrystalline/amorphous (La,Sr)Co<sub>03</sub>-(La,Sr)2Co<sub>04</sub> composite cathodes for IT-SOFCs  
Sari D., Piskin F., Torunoglu Z. C., Yasar B., Kalay Y. E., Öztürk T.  
*Solid State Ionics*, vol.326, pp.124-130, 2018 (SCI-Expanded)
- XVII. One pot synthesis of (La,Sr)Co<sub>03</sub>/(La,Sr)2Co<sub>04</sub> for IT-SOFCs cathodes  
Torunoglu Z. Ç., Sari D., Demircan O., Kalay Y. E., Öztürk T., Kuru Y.  
*International Journal of Hydrogen Energy*, vol.43, pp.18642-18649, 2018 (SCI-Expanded)
- XVIII. Stress evolution of Ge nanocrystals in dielectric matrices  
Baharipushchi R., Raciti R., KASAPOGLU A. E., GÜR E., Sezen M., Kalay E., MIRABELLA S., AYDINLI A.  
*NANOTECHNOLOGY*, vol.29, no.18, 2018 (SCI-Expanded)
- XIX. Microstructure effects on process outputs in micro scale milling of heat treated Ti<sub>6</sub>Al<sub>4</sub>V titanium alloys  
Ahmadi M., Karpat Y., ACAR O., KALAY Y. E.  
*JOURNAL OF MATERIALS PROCESSING TECHNOLOGY*, vol.252, pp.333-347, 2018 (SCI-Expanded)
- XX. HRTEM Analysis of Crystallographic Defects in CdZnTe Single Crystal  
Yasar B., ERGUNT Y., KABUKCUOGLU M. P., PARLAK M., TURAN R., KALAY Y. E.  
*JOURNAL OF ELECTRONIC MATERIALS*, vol.47, no.1, pp.778-784, 2018 (SCI-Expanded)
- XXI. Preparation of La<sub>0.8</sub>Sr<sub>0.2</sub>Co<sub>03</sub>-delta sputtering targets using a deformable compaction die  
Sari D., TORUNOGLU Z. C., KALAY Y. E., Ozturk T.  
*CERAMICS INTERNATIONAL*, vol.43, no.17, pp.15185-15188, 2017 (SCI-Expanded)
- XXII. Preface  
Ikhmayies S., Li B., Carpenter J. S., Li J., Hwang J., Monteiro S. N., Firrao D., Zhang M., Peng Z., Escobedo-Diaz J. P., et al.  
*Minerals, Metals and Materials Series*, pp.3-9, 2017 (SCI-Expanded)
- XXIII. The role of amorphous precursor in phase selection hierarchy in marginal metallic glasses  
YILDIRIM C., KUTSAL M., OTT R. T., BESSER M. F., KRAMER M. J., KALAY Y. E.,  
*MATERIALS & DESIGN*, vol.112, pp.479-484, 2016 (SCI-Expanded)
- XXIV. Long-term thermal stability of Equal Channel Angular Pressed 2024 aluminum alloy  
TAN G., KALAY Y. E., GÜR C. H.  
*MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING*, vol.677, pp.307-315, 2016 (SCI-Expanded)
- XXV. Synthesis of AlNiCo core/shell nanopowders  
Genc A. M., Akdeniz M. V., Öztürk T., Kalay Y. E.  
*JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS*, vol.417, pp.112-116, 2016 (SCI-Expanded)
- XXVI. Flexible, silver nanowire network nickel hydroxide core-shell electrodes for supercapacitors  
YUKSEL R., Coskun S., KALAY Y. E., ÜNALAN H. E.

- XXVII. JOURNAL OF POWER SOURCES, vol.328, pp.167-173, 2016 (SCI-Expanded)

**Synthesis and characterization of hydrothermally grown potassium titanate nanowires**

Kapusuz D., Kalay Y. E., Park J., Öztürk A.

JOURNAL OF CERAMIC PROCESSING RESEARCH, vol.16, no.3, pp.291-297, 2015 (SCI-Expanded)

XXVIII. Kinetics and Mechanisms of Isothermal Devitrification in Amorphous Cu50Zr50

Cullinan T., Kalay I., KALAY Y. E., Kramer M., Napolitano R.

METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, no.2, pp.600-613, 2015 (SCI-Expanded)

XXIX. Structural modeling of liquid and amorphous Al91Tb9 by Monte Carlo simulations

ÖVÜN M., KRAMER M. J., KALAY Y. E.

JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.405, pp.27-32, 2014 (SCI-Expanded)

XXX. Palladium doped perovskite-based NO oxidation catalysts: The role of Pd and B-sites for NO<sub>x</sub> adsorption behavior via in-situ spectroscopy

Say Z., Dogac M., Vovk E. I., KALAY Y. E., KIM C. H., LI W., Ozensoy E.

APPLIED CATALYSIS B-ENVIRONMENTAL, vol.154, pp.51-61, 2014 (SCI-Expanded)

XXXI. Embrittlement in CN3MN Grade Superaustenitic Stainless Steels

BASKAN M., Chumbley S. L., KALAY Y. E.

METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, no.5, pp.2405-2411, 2014 (SCI-Expanded)

XXXII. Germanium nanowire synthesis using solid precursors

AKSOY B., KALAY Y. E., ÜNALAN H. E.

JOURNAL OF CRYSTAL GROWTH, vol.392, pp.20-29, 2014 (SCI-Expanded)

XXXIII. Effects of Al and Fe additions on microstructure and mechanical properties of SnAgCu eutectic lead-free solders

KANTARCIOLU A., KALAY Y. E.

MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.593, pp.79-84, 2014 (SCI-Expanded)

XXXIV. Kinetics of fcc-Al nanocrystallization in Al90Tb10 metallic glass

DEMIRTAS T., KALAY Y. E.

JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.378, pp.71-78, 2013 (SCI-Expanded)

XXXV. Homogenization of ECAPed Al 2024 alloy through age-hardening

KOTAN G., TAN E., KALAY Y. E., GÜR C. H.

MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.559, pp.601-606, 2013 (SCI-Expanded)

XXXVI. Effect of silver encapsulation on the local structure of titanosilicate ETS-10

GALIOGLU S., ZAHMAKIRAN M., KALAY Y. E., OZKAR S., Akata B.

MICROPOROUS AND MESOPOROUS MATERIALS, vol.159, pp.1-8, 2012 (SCI-Expanded)

XXXVII. Hydrothermal zinc oxide nanowire growth using zinc acetate dihydrate salt

AKGUN M. C., KALAY Y. E., ÜNALAN H. E.

JOURNAL OF MATERIALS RESEARCH, vol.27, no.11, pp.1445-1451, 2012 (SCI-Expanded)

XXXVIII. Nanoscale Structure and Structural Relaxation in Zr50Cu45Al5 Bulk Metallic Glass

HWANG J., MELGAREJO Z. H., Kalay Y. E., KALAY I., KRAMER M. J., STONE D. S., VOYLES P. M.

PHYSICAL REVIEW LETTERS, vol.108, no.19, 2012 (SCI-Expanded)

XXXIX. Local chemical and topological order in Al-Tb and its role in controlling nanocrystal formation

KALAY Y. E., Kalay I., HWANG J., VOYLES P. M., KRAMER M. J.

ACTA MATERIALIA, vol.60, no.3, pp.994-1003, 2012 (SCI-Expanded)

XL. Eutectic-to-metallic glass transition in the Al-Sm system

WANG N., KALAY Y. E., Trivedi R.

ACTA MATERIALIA, vol.59, no.17, pp.6604-6619, 2011 (SCI-Expanded)

XLI. Local structure in marginal glass forming Al-Sm alloy

Kalay Y. E., Chumbley L. S., Kramer M. J., Anderson I. E.

INTERMETALLICS, vol.18, no.8, pp.1676-1682, 2010 (SCI-Expanded)

XLII. Initial crystallization in a nanostructured Al-Sm rare earth alloy

Kalay Y. E., YEAGER C., Chumbley L. S., Kramer M. J., Anderson I. E.

JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.356, pp.1416-1424, 2010 (SCI-Expanded)

XLIII. Bioinspired synthesis of self-assembled calcium phosphate nanocomposites using block copolymer-peptide conjugates

YUSUFOGLU Y., HU Y., KANAPATHIPILLAI M., KRAMER M., Kalay Y. E., THIYAGARAJAN P., AKINC M., SCHMIDT-ROHR K., MALLAPRAGADA S.

JOURNAL OF MATERIALS RESEARCH, vol.23, no.12, pp.3196-3212, 2008 (SCI-Expanded)

XLIV. Synthesis and characterization of ionic block copolymer templated calcium phosphate nanocomposites

KANAPATHIPILLAI M., Yusufoglu Y., RAWAL A., HU Y., LO C.-., THIYAGARAJAN P., Kalay Y. E., Akinc M., MALLAPRAGADA S., SCHMIDT-ROHR K.

CHEMISTRY OF MATERIALS, vol.20, no.18, pp.5922-5932, 2008 (SCI-Expanded)

XLV. Characterization of a marginal glass former alloy solidified in gas atomized powders

Kalay Y. E., CHUMBLEY L. S., ANDERSON I. E.

MATERIALS SCIENCE AND ENGINEERING A-STRUCTURAL MATERIALS PROPERTIES MICROSTRUCTURE AND PROCESSING, vol.490, pp.72-80, 2008 (SCI-Expanded)

XLVI. Crystallization behavior in a highly driven marginal glass forming alloy

Kalay Y. E., CHUMBLEY L. S., ANDERSON I. E.

JOURNAL OF NON-CRYSTALLINE SOLIDS, vol.354, no.26, pp.3040-3048, 2008 (SCI-Expanded)

XLVII. Characterization of hypereutectic Al-Si powders solidified under far-from equilibrium conditions

Kalay Y. E., CHUMBLEY L. S., ANDERSON I. E., NAPOLITANO R. E.

METALLURGICAL AND MATERIALS TRANSACTIONS A-PHYSICAL METALLURGY AND MATERIALS SCIENCE, no.7, pp.1452-1457, 2007 (SCI-Expanded)

## **Books & Book Chapters**



## **Refereed Congress / Symposium Publications in Proceedings**

- ## I. Al-Sm Alloys Under Far-From-Equilibrium Conditions

- II. **Micromechanical Properties of Marginal Glass Forming Alloys**  
Kalay İ., Uluda T. H., Özerinç S., Kalay Y. E.  
TMS Annual Meeting & Exhibition, California, United States Of America, 23 - 27 February 2020, pp.1
- III. **CdZnTe BULK-CRYSTAL GROWTH AND SURFACE PROCESSING TECHNOLOGY AT METU-CGL**  
Ergunt Y., Kabukçuoğlu M. P., Balbasi Ö. B., Yaşar B., Kalay Y. E., Turan R., Parlak M.  
International Conference on Radiation Applications , Belgrade, Serbia And Montenegro, 16 - 19 September 2019, pp.167-171
- IV. **Effect of B on the Properties of Low Density High Entropy Alloys (LDHEAs) Including Al, Ti, V, Cr and Mn Elements**  
POLAT G., ERDAL Z. A., KALAY Y. E.  
European Congress and Exhibition on Advanced Materials and Processes 2019, 1 - 05 September 2019
- V. **Synthesis and Development of Sm Microalloyed Zr-Cu-Al Based Metallic Glasses and Their Nanocomposites**  
Çerçi B., Sikan F., Kalay Y. E., Kalay İ.  
TMS, Texas, United States Of America, 10 - 14 March 2019, pp.117
- VI. **Plasma Synthesis of AlNiCo Core/Shell Nanopowders**  
Genç A. M., Öztürk T., Kalay Y. E.  
2018 MRS Fall Meeting, Massachusetts, United States Of America, 25 - 30 November 2018, vol.1, no.1
- VII. **Design, Production and Characterization of AlTiVMnSix(x=0.25, 0.50) Low Density High Entropy Alloys(LDHEAs)**  
POLAT G., Erdal A., KALAY Y. E.  
19.Uluslararası Metalurji ve Malzeme Kongresi, 25 - 27 November 2018
- VIII. **Mechanical Properties of FeCoCrNi High Entropy Alloy (HEA) Produced from Industrial Raw Materials by Induction Melting**  
Erdal a., POLAT G., KALAY Y. E.  
19.Uluslararası Metalurji ve Malzeme Kongresi, 25 - 27 November 2018
- IX. **Advanced micromechanical characterization techniques for understanding materials behavior at the nanoscale**  
Özerinç S., Abboud M., Motallebzadeh A., Kalay Y. E.  
19th International Metallurgy and Materials Congress, İstanbul, Turkey, 25 - 27 October 2018, pp.1
- X. **Effect of Sm on Mechanical Properties of Cu-Zr-Al Bulk Metallic Glasses**  
Sikan F., Kalay İ., Özerinç S., Kalay Y. E.  
Materials Science & Technology 2018, Ohio, United States Of America, 14 - 18 October 2018, pp.1
- XI. **Design and Structural Investigation of TiCrMnVAL Low Density High Entropy Alloy (LDHEA)**  
POLAT G., ERDAL Z. A., KALAY Y. E.  
European Materials Research Society (E-MRS) 2018 Fall Meeting, 17 - 20 September 2018
- XII. **Embrittlement in Cast Superaustenitic Stainless Steel**  
Kalay Y. E., Chumbley S., Başkan M.  
TMS 2018, Arizona, United States Of America, 11 - 15 March 2018, pp.182
- XIII. **The Influence of Liquid Structure on the Devitrification of Solid Amorphous Al-based Marginal Glass Forming Alloys**  
Kalay Y. E., Kalay İ., Yaşar B.  
TMS 2018, Arizona, United States Of America, 11 - 15 March 2018, pp.95
- XIV. **Optimizing the ORR Activity in Hetero-Structured LSC-113 and LSC-214 Perovskites via Combinatorial Approach**  
SARI D., Torunoğlu Z. Ç., KALAY Y. E., ÖZTÜRK T.  
2017 Materials Research Society (MRS) Fall Meeting, 26 November - 01 December 2017
- XV. **Combinatorial Development of Thin Film La<sub>0.8</sub>Sr<sub>0.2</sub>CoO<sub>3-δ</sub> / (La<sub>0.55</sub> Sr<sub>0.5</sub>)<sub>2</sub>CoO<sub>4</sub> Cathode Materials for Intermediate Temperature Solid Oxide Fuel Cells**  
SARI D., Torunoğlu Z. Ç., KALAY Y. E., ÖZTÜRK T.  
2nd International Symposium on Materials for Energy Storage and Conversion, 26 - 28 September 2017
- XVI. **One pot Pechini synthesis of (La,Sr)CoO<sub>3</sub>/(La,Sr)<sub>2</sub>CoO<sub>4</sub> for Cathodes of ITSOFCs**  
Torunoğlu Z. Ç., SARI D., DEMİRCAN O., KALAY Y. E., ÖZTÜRK T., KURU Y.  
2nd International Symposium on Materials for Energy Storage and Conversion, 26 - 28 September 2017
- XVII. **Characterization of cation segregation in La<sub>0.8</sub>Sr<sub>0.2</sub>CoO<sub>3-δ</sub> / (La<sub>0.55</sub> Sr<sub>0.5</sub>)<sub>2</sub>CoO<sub>4</sub> heterostructure**  
YAŞAR B., SARI D., KALAY Y. E., ÖZTÜRK T.  
2nd International Symposium on Materials for Energy Storage and Conversion, 26 - 28 September 2017
- XVIII. **Preparation of La<sub>0.8</sub>Sr<sub>0.2</sub>CoO<sub>3-δ</sub> / (La<sub>0.55</sub> Sr<sub>0.5</sub>)<sub>2</sub>CoO<sub>4</sub> Sputtering Targets Using Deformable Compaction Die**  
SARI D., Torunoğlu Z. Ç., KALAY Y. E., ÖZTÜRK T.  
2nd International Symposium on Materials for Energy Storage and Conversion, 26 - 28 September 2017
- XIX. **Developing Al-Sm Alloys for Structural Applications**  
POLAT G., KALAY Y. E.  
TMS 2017 146th Annual Meeting and Exhibition, 26 February - 02 March 2017
- XX. **Investigation of Defects in CZT Single Crystals**  
YAŞAR B., KABUKÇUOĞLU M., ERGUNT Y., PARLAK M., TURAN R., KALAY Y. E.  
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- XXI. **The Effects of ECAP on the Precipitation Behavior of Al 2024**  
TAN G., KALAY Y. E., GÜR C. H.  
TMS 2017 146th Annual Meeting and Exhibition, 26 February - 02 March 2017
- XXII. **Effect of Sm Micro-alloying on the mechanical behavior and crystallization kinetics of Cu-Zr-Al BMGs**  
Sikan F., Kalay İ., Özerinç S., Kalay Y. E.  
TMS Annual Meeting & Exhibition, California, United States Of America, 26 February - 02 March 2017, pp.1
- XXIII. **Nanocrystallization in Cu-Zr-Al-Sm Metallic Glasses**  
SIKAN F., KALAY İ., KALAY Y. E.  
TMS 2017, 26 February 2017
- XXIV. **Investigation Phase Transformation Route in Mn-Al Alloys**  
ACAR Ö., GENÇ A. M., KALAY İ., KALAY Y. E.  
TMS 2017, 26 February 2017
- XXV. **Microstructural Characterization of Magnetic MnAl Alloys**  
GENÇ A. M., ACAR Ö., KALAY İ., KALAY Y. E.  
TMS 2017, 26 February - 02 March 2017
- XXVI. **Structural Characterization of LaxSr<sub>1-x</sub>CoO<sub>3</sub> (LSC 113) / (LaxSr<sub>1-x</sub>)<sub>2</sub>CoO<sub>4</sub> (LSC 214) Hetero-Interface Cathode for Intermediate Temperature Solid Oxide Fuel Cells**  
SARI D., KALAY Y. E., ÖZTÜRK T.  
TMS 2017 146th Annual Meeting and Exhibition, 26 February - 02 March 2017
- XXVII. **Medium-Range Correlations and Its Impact on Properties in Al-RE Marginal Glass Forming Alloys**  
KUTSAL M., KALAY Y. E.  
TMS 2017, 26 February 2017
- XXVIII. **Effect of Metalloid Addition on Anomalous Primary Crystallization of Al-RE Metallic Glasses**  
KUTSAL M., Çam B., KALAY Y. E.

- TMS 2017, 26 February 2017
- XXIX. Synthesis of AlNiCo Core Shell Nanopowders by Hydrogen Plasma Reaction**  
GENÇ A. M., AKDENİZ M. V., ÖZTÜRK T., KALAY Y. E.  
MRS Fall Meeting 2016, 27 November - 02 December 2016
- XXX. In situ Characterization of Binary Marginal Glass Forming Alloys during Isochronal Crystallization**  
KALAY Y. E., KUTSAL M.  
MS&T 2016, United States Of America, 23 - 27 October 2016
- XXXI. The Surface and Bulk Kinetics of Oxygen Transport in Solid Oxide Fuel Cell Cathodes**  
SARI D., torunoğlu z., PIŞKİN F., KURU Y., KALAY Y. E., ÖZTÜRK T.  
IMMC 2016, Turkey, 29 September - 01 October 2016
- XXXII. Sm Microalloyed Cu Zr Al Bulk Metallic Glasses**  
SIKAN F., KALAY İ., KALAY Y. E.  
IMMC 2016, Turkey, 26 September - 01 October 2016
- XXXIII. Local Ordering in Molten State and Its Legacy on Abnormal Primary Crystallization in Al RE Metallic Glasses**  
KUTSAL M., KALAY Y. E.  
TMS 2016, United States Of America, 14 - 18 February 2016
- XXXIV. Epsilon to Tau Phase Transformation in MnAl Alloy Systems**  
GENÇ A. M., ACAR Ö., KALAY Y. E.  
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- XXXV. Characterization of Glassy and Partially Crystalline Cu Zr Al Sm Metallic Glasses**  
SIKAN F., KALAY İ., KALAY Y. E.  
TMS 2016, United States Of America, 14 - 18 February 2016
- XXXVI. Combinatorial Development of Metal Hydrides for Thermal Coupling of Solid Oxide Fuel Cells**  
SARI D., PIŞKİN F., Volodymyr Y., KURU Y., KALAY Y. E., ÖZTÜRK T.  
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- XXXVII. Effect of Cooling Rate on Mechanical Properties of MnAlFeNiCoHEAs**  
Ulucan T., Koylan S., Koc S., KALAY Y. E.  
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- XXXVIII. Wafer Level Au Sn TLP Bonding from Eutectic Composition**  
YILMAZ S., DEMİR E. C., Temel O., AKIN T., KALAY Y. E.  
TMS 2016, United States Of America, 14 - 18 February 2016
- XXXIX. Investigation of Medium Range Correlations in Marginal GlassForming Alloys**  
KUTSAL M., Ott R., Kramer M., KALAY Y. E.  
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- XL. HRTEM Analysis of Crystallographic Defects in Cd Zn Te SingleCrystals**  
KALAY Y. E., Erkunt Y., Kabukçuoğlu M., PARLAK M., TURAN R., YAŞAR B.  
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- XLI. Local Order Inheritance from Molten State in Marginal Glass Forming Alloys**  
KUTSAL M., Ovun M., Kramer M., KALAY Y. E.  
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- XLII. Development of AlNiCo Nanopowders with Improved Coercivity**  
Genc M., AKDENİZ M. V., ÖZTÜRK T., KALAY Y. E.  
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- XLIII. Characterization of Amorphous and Partially Crystalline Cu Zr Al Sm Metallic Glass**  
Sikan F., KALAY İ., KALAY Y. E.  
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- XLIV. Development of Wafer Level Au Sn Eutectic Bonding Techniques for MEMS Applications**  
YILMAZ S., Demir E. C., Temel O., AKIN T., KALAY Y. E.  
Elektron Mikrosobi Kongresi, Turkey, 2 - 04 September 2015
- XLV. Development Of Rare Earth Free Magnetic Mn Al Alloys**  
Genc M., Acar O., KALAY Y. E.  
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- XLVI. Probing the Local Structures in Metallic Glasses Using HRTEM and APT**  
KUTSAL M., Ovun M., Yasar B., KALAY Y. E.  
Elektron Mikrosobi Kongresi, Turkey, 2 - 04 September 2015
- XLVII. Investigation of Prenucleation Clustering in Al RE Marginal Glass Forming Alloys**  
Ovun M., KUTSAL M., Kramer M., KALAY Y. E.  
ISMANAM 2015, 13 July - 17 December 2015
- XLVIII. Synthesis and Characterization of Al RE TM Nanocrystal Amorphous Nanocomposites**  
KALAY Y. E., KUTSAL M.  
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- XLIX. Phase Selection In Cu Zr Metallic Glass**  
Kalay I., KALAY Y. E., Kramer M.  
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- L. Anomalous Nanocrystallization Behavior in Marginal Glass Forming Alloys**  
KUTSAL M., Sikan F., Ovun M., KALAY Y. E.  
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- LII. Production and Characterization of AlNiCo Nanopowders**  
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- LII. Development of Cu Zr Al RE Rare Earth Bulk Metallic Glasses**  
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- LIII. Prenucleation Clustering in Supercooled Liquid and Amorphous Marginal Metallic Glasses**  
Ovun M., Kutsal M., KALAY Y. E.  
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- LIV. Characterization of MnAl Magnetic Alloys**  
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- LV. The Al RE TM Nanocrystal Amorphous Nanocomposites**  
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- LVI. **Investigation of Crystallographic Defects in CN3MN Grade CastSuperaustenitic Steels**  
 Baskan M., Chumbley S., KALAY Y. E.  
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- LVII. **Optimization of AuSn Eutectic Bonding Using Thermal Evaporation Process**  
 Demir E., Donmez I., Torunbalci M., Akin T., KALAY Y. E.  
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- LVIII. **Effect of Cu addition on the microstructural constituents and mechanical properties of twin roll cast AlFeMnSi alloys**  
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- LIX. **Fabrication and Characterization of Gold-Tin Eutectic Bonding for Hermetic Packaging of MEMS Devices**  
 DEMIR E. C., TORUNBALCI M. M., DONMEZ I., KALAY Y. E., AKIN T.  
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- LX. **Variation of hardness and modulus across the thickness of Zr-Cu-Al metallic glass ribbons**  
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- LXI. **Microstructure hierarchy - Mechanical property relationship for hypereutectic Al-Si alloy powders solidified far from equilibrium**  
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### Supported Projects

- KALAY Y. E., POLAT G., Project Supported by Higher Education Institutions, Yüksek Sıcaklık Uygulamalarına Uygun Yüksek Entropi Alaşımı (YEA) Üretimi ve Karakterizasyonu, 2020 - 2022
- KALAY Y. E., Other International Funding Programs, The Local Structure and Chemistry in Marginal Glass Forming Alloys, 2017 - 2020
- ÖZERİNÇ S., KALAY Y. E., Abboud M., Project Supported by Higher Education Institutions, Zr-Cu-Al Metalik Camlarının Mekanik Özelliklerinin İncelenmesi, 2017 - 2019
- KALAY Y. E., POLAT G., Project Supported by Higher Education Institutions, Demir İçerikli, Hafif ve Yüksek Mukavemetli Yüksek Entropi Alaşımları (YEA) Tasarımı ve Üretimi, 2017 - 2017
- KALAY Y. E., Project Supported by Higher Education Institutions, AL-NTE METALİK CAM ALAŞIMLARINDA KISA VE ORTA ERİM DÜZENİNİN İNCELENMESİ, 2017 - 2017
- KALAY Y. E., Project Supported by Higher Education Institutions, CUZR-NTÉ BAZLI HACIMLİ AMORF/NANOKRİSTAL KOMPOZİT YAPILARIN KARAKTERİZASYONU, 2017 - 2017
- KALAY Y. E., Project Supported by Higher Education Institutions, KATI HAL FAZ DÖNÜŞÜMLERİNİN MANGAN-ALÜMINYUM ALAŞIMLARININ ÖZELLİKLERİ ÜZERİNDEKİ ETKİSİ, 2017 - 2017
- KALAY Y. E., Project Supported by Higher Education Institutions, Hızlı Katışma Tekniği ile Demir Bazlı Yüksek Mukavemetli ve Sürek Amorf-Nanokristal Kompozit Çelik Üretimi, 2016 - 2016
- ÇAKIROĞLU E., KALAY Y. E., ÖZTÜRK G., BARAN JOVANOVIĆ E., Project Supported by Higher Education Institutions, Stem Eğitimi Uygulamaları: Örnek Video Geliştirme Projesi, 2016 - 2016
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2016
- VOLKAN M., KALAY Y. E., Project Supported by Higher Education Institutions, Fotovoltaik Güneş Gözelerinin Üretime Yönelik Pirit Nanokristal Sentezi ve Karakterizasyonu, 2015 - 2015
- KALAY Y. E., Project Supported by Higher Education Institutions, NADİR TOPRAK ELEMENTİ İÇERMEN YANYETİK NANOTOZLARDAN 3-BOYUTLU YAZICI İLE POLİMER MATRİSLİ MIKNATIS ÜRETİMİ, 2015 - 2015
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2015
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2015
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014
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- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014
- KALAY Y. E., Project Supported by Higher Education Institutions, FEN BİLİMLERİ ENSTİTÜSÜ/LİSANSÜSTÜ TEZ PROJESİ, 2014 - 2014
- KALAY Y. E., Project Supported by Higher Education Institutions, ALNICO 5-7 ALAŞIMININ MİKRON ve NANOBÖYUTLarda TOZ OLARAK ÜRETİLMESİ VE KARAKTERİZASYONU, 2013 - 2014
- KALAY Y. E., YILMAZ S., Project Supported by Higher Education Institutions, KURSUŃSUZ LEHİM GELİŞTİRİLMESİ, 2013 - 2013
- KALAY Y. E., YILDIRIM C., Project Supported by Higher Education Institutions, METALİK CAMLARDA LOKAL DÜZENLİ YAPILARIN NANOKRİSTAL OLUSUMUNA ETKİLERİ, 2013 - 2013
- KALAY Y. E., GENÇ A. M., Project Supported by Higher Education Institutions, ALNICO 5-7 ALAŞIMININ MİKRO VE NANOBÖYUTLarda TOZ OLARAK ÜRETİLMESİ VE KARAKTERİZASYONU, 2013 - 2013
- KALAY Y. E., Başkan M., PARLAK M., TURAN R., Project Supported by Higher Education Institutions, ALTTAŞ OLARAK KULLANILACAK Cd<sub>1-x</sub>Zn<sub>x</sub>Te (CZT) TEK KRİSTALLERİNİN MİKROYAPISAL KARAKTERİZASYONU, 2013 - 2013
- KALAY Y. E., Project Supported by Higher Education Institutions, Marjinal Camlı Metallerde Nanokristal Oluşumu, 2011 - 2013
- KALAY Y. E., Project Supported by Higher Education Institutions, Elektronik Sanayii Alanında Kullanılmak Üzere Kurşunsuz Lehim Geliştirilmesi, 2012 - 2012

### Tasks In Event Organizations

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### Metrics

- Publication: 112  
 Citation (WoS): 802  
 Citation (Scopus): 772  
 H-Index (WoS): 16  
 H-Index (Scopus): 15

### Awards

Kalay Y. E., 2019 EPD Materials Characterization Best Poster Award, Tms, March 2018

### Non Academic Experience

- Ames Laboratory US DOE  
 Ames Laboratory US DOE  
 Iowa State University  
 Orta Dogu Teknik Üniversitesi