

Prof. MİRAC ALAF

Personal Information

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International Researcher IDs

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Publons / Web Of Science ResearcherID: M-5050-2016

ScopusID: 24330635700

Yoksis Researcher ID: 232627

Education Information

Doctorate, Sakarya University, Institute Of Science, Metalurji Ve Malzeme Mühendisliği (Dr), Turkey 2007 - 2014

Postgraduate, Sakarya University, Institute Of Science, Metalurji Ve Malzeme Mühendisliği (YI) (Tezli), Turkey 2004 - 2007

Undergraduate, Sakarya University, Faculty Of Engineering, Department Of Metallurgical And Materials Engineering, Turkey 2000 - 2004

Foreign Languages

English, B2 Upper Intermediate

Dissertations

Doctorate, Lityum iyon piller için Sn/SnO₂/knt kompozit anotlarının geliştirilmesi, Sakarya University, Fen Bilimleri Enstitüsü, Metalurji Ve Malzeme Mühendisliği (Dr), 2014

Postgraduate, Kalay (Sn) ve kalay oksit (SnO₂) ince filmlerin üretim ve karakterizasyonu, Sakarya University, Fen Bilimleri Enstitüsü, Metalurji Ve Malzeme Mühendisliği (YI) (Tezli), 2007

Research Areas

Metallurgical and Materials Engineering, Material science and engineering, Composites, Physical Metallurgy, Plating, Material Characterization, Nanomaterials, Engineering and Technology

Academic Titles / Tasks

Professor, Bilecik Seyh Edebali University, Mühendislik Fakültesi, Metalurji Ve Malzeme Mühendisliği, 2024 - Continues
Associate Professor, Bilecik Seyh Edebali University, Mühendislik Fakültesi, Metalurji Ve Malzeme Mühendisliği, 2018 - 2024

Assistant Professor, Bilecik Seyh Edebali University, Mühendislik Fakültesi, Metalurji Ve Malzeme Mühendisliği, 2015 -

Academic and Administrative Experience

BAP Coordinator, Bilecik Seyh Edebali University, 2016 - 2018

Bilecik Seyh Edebali University, 2015 - 2018

Courses

GENEL KİMYA VE LABORATUVARI II, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016

GENEL KİMYA I, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016

Metalurji ve Malzeme Mühendisliği Laboratuvarı II, Undergraduate, 2017 - 2018

Metalurji ve Malzeme Mühendisliği Laboratuvarı I, Undergraduate, 2017 - 2018

Yüzey İşlemler, Undergraduate, 2017 - 2018

Malzeme Laboratuvarı I, Undergraduate, 2017 - 2018

FİZİKSEL METALURJİ, Undergraduate, 2017 - 2018, 2016 - 2017

KOROZYON, Undergraduate, 2016 - 2017, 2015 - 2016

Enerji Depolama ve Dönüşüm Sistemleri, Postgraduate, 2016 - 2017

Çevre ve Enerji, Undergraduate, 2015 - 2016

Advising Theses

ALAF M., SnO₂ NANOPARTİKÜLLERİ İLE DEKORE EDİLMİŞ GRAFİT ESASLI KOMPOZİTLER VE ELEKTROKİMYASAL ÖZELLİKLERİNİN İNCELENMESİ, Postgraduate, G.DESTE(Student), 2023

ALAF M., Alüminyum alaşımlarında homojenizasyon ısıl işleminin malzeme özelliklerine etkisi, Postgraduate, B.GEDİK(Student), 2023

ALAF M., Sırlı porselen sofraya eşyalarında kullanılan boya renklerinin dayanımını artırıcı sırlama kompozisyonlarının geliştirilmesi, Postgraduate, A.ÇAMOĞLU(Student), 2022

Özbay ., Alaf M., Li-iyon piller için grafit esaslı anotların geliştirilmesi, Postgraduate, V.ÖNCEL(Student), 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Enhancing mechanical and corrosion properties of GO and Al₂O₃ reinforced Cu composite coatings**
Tan S., Köse M., Algül H., Aydın M., ALAF M., Alp A., Akbulut H., Uysal M.
Diamond and Related Materials, vol.149, 2024 (SCI-Expanded)
- II. **Synthesis and characterization of CNT@SnO₂ decorated graphene anodes for Li-ion batteries as free-standing and flexible**
ALAF M., Oncel V., Tocoglu U., ÖZBAY N., Akbulut H.
Journal of Materials Science, vol.58, no.30, pp.12298-12311, 2023 (SCI-Expanded)
- III. **The SnO₂ nanotube with CNT core structure (SnO₂@void@CNT) and graphene composite electrode for Li-ion batteries**
Alaf M.
THERMAL SCIENCE, vol.27, no.4B, pp.3217-3228, 2023 (SCI-Expanded)
- IV. **Sulfurized Co-Mo Alloy Thin Films as Efficient Electrocatalysts for Hydrogen Evolution Reaction**
KURU C., ALAF M., ŞİMŞEK Y. E., Tocoglu U.
Catalysis Letters, vol.152, no.2, pp.315-323, 2022 (SCI-Expanded)
- V. **Ni-Mo-S Ternary Chalcogenide Thin Film for Enhanced Hydrogen Evolution Reaction**
KURU C., ALAF M., ŞİMŞEK Y. E.

Catalysis Letters, vol.151, no.8, pp.2228-2236, 2021 (SCI-Expanded)

- VI. **Towards high cycle stability yolk-shell structured silicon/rGO/MWCNT hybrid composites for Li-ion battery negative electrodes**
Toçoğlu U., ALAF M., Akbulut H.
Materials Chemistry and Physics, vol.240, 2020 (SCI-Expanded)
- VII. **Electrochemical performances of graphene and MWCNT supported metallurgical grade silicon anodes**
Hatipoglu G., ALAF M., Akbulut H.
Journal of Materials Science: Materials in Electronics, vol.30, no.3, pp.2067-2079, 2019 (SCI-Expanded)
- VIII. **Electrochemical characterization of silicon/graphene/MWCNT hybrid lithium-ion battery anodes produced via RF magnetron sputtering**
Toçoğlu U., Hatipoğlu G., ALAF M., Kayış F., Akbulut H.
Applied Surface Science, vol.389, pp.507-513, 2016 (SCI-Expanded)
- IX. **Sn/SnO₂/MWCNT composite anode and electrochemical impedance spectroscopy studies for Li-ion batteries**
ALAF M., Tocoglu U., Kayis F., Akbulut H.
Fullerenes Nanotubes and Carbon Nanostructures, vol.24, no.10, pp.630-634, 2016 (SCI-Expanded)
- X. **Graphene supported heterogeneous catalysts for Li-O₂ batteries**
ALAF M., Tocoglu U., Kartal M., Akbulut H.
Applied Surface Science, vol.380, pp.185-192, 2016 (SCI-Expanded)
- XI. **Double phase tin oxide/tin/MWCNT nanocomposite negative electrodes for lithium microbatteries**
ALAF M., Gultekin D., Akbulut H.
Microelectronic Engineering, vol.126, pp.143-147, 2014 (SCI-Expanded)
- XII. **A new approach to synthesis of free-standing ZnO/MWCNT Nanocomposites by Vacuum In-ltration**
ALAF M., Gultekin D., Akbulut H.
Acta Physica Polonica A, vol.125, no.2, pp.426-428, 2014 (SCI-Expanded)
- XIII. **Nanostructured ZnO photoelectrode synthesis for dye sensitized solar cells**
Gültekin D., ALAF M., Akbulut H.
Acta Physica Polonica A, vol.125, no.2, pp.301-303, 2014 (SCI-Expanded)
- XIV. **The superior surface discharge capacity of core-shell tin oxide/multi walled carbon nanotube nanocomposite anodes for Li-Ion batteries**
Akbulut H., ALAF M., Gultekin D.
Acta Physica Polonica A, vol.125, no.2, pp.335-337, 2014 (SCI-Expanded)
- XV. **Electrochemical energy storage behavior of Sn/SnO₂ double phase nanocomposite anodes produced on the multiwalled carbon nanotube buckypapers for lithium-ion batteries**
ALAF M., Akbulut H.
Journal of Power Sources, vol.247, pp.692-702, 2014 (SCI-Expanded)
- XVI. **Electrochemical properties of free-standing Sn/SnO₂ /multi-walled carbon nano tube anode papers for Li-ion batteries**
ALAF M., Gultekin D., Akbulut H.
Applied Surface Science, vol.275, pp.244-251, 2013 (SCI-Expanded)
- XVII. **Tin/tin oxide (sn/sno₂) nanocomposites thin films as negative-electrode materials for li-ion batteries**
ALAF M., Gultekin D., Akbulut H.
Acta Physica Polonica A, vol.123, no.2, pp.323-325, 2013 (SCI-Expanded)
- XVIII. **Effects of substrate temperature on structural properties of tin oxide films produced by plasma oxidation after thermal evaporation**
ALAF M., Guler M., Gultekin D., Akbulut H.
Acta Physica Polonica A, vol.123, no.2, pp.326-329, 2013 (SCI-Expanded)
- XIX. **Synthesis and characterization of zno nanopowders and zno-cnt nanocomposites prepared by chemical precipitation route**

- Gültekin D., ALAF M., Akbulut H.
Acta Physica Polonica A, vol.123, no.2, pp.274-276, 2013 (SCI-Expanded)
- XX. **Effects of ph value on the growth and structural properties of sol-gel synthesized nanostructured zno**
Gültekin D., ALAF M., Akbulut H.
Acta Physica Polonica A, vol.123, no.2, pp.330-332, 2013 (SCI-Expanded)
- XXI. **Production of Sn/SnO₂/MWCNT composites by plasma oxidation after thermal evaporation from pure Sn targets onto buckypapers**
ALAF M., Gultekin D., Akbulut H.
Journal of Nanoscience and Nanotechnology, vol.12, no.12, pp.9058-9066, 2012 (SCI-Expanded)
- XXII. **The effect of oxidants on the formation of multi-walled carbon nanotube buckypaper**
Tocoglu U., ALAF M., Cevher O., Guler M., Akbulut H.
Journal of Nanoscience and Nanotechnology, vol.12, no.12, pp.9169-9174, 2012 (SCI-Expanded)
- XXIII. **Synthesis of ZnO, SnO₂ nanoparticles and preparation of ZnO-SnO₂ nanocomposites**
Gultekin D., ALAF M., Guler M. O., Akbulut H.
Journal of Nanoscience and Nanotechnology, vol.12, no.12, pp.9175-9182, 2012 (SCI-Expanded)
- XXIV. **The effects of applied load on the coefficient of friction in Cu-MMC brake pad/Al-SiCp MMC brake disc system**
Gultekin D., Uysal M., Aslan S., ALAF M., Guler M., Akbulut H.
Wear, vol.270, no.1-2, pp.73-82, 2010 (SCI-Expanded)
- XXV. **Effect of oxygen partial pressure on the microstructural and physical properties on nanocrystalline tin oxide films grown by plasma oxidation after thermal deposition from pure Sn targets**
ALAF M., Guler M. O., Gultekin D., Uysal M., Alp A., Akbulut H.
Vacuum, vol.83, no.2, pp.292-301, 2008 (SCI-Expanded)

Articles Published in Other Journals

- I. **Development of Glaze Compositions to Increase the Durability of Decorative Paints Used in Glazed Porcelain**
Alaf M.
Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Dergisi, vol.11, no.1, pp.1-2, 2024 (Peer-Reviewed Journal)
- II. **Maya Hücrelerini Biyoşablon Olarak Kullanarak Poröz SnO₂ Sentezi ve Karakterizasyonu**
ALAF M., Çağlar G., LEBLEBİCİ S.
Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Dergisi, vol.8, pp.808-816, 2021 (Peer-Reviewed Journal)
- III. **Li-O₂ Piller için α-MnO₂/Grafen/KNT Nanokompozit Elektrotlarının Üretimi ve Karakterizasyonu**
ALAF M., TOÇOĞLU U., AKBULUT H.
ACADEMIC PLATFORM-JOURNAL OF ENGINEERING AND SCIENCE, vol.6, no.1, pp.49-55, 2018 (Peer-Reviewed Journal)
- IV. **Li-İYON PİLLER İÇİN KALAY ESASLI GRAFEN KOMPOZİT ANOTUN YAPISAL VE ELEKTROKİMYASAL KARAKTERİZASYONU**
ALAF M., HATİPOĞLU G., TOÇOĞLU U., AKBULUT H.
PAMUKKALE UNIVERSITY JOURNAL OF ENGINEERING SCIENCES-PAMUKKALE UNIVERSİTESİ MUHENDİSLİK BİLİMLERİ DERGİSİ, vol.23, no.8, pp.941-944, 2017 (Peer-Reviewed Journal)
- V. **Karbon Nano Tüplerin Dispersiyonuna SDS Yüzey Aktif Maddesinin Etkisi**
ALAF M., TOÇOĞLU U., KAYIŞ F., AKBULUT H.
Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.3, no.1, pp.16-19, 2016 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Optimization Study of Silicon Amount in Free-Standing Carbonaceous Silicon Anodes for Lithium-Ion Batteries**
TOÇOĞLU U., AKBULUT H., ALAF M.
Chemistry Conference for Young Scientists, 21 - 23 February 2018
- II. **Electrochemical Performance Study of Graphene/MWCNT/Si-Yolk-Shell Freestanding Anodes for Lithium Ion Batteries**
ALAF M., TOÇOĞLU U., AKBULUT H.
12th International Conference on Surfaces, Coatings and Nanostructured Materials, 11 - 13 September 2017
- III. **Electrochemical Performance Of Metallurgical Grade Silicon Decorated Graphene Anodes**
HATİPOĞLU G., ALAF M., UZUN D., AKBULUT H.
12th NANOSMAT Conference NANOSMAT SCHOOL 2017, Paris, France, 11 - 13 September 2017, pp.54
- IV. **Nanostructured Sn-Carbonaceous Composites Reinforced with Graphene for Stable Na-ion Batteries**
ALAF M., Mahmut S., Alkan E., Güler A., Doğan M., GÜLER M. O., AKBULUT H.
12th International Conference on Surfaces, Coatings and Nanostructured Materials, Paris, France, 11 - 13 September 2017
- V. **SnO₂ Based Carbon Composite Electrodes for Li-ion Batteries**
TOÇOĞLU U., ALAF M., AKBULUT H.
12th International Conference on Surfaces, Coatings and Nanostructured Materials, 11 - 13 September 2017
- VI. **Producing and Characterization of V₂O₅ Nanobelts with a One-Step Method**
ALAF M., KAYIŞ F., TOÇOĞLU U., AKBULUT H.
12th International Conference on Surfaces, Coatings and Nanostructured Materials, 11 - 13 September 2017
- VII. **GRAPHENE SUPPORTED α -MnO₂ CATHODES FOR Li-O₂ BATTERIES**
ALAF M., KAYIŞ F., TOÇOĞLU U., AKBULUT H.
10th International Conference on Materials Science Engineering (BRAMAT 2017), Brasov, Romania, 9 - 11 March 2017
- VIII. **IN SITU SYNTHESIS OF SnO₂/GRAPHENE NANOCOMPOSITE ANODE AND ITS ENHANCED Li⁺ION BATTERY PERFORMANCE**
ALAF M., ALKAN E., GÜLER M. O., AKBULUT H.
10th International Conference on Materials Science Engineering (BRAMAT 2017), Brasov, Romania, 9 - 11 March 2017
- IX. **Si@Void@Carbon Yolk-Shell Anodes for Lithium Ion Batteries**
TOÇOĞLU U., ALAF M., KAYIŞ F., AKBULUT H.
10th International Conference on Materials Science Engineering" BRAMAT-2017, Romania, 8 - 11 March 2017
- X. **Silicon-Carbon Nanocomposite Negative Electrode Architectures for Li-Ion Batteries**
AKBULUT H., GÜLER M. O., ÇETİNKAYA T., UYSAL M., TOKUR M., ALAF M., TOÇOĞLU U., CEVHER Ö.
Multi-Functional Nano-Carbon Composite Materials, Girit, Greece, 19 - 20 October 2016
- XI. **MnO₂ Pt Decorated Graphene Air Breathing Cathodes for Li O₂ Batteries**
KAYIŞ F., ALAF M., TOÇOĞLU U., AKBULUT H.
3. International Conference on Computational and Experimental Science and Engineering (ICCESEN 2016), 10 - 14 October 2016
- XII. **Synthesis and Characterization of Graphene MWCNT Silicon Free Standing Electrodes for Lithium Ion Batteries**
TOÇOĞLU U., ALAF M., AKBULUT H.
Chemistry Chemical Technology 2016, 28 - 29 April 2016
- XIII. **Graphene Supported Tin Based Nanocomposite Anodes as Flexible and Free Standing for High Performance Li ion Batteries**
Hatipoğlu G., ALAF M., TOÇOĞLU U., AKBULUT H.
Chemistry Chemical Technology 2016, Lithuania, 28 - 29 April 2016
- XIV. **MnO₂ MWCNT Graphene Nanocomposite Electrodes and Their Electrochemical Behaviours for Li O₂**

Batteries

ALAF M., TOÇOĞLU U., AKBULUT H.

Chemistry Chemical Technology 2016, Lithuania, 28 - 29 April 2016

- XV. **Electrochemical Behaviors Of Sn Co MWCNT Composite Anodes Prepared By Pulse Electrodeposition For Lithium Ion Batteries**
UYSAL M., KAYIŞ F., ALAF M., ÇETİNKAYA T., AKBULUT H.
10. International Frumkin Symposium on Electrochemistry, Moskva, Russia, 20 - 23 October 2015
- XVI. **ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY STUDIES OF Sn/SnO₂/MWCNT COMPOSITE ANODE FOR Li-ION BATTERIES**
ALAF M., UYSAL M., KAYIŞ F., AKBULUT H.
10th International Frumkin Symposium on Electrochemistry, Moskva, Russia, 21 - 23 October 2015
- XVII. **Preparation and Characterization of NASICON type Structured Li₁ 4Al₀ 4Ti₁ 6 PO₄ 3 Conducting Electrolyte**
CEVHER Ö., ALAF M., TOÇOĞLU U., AKBULUT H.
10. International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT 2015), Manchester, England, 13 - 16 September 2015
- XVIII. **MnO₂ Pt Decorated Carbon Nanotube Air Breathing Cathodes for Li Oxygen Batteries**
TOÇOĞLU U., ALAF M., TOKUR M., AKBULUT H.
10. International Conference on Surfaces, Coatings and Nanostructured Materials (NANOSMAT 2015), Manchester, England, 13 - 16 September 2015
- XIX. **Flexible Free-Standing Tin-Based Carbon Nano Tube Composite Anodes for Li-Ion Batteries**
ALAF M., AKBULUT H.
17th International Meeting on Lithium Batteries, Como, 10 - 14 June 2014
- XX. **Electrochemical Energy Storage Behavior of Sn SnO₂ and Sn SnO₂ MWCNT Nanocomposite Anodes For Li Ion Batteries**
ALAF M., AKBULUT H.
15. European Conference on Composite Materials (ECCM15), Italy, 24 - 28 June 2012
- XXI. **Oxidation Kinetics of Nano Crystalline Tin Oxide Conductive Thin Films**
ALAF M., GÜLER M. O., ALP A., AKBULUT H., Karthi N., Yıldırım H. B.
ASME 2. Annual Multifunctional Nanocomposites Nanomaterials: International Conference Exhibition, Egypt, 11 - 13 January 2008
- XXII. **The Effect of Pressure on the Microstructural Behavior on SnO₂ Thin Films Deposited by RF Sputtering**
GÜLER M. O., ALAF M., ALP A., AKBULUT H.
ASME 2. Annual Multifunctional Nanocomposites Nanomaterials: International Conference Exhibition, 11 - 13 January 2008

Supported Projects

ALAF M., Sodyum iyon Piller Enerji Depolama Ve Dönüşüm İçin Ucuz Bir Çözüm STOREENERGY, 2016 - Continues TUBITAK Project, Yeni nano yapıli metal oksit esasli yarı iletken anotlar kullanılarak Li iyon pillerin kapasitelerinin geliştirilmesi, Continues

Alaf M., Project Supported by Higher Education Institutions, ALÜMİNYUM ALAŞIMLARININ HOMOJENİZASYONUNDA SOĞUMA HIZININ MALZEME ÖZELLİKLERİNE ETKİSİ, 2022 - 2023

KURU C., ŞİMŞEK Y. E., ALAF M., Fotoelektrokimyasal Hidrojen Üretimi İçin Geçis Metalleri Alasımlarının Sülfürizasyonu Ve Selenizasyonu İle Yeni Katalizör Malzemelerin Gelistirilmesi, 2017 - 2021

ALAF M., Project Supported by Higher Education Institutions, Biyo-Şablon Kullanılarak Poroz SnO₂ Sentezi ve Karakterizasyonu, 2018 - 2020

ALAF M., Project Supported by Higher Education Institutions, Sakarya Üniversitesi Ulusal Lityum İyon Pil Bataryası, 2017 - 2020

Alaf M., Akbulut H., TUBITAK Project, SnO₂ Esaslı Li-Iyon Pil Elektrotların Hacim Genleşmesi Problemini Aşmaya Yönelik Yeni Bir Yaklaşım, 2017 - 2018

Alaf M., Project Supported by Higher Education Institutions, Biyoteknoloji Uygulama ve Araştırma Merkezi Alt yapısının geliştirilmesi, 2016 - 2017

ALAF M., Project Supported by Higher Education Institutions, Li-O₂ Pilleri İçin Grafen Destekli Kompozit Elektrotların Geliştirilmesi, 2016 - 2017

ALAF M., Project Supported by Higher Education Institutions, Li O₂ Pilleri İçin Grafen Destekli Kompozit Elektrotların Geliştirilmesi, 2016 - 2017

ALAF M., ÖZBAY N., ÇALIŞ AÇIKBAŞ N., ÇELİK A., AVCI Ş., Project Supported by Higher Education Institutions, Metalurji ve Malzeme Mühendisliği Bölümü Laboratuvar İmkanlarının İyileştirilmesi, 2015 - 2016

Alaf M., Project Supported by Higher Education Institutions, Li iyon piller için Sn SnO₂ KNT kompozit anotlarının geliştirilmesi, 2009 - 2014