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Education Information

Doctorate, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, Turkey 2013 - 2019

Postgraduate, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, Turkey 2009 - 2013

Dissertations

Doctorate, CZTSSe thin film: growth, characterization and solar cell applications, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, 2019

Postgraduate, Comparison of crystal Si solar cells fabricated on P-type and N-type float zone silicon wafers, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, 2013

Research Areas

Materials Science, Surfaces, Interfaces, Thin Films and Nanosystems, Electrical properties of electronic structures, interfaces, thin films and low-dimensional structures

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Flow rate-dependent properties of SnO₂ thin films deposited by ultrasonic spray pyrolysis**
GÜNEŞ İ., Sarica E., Ozcan H. B., TERLEMEZOĞLU BİLMİŞ M., AKYÜZ İ.
Optical Materials, vol.150, 2024 (SCI-Expanded)
- II. **Structural, morphological, and temperature-tuned bandgap properties of single-step thermally evaporated Sb₂Se₃ thin films**
TERLEMEZOĞLU BİLMİŞ M.
Applied Physics A: Materials Science and Processing, vol.130, no.4, 2024 (SCI-Expanded)
- III. **Fine-tuning SnO₂ films: Unleashing their potential through deposition temperature optimization by ultrasonic spray pyrolysis**
Sarica E., Ozcan H. B., GÜNEŞ İ., TERLEMEZOĞLU BİLMİŞ M., AKYÜZ İ.
Ceramics International, vol.50, no.6, pp.9270-9279, 2024 (SCI-Expanded)
- IV. **Nanowire geometry effects on devices and transport mechanisms: SnS₂/SiNW heterojunction**
COŞKUN E., Emir C., TERLEMEZOĞLU BİLMİŞ M., PARLAK M.
Journal of Materials Science, vol.58, no.38, pp.15132-15143, 2023 (SCI-Expanded)

- V. **Physical characterization of thermally evaporated Sn–Sb–Se thin films for solar cell applications**
Bektas T., Surucu O., TERLEMEZOĞLU BİLMİŞ M., PARLAK M.
Applied Physics A: Materials Science and Processing, vol.129, no.5, 2023 (SCI-Expanded)
- VI. **Optical light management by self-arrangement of inverted tetragonal pyramids on the silicon surface through copper-assisted etching technique in a single step**
Dönerçark E., ÇOLAKOĞLU T., Terlemezoglu M., Abak M. K., ÇİFTPINAR E. H., BEK A., TURAN R.
International Journal of Energy Research, vol.46, no.15, pp.24322-24331, 2022 (SCI-Expanded)
- VII. **Temperature effects on optical characteristics of thermally evaporated CuSbSe₂ thin films for solar cell applications**
Surucu O., Isik M., Terlemezoglu M., Bektas T., HASANLI N., PARLAK M.
Optical Materials, vol.133, 2022 (SCI-Expanded)
- VIII. **Structural, morphological and temperature-tuned bandgap characteristics of CuS nano-flake thin films**
Isik M., Terlemezoglu M., HASANLI N., PARLAK M.
Physica E: Low-Dimensional Systems and Nanostructures, vol.144, 2022 (SCI-Expanded)
- IX. **Growth and optical characterization of Sn_{0.6}Sb_{0.4}Se layer single crystals for optoelectronic applications**
Bektas T., Terlemezoglu M., Surucu O., Isik M., PARLAK M.
Materials Science in Semiconductor Processing, vol.141, 2022 (SCI-Expanded)
- X. **Growth and Characterization of Stoichiometric Cu₂ZnSnS₄ Crystal Using Vertical Bridgman Technique**
Peksu E., Terlemezoglu M., PARLAK M., Karaağaç H.
Physica Status Solidi (A) Applications and Materials Science, vol.219, no.3, 2022 (SCI-Expanded)
- XI. **Temperature-dependent optical characteristics of sputtered NiO thin films**
Terlemezoglu M., Surucu O., Isik M., HASANLI N., PARLAK M.
Applied Physics A: Materials Science and Processing, vol.128, no.1, 2022 (SCI-Expanded)
- XII. **Characterization of Cu-rich and Zn-poor Cu₂ZnSnS₄ single crystal grown by vertical Bridgman technique**
Peksu E., Terlemezoglu M., PARLAK M., Karaağaç H.
Journal of Crystal Growth, vol.574, 2021 (SCI-Expanded)
- XIII. **Fabrication of CdSexTe_{1-x} thin films by sequential growth using double sources**
Demir M., Gullu H., Terlemezoglu M., PARLAK M.
Physica B: Condensed Matter, vol.619, 2021 (SCI-Expanded)
- XIV. **The effect of Zn concentration on the structural and optical properties of Cd_{1-x}ZnxS nanostructured thin films**
Isik M., Terlemezoglu M., Isik S., Erturk K., HASANLI N.
Journal of Materials Science: Materials in Electronics, vol.32, no.20, pp.25225-25233, 2021 (SCI-Expanded)
- XV. **Illumination and voltage effects on the forward and reverse bias current-voltage (I-V) characteristics in In/In₂S₃/p-Si photodiodes**
Yukselturk E., Surucu O., Terlemezoglu M., Parlak M., Altındal Ş.
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, vol.32, no.17, pp.21825-21836, 2021 (SCI-Expanded)
- XVI. **Structural and temperature-tuned bandgap characteristics of thermally evaporated β-In₂S₃ thin films**
Surucu O., Isik M., Terlemezoglu M., HASANLI N., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.32, no.12, pp.15851-15856, 2021 (SCI-Expanded)
- XVII. **Optical and structural characteristics of electrodeposited Cd_{1-x}ZnxS nanostructured thin films**
Erturk K., Isik M., Terlemezoglu M., HASANLI N.
Optical Materials, vol.114, 2021 (SCI-Expanded)
- XVIII. **Temperature-tuned band gap properties of MoS₂ thin films**
Surucu O., Isik M., HASANLI N., Terlemezoglu M., PARLAK M.

Materials Letters, vol.275, 2020 (SCI-Expanded)

- XXIX. **Vibrational modes in (TlGaS₂)_x-(TlGaSe₂)_{1-x} mixed crystals by Raman measurements: compositional dependence of the mode frequencies and line-shapes**
Isik M., Terlemezoglu M., HASANLI N., Babayeva R.
Journal of Materials Science: Materials in Electronics, vol.31, no.17, pp.14330-14335, 2020 (SCI-Expanded)
- XX. **Investigation of band gap energy versus temperature for SnS₂ thin films grown by RF-magnetron sputtering**
Isik M., Gullu H., Terlemezoglu M., Surucu O. B., PARLAK M., HASANLI N.
Physica B: Condensed Matter, vol.591, 2020 (SCI-Expanded)
- XXI. **Electrical characterization of CdZnTe/Si diode structure**
Balbasi C. D., Terlemezoglu M., Gullu H., Yildiz D., PARLAK M.
Applied Physics A: Materials Science and Processing, vol.126, no.8, 2020 (SCI-Expanded)
- XXII. **Temperature dependent band gap in SnS₂xSe(2-2x) (x = 0.5) thin films**
Delice S., Isik M., Gullu H., Terlemezoglu M., Surucu O. B., HASANLI N., PARLAK M.
Materials Science in Semiconductor Processing, vol.114, 2020 (SCI-Expanded)
- XXIII. **Material and Si-based diode analyses of sputtered ZnTe thin films**
Gullu H., Surucu O. B., Isik M., Terlemezoglu M., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.31, no.14, pp.11390-11397, 2020 (SCI-Expanded)
- XXIV. **Temperature-dependent material characterization of CuZnSe₂ thin films**
Gullu H., Surucu O., Terlemezoglu M., Isik M., Ercelebi C., HASANLI N., PARLAK M.
Thin Solid Films, vol.701, 2020 (SCI-Expanded)
- XXV. **Characterization of one-step deposited Cu₂ZnSnS₄ thin films derived from a single crystalline powder**
Peksu E., Terlemezoglu M., PARLAK M., Karaağaç H.
Renewable Energy, vol.143, pp.1133-1142, 2019 (SCI-Expanded)
- XXVI. **Determination of current transport characteristics in Au-Cu/CuO/n-Si Schottky diodes**
Sürücü Ö., Güllü H., Terlemezoglu M., Yildiz D., PARLAK M.
Physica B: Condensed Matter, vol.570, pp.246-253, 2019 (SCI-Expanded)
- XXVII. **Investigation of electrical characteristics of Ag/ZnO/Si sandwich structure**
Gullu H., Bayraklı Sürücü Ö., Terlemezoglu M., Yildiz D., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.30, no.16, pp.15371-15378, 2019 (SCI-Expanded)
- XXVIII. **Temperature dependence of band gaps in sputtered SnSe thin films**
Delice S., Isik M., Gullu H., Terlemezoglu M., Bayraklı Surucu O., PARLAK M., HASANLI N.
Journal of Physics and Chemistry of Solids, vol.131, pp.22-26, 2019 (SCI-Expanded)
- XXIX. **CZTSSe thin films fabricated by single step deposition for superstrate solar cell applications**
Terlemezoglu M., Bayraklı Sürücü Ö., Dogru C., Güllü H., ÇİFTPINAR E. H., Ercelebi Ç., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.30, no.12, pp.11301-11306, 2019 (SCI-Expanded)
- XXX. **Frequency effect on electrical and dielectric characteristics of In/Cu₂ZnSnTe₄/Si/Ag diode structure**
Gullu H., Bayraklı Sürücü Ö., Terlemezoglu M., Yildiz D., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.30, no.10, pp.9814-9821, 2019 (SCI-Expanded)
- XXXI. **Temperature dependence of electrical properties in In/Cu₂ZnSnTe₄/Si/Ag diodes**
Gullu H., Yildiz D., Bayraklı Sürücü Ö., Terlemezoglu M., PARLAK M.
Bulletin of Materials Science, vol.42, no.2, 2019 (SCI-Expanded)
- XXXII. **Construction of self-assembled vertical nanoflakes on CZTSSe thin films**
Terlemezoglu M., Bayraklı Sürücü Ö., ÇOLAKOĞLU T., Abak M., Güllü H., Ercelebi C., PARLAK M.
Materials Research Express, vol.6, no.2, 2019 (SCI-Expanded)
- XXXIII. **Analysis of current conduction mechanism in CZTSSe/n-Si structure**
Terlemezoglu M., Bayraklı Ö., Güllü H., ÇOLAKOĞLU T., Yildiz D., PARLAK M.
Journal of Materials Science: Materials in Electronics, vol.29, no.7, pp.5264-5274, 2018 (SCI-Expanded)
- XXXIV. **Investigation of carrier transport mechanisms in the Cu-Zn-Se based hetero-structure grown by**

sputtering technique

Güllü H., Terlemezoğlu M., Bayraklı Ö., Yıldız D., PARLAK M.

Canadian Journal of Physics, vol.96, no.7, pp.816-825, 2018 (SCI-Expanded)

XXXV. **Investigation of precursor sequence and post-annealing effects on the properties of Cu₂SnZnSe₄ thin films deposited by the elemental thermal evaporation**

Bayraklı Ö., Terlemezoğlu M., Güllü H., PARLAK M.

Materials Research Express, vol.4, no.8, 2017 (SCI-Expanded)

XXXVI. **Deposition of CZTSe thin films and illumination effects on the device properties of Ag/n-Si/p-CZTSe/In heterostructure**

Bayraklı Ö., Terlemezoğlu M., Güllü H., PARLAK M.

Journal of Alloys and Compounds, vol.709, pp.337-343, 2017 (SCI-Expanded)

Articles Published in Other Journals

I. **A Study on the Structural, Morphological and Optical Properties of Cu₂-xSe Thin Films Deposited by Thermal Evaporation**

TERLEMEZOĞLU M.

Bilecik Şeyh Edebali Üniversitesi Fen Bilimleri Dergisi, vol.8, no.2, pp.1057-1063, 2021 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

I. **A Study on Tetragonal-star like Shaped Inverted Pyramid Texturing**

Donercark E., ÇİFTPINAR E. H., Terlemezoğlu M., ÇOLAKOĞLU T., TURAN R.

48th IEEE Photovoltaic Specialists Conference, PVSC 2021, Florida, United States Of America, 20 - 25 June 2021, pp.219-221

II. **Transfer of ordered and disordered Si nanowires onto alien substrates for the fabrication of third-generation solar cells**

Karaağaç H., Güller Ö., Peksu E., Humali E., Terlemezoğlu M., PARLAK M., Islam S.

2019 Micro- and Nanotechnology (MNT) Sensors, Systems, and Applications XI Conference, Maryland, United States Of America, 14 - 18 April 2019, vol.10982

Supported Projects

Terlemezoğlu Bilmiş M., Kocahan Yılmaz Ö., TÜBİTAK Project, Multipl Skleroz Hastalarında Eritrosit Morfolojilerinin Kantitatif Faz Görüntüleme Yöntemiyle Belirlenmesi, 2022 - 2025

Terlemezoğlu Bilmiş M., Sarica E., TÜBİTAK Project, Yakın Kızılötesi Bölgede Geçirgenliği Artırılmış Saydam İletken Oksit Malzemelerin Büyütülmesi Ve Sb₂Se₃ Tabanlı Güneş Hücrelerine Uygulanması, 2021 - 2023

Sürücü Ö., Özen Y., Gencer A., Sürücü G., Kara İ., Terlemezoğlu M., Parlak M., Terlemezoğlu Bilmiş M., TÜBİTAK Project, Cu-Sb-Chalcogen (Cu-Sb-Se) Thin Film Hetero-Joint Fabrication And Photovoltaic Applications, 2021 - 2023