

## Res. Asst. MUSTAFA ÜNAL

### Personal Information

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### Education Information

Doctorate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Mikro Ve Nanoteknoloji (Dr), Turkey 2017 - Continues

Postgraduate, Middle East Technical University, Graduate School Of Natural And Applied Sciences, Mikro Ve Nanoteknoloji (Yl) (Tezli), Turkey 2016 - 2017

Undergraduate, Middle East Technical University, Faculty Of Arts And Sciences, Department Of Physics, Turkey 2009 - 2014

### Dissertations

Postgraduate, Surface Texturing Study with Aluminum Induced Texturing Method on Soda-Lime Glass Substrates for Thin Film Solar Cells, Middle East Technical University, Graduate School of Natural and Applied Sciences, Mikro Ve Nanoteknoloji (Yl) (Tezli), 2017

### Research Areas

Interdisciplinary Physics and Related Science and Technology Areas, Condensed Matter 1: Structural, Mechanical and Thermal Properties, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties

### Academic Titles / Tasks

Research Assistant, Middle East Technical University, Graduate School Of Natural And Applied Sciences, 2017 - Continues

### Articles Published in Journals That Entered SCI, SSCI and AHCI Indexes

- I. **Investigation of seeded vertical gradient freeze (VGF) growth of CdZnTe bulk crystals**  
BALBAŞI Ö. B. , ÜNAL M., Genç A. M. , ÇELİK G., PARLAK M., TURAN R.  
Journal of Crystal Growth, vol.584, 2022 (Journal Indexed in SCI Expanded)
- II. **Interface stability problem towards the end of THM growth of cadmium zinc telluride crystals**  
Ünal M., Balbaşı Ö. B. , Genç A. M. , Parlak M., Turan R.  
Journal of Crystal Growth, vol.584, 2022 (Journal Indexed in SCI Expanded)
- III. **Production of High-Performance CdZnTe Crystals Grown by THM for Radiation Detection Applications**  
ÜNAL M., BALBAŞI Ö. B. , Karaman M. C. , Genç A. M. , PARLAK M., TURAN R.  
Journal of Electronic Materials, 2022 (Journal Indexed in SCI Expanded)

- IV. **Implementation of generalized Harvey-Shack theory in light scattering from rough surfaces**  
Gunoven M., Nasser H., Ünal M., Aytekin O., Turan R., Bek A.  
PHYSICAL REVIEW A, vol.102, no.6, 2020 (Journal Indexed in SCI)
- V. **Alternative HF-free etching solution for aluminum induced texturing of glass surface with improved haze**  
ÜNAL M., TANKUT A., TURAN R.  
MATERIALS RESEARCH EXPRESS, vol.6, no.8, 2019 (Journal Indexed in SCI)
- VI. **An X-ray photoelectron spectroscopy study on the annealing effects for Al/glass Interface during aluminum induced texturing process**  
ÜNAL M., Tankut A., YILDIZ İ., Sokmen I., TURAN R.  
THIN SOLID FILMS, vol.640, pp.38-44, 2017 (Journal Indexed in SCI)
- VII. **Near-unity haze by aluminum induced glass texturing: structural evolution of Al/glass interface and its impact on texturing**  
ÜNAL M., Tankut A., CANLI S., TURAN R.  
OPTICAL MATERIALS EXPRESS, vol.7, no.9, pp.3051-3064, 2017 (Journal Indexed in SCI)
- VIII. **Aluminum induced texturing of sandy and prism glasses: Combination of micro/nano texture with macro texture**  
Ünal M., Demircioglu Z., Donerscark E., Ozkol E., Turan R.  
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.214, 2017 (Journal Indexed in SCI)

### Refereed Congress / Symposium Publications in Proceedings

- I. **A study on the performance the CdZnTe<sub>1-x</sub> radiation detectors grown by vertical gradient freeze (VGF) technique**  
Bender D., Turan R., Ünal A. M. , Ünal M., Balbaşı Ö. B. , Yılmaz E.  
Seventh International Conference on Radiation in Various Fields of Research, Podgorica, Serbia And Montenegro, 10 - 14 June 2019
- II. **CdZnTe Bulk Crystal Growth and Temperature Modeling Studies at METU-CGL**  
BALBAŞI Ö. B. , ERGUNT Y., DOĞRU Ç., KABUKÇUOĞLU M., ÜNAL M., PARLAK M., TURAN R.  
SPIE, San Diego, United States Of America, 17 September 2017 - 21 September 2018
- III. **Growth, Wafering and Surface Preparation of CdZnTe Crystals for X-ray and Gamma Ray Applications**  
ÜNAL M., Bender D., BALBAŞI Ö. B. , Ünal A. M. , Kabukcuoğlu M. P. , Ergunt H. Y. , PARLAK M., TURAN R.  
SIXTH EUROPEAN CONFERENCE ON CRYSTAL GROWTH, Varna, Bulgaria, 16 - 20 September 2018
- IV. **CdZnTe Bulk Crystal Growth and Temperature Modeling Studies at METU-CGL**  
BALBAŞI Ö. B. , Ergunt Y., DOĞRU Ç., Kabukcuoglu M., ÜNAL M., PARLAK M., TURAN R.  
Conference on Hard X-Ray, Gamma-Ray, and Neutron Detector Physics XX, California, United States Of America, 20 - 21 August 2018, vol.10762
- V. **Optimization of chemical polishing by bromine-alcohol for detector-grade CdZnTe crystals and its effect on contacts**  
ÜNAL M., Bender D., BALBAŞI Ö. B. , Kabukcuoğlu M. P. , Ergunt H. Y. , TURAN R.  
SPIE Optics Photoics - Hard X-Ray, Gamma-Ray, and Neutron Detector Physics XX, San Diego, United States Of America, 19 - 23 August 2018
- VI. **DEVELOPMENT OF TEXTURED GLASS SUBSTRATES BY ALUMINUM INDUCED TEXTURING METHOD**  
ÜNAL M., Günöven M., Tankut A., TURAN R.  
PVCON 2018 - International Conference on Photovoltaic Science and Technologies, Ankara, Turkey, 4 - 06 July 2018
- VII. **A Light Trapping Method for Thin Film Solar Cells: Aluminum Induced Glass Texturing**  
ÜNAL M., Tankut A., TURAN R.  
2017 ICG Annual Meeting 32nd Şişecam Glass Symposium, İstanbul, Turkey, 21 - 25 October 2017, pp.121

- VIII. **Alüminyum İle Cam Desenleme Yönteminde Sıcaklığın Tavlama Sürecindeki Ve Aşındırma Sonrasında Desene Etkisi**  
ÜNAL M., Tankut A., Sökmen İ., TURAN R.  
31. Cam Sempozyumu, İstanbul, Turkey, 21 October 2016, vol.46, pp.83
- IX. **Investigation of Evaluation of Aluminum Film during Aluminum Induced Glass Texturing Process**  
ÜNAL M., Aydın C., Sökmen İ., TURAN R.  
21th Nanoscience and Nanotechnology Conference, Kocaeli, Turkey, 3 - 05 June 2016, pp.145
- X. **Evolution of Al/Al<sub>2</sub>O<sub>3</sub> Layer on Glass Substrates during N-2 Anneal**  
ÜNAL M., Tankut A., Sokmen I., Colakoglu T., TURAN R.  
E-MRS Spring Meeting / Symposium T on Advanced Materials and Characterization Techniques for Solar Cells III, Lille, France, 2 - 06 May 2016, vol.102, pp.3-10
- XI. **Evolution of Al/Al<sub>2</sub>O<sub>3</sub> Layer and Na Diffusion During N<sub>2</sub> Anneal**  
ÜNAL M., Tankut A., Sökmen İ., Çolakoğlu T., TURAN R.  
European Materials Research Society Spring Meeting 2016, Lille, France, 02 May 2016
- XII. **Aluminum Induced Glass Texturing (AIT) on Soda-Lime, Borosilicate, Alkali-Free and Silica Glass For Thin Film Solar Cell Applications**  
ÜNAL M., Günöven M., Tankut A., Sökmen İ., TURAN R.  
31st European Photovoltaic Solar Energy Conference and Exhibition, Hamburg, Germany, 14 - 18 September 2015, pp.230-234
- XIII. **Effect of aluminum thickness and etching time of aluminum induced texturing process on soda lime glass substrates for thin solar cell applications**  
ÜNAL M., Nasser H., Gunoven M., Sokmen I., Tankut A., TURAN R.  
3rd Turkish Solar Electricity Conference and Exhibition (SolarTR), Ankara, Turkey, 27 - 29 April 2015, vol.12, pp.1201-1205
- XIV. **Effect of Aluminium Thickness and Etching Time Of Aluminium Induced Texturing Process On Soda Lime Glass Substrates For a-Si:H Solar Cell Applications**  
ÜNAL M.  
3rd Turkish Solar Electricity Conference Exhibition, Ankara, Turkey, 27 - 29 April 2015
- XV. **Soda-Kireç Cam Altıkların İnce Film Güneş Gözeleri için Alüminyum ile Desenlendirilmesi**  
ÜNAL M., Nasser H., Sökmen İ., TURAN R.  
29. Cam Sempozyumu, İstanbul, Turkey, 07 October 2014, vol.44, pp.39-43
- XVI. **Aluminum Induced Nanotexturing of Glass Superstrate for Enhanced Photo-Response of a-Si:H Thin Film**  
ÜNAL M.  
10th Nanoscience and Nanotechnology Conference, İstanbul, Turkey, 17 - 21 June 2014

## Patent

ÜNAL M., CAM YÜZEYİ DESENLEMESİ İÇİN BİR SOLÜSYON VE UYGULANMASI, Patent, CHAPTER G Physics, Initial Registration, 2016

Ünal M., Turan R., CAM YÜZEYİ DESENLEMESİ İÇİN BİR SOLÜSYON, Patent, CHAPTER C Chemistry; Metallurgy, The Invention Recourse Number: 2019/01565 , Initial Registration, 2016

## Citations

Total Citations (WOS):17

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