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### **Kişisel Bilgiler**

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### **Eğitim Bilgileri**

Post Doktora, University of Durham, Applied Physics Group, Physics, Birleşik Krallık 1997 - 1998

Doktora, Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, Türkiye 1992 - 1997

Yüksek Lisans, Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, Türkiye 1989 - 1992

Lisans, Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, Türkiye 1984 - 1989

### **Yabancı Diller**

İngilizce, C1 İleri

### **Yaptığı Tezler**

Doktora, Preparation and electrical structural optical characterization of In Se thin films, Orta Doğu Teknik Üniversitesi, 1997

Yüksek Lisans, Effects of The Growth On The Properties of CdS Thin Films, Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, 1993

### **Araştırma Alanları**

Fizik, Yoğun Madde 2:Elektronik Yapı, Elektrik, Manyetik ve Optik Özellikler, Elektronik yapı, arayüzeylerin, ince filmlerin ve düşük boyutlu yapıların elektrik özellikleri, Temel Bilimler

### **Akademik Unvanlar / Görevler**

Prof. Dr., Orta Doğu Teknik Üniversitesi, Fen Edebiyat Fakültesi, Fizik Bölümü, 2001 - Devam Ediyor

## **Yonetilen Tezler**

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- ÖZENBAŞ A. M., PARLAK M., Effect of transition metal substitution on high-temperature properties of thermoelectric materials, Doktora, M.GÜNEŞ(Öğrenci), 2014
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## **SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayınlanan Makaleler**

- I. **Integrating theoretical and experimental approaches to unveil the mechanical properties of CuSbSe<sub>2</sub> thin films**  
Surucu O., Gencer A., Usanmaz D., PARLAK M., SÜRÜCÜ G.  
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- IV. **A new method to determine the continuous refractive index of an absorbing film by Generalized Stockwell Transform**  
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- V. **Nanowire geometry effects on devices and transport mechanisms: SnS<sub>2</sub>/SiNW heterojunction**  
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- XII. **Interface stability problem towards the end of THM growth of cadmium zinc telluride crystals**  
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- XIII. **Growth and optical characterization of Sn<sub>0.6</sub>Sb<sub>0.4</sub>Se layer single crystals for optoelectronic applications**

- Bektaş T., Terlemezoglu M., Surucu O., Isik M., Parlak M.  
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- XIV. **Temperature-dependent optical characteristics of sputtered NiO thin films**  
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- XV. **Characterization of Cu-rich and Zn-poor Cu<sub>2</sub>ZnSnS<sub>4</sub> single crystal grown by vertical Bridgman technique**  
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- XVI. **Fabrication of CdSexTe<sub>1-x</sub> thin films by sequential growth using double sources**  
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- XXXV. Characterization of one-step deposited Cu<sub>2</sub>ZnSnS<sub>4</sub> thin films derived from a single crystalline powder**  
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- XL. Electrical Characterization of ZnInSe<sub>2</sub>/Cu0.5Ag0.5InSe<sub>2</sub> Thin-Film Heterojunction**  
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- XLI. Frequency effect on electrical and dielectric characteristics of In/Cu<sub>2</sub>ZnSnTe<sub>4</sub>/Si/Ag diode structure**  
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- XLIV. Structural and temperature-dependent optical properties of thermally evaporated CdS thin films**  
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- XLV. Effects of Si nanowire on the device properties of n-ZnSe/p-Si heterostructure**  
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- XLVII. Construction of self-assembled vertical nanoflakes on CZTSSe thin films**  
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DEMİR M., TERLEMEZOĞLU M., BAYRAKLI Ö., GÜLLÜ H. H., PARLAK M.  
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- XV. **Self-assembled vertical nanoflakes on the surface of CZTSSe thin films for solar energy harvesting**  
TERLEMEZOĞLU M., BAYRAKLI Ö., ÇOLAKOĞLU T., ABAK M. K., GÜLLÜ H. H., TURAN R., PARLAK M.  
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- XVI. **Fiziksel Buharlaştırma Tekniği ile Üretilen Cu<sub>2</sub>ZnSn(S,Se)<sub>4</sub> İnce Filmlerinin Karakterizasyonu ve Aygit Özelliklerinin İncelenmesi**  
TERLEMEZOĞLU M., BAYRAKLI Ö., GÜLLÜ H. H., YILDIZ D. E., PARLAK M.  
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- XVII. **n-ZnSe/p-Si Nanotel Heteroeklemlerin Foto-İletkenlik Davranışlarının İncelenmesi**  
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- XVIII. **Determination of the Interface Properties of p-CZTSe/n-Si Nanowire Heterojunction Diode**  
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- XIX. **Plasmonic Effect of Sputtered Ag Nano-Particles on the Photovoltaic Characteristics of Si-Based Heterojunction Diode**  
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- XX. **Dielectric properties of electron beam evaporated ZnSe/Si heterostructures in the wide frequency range**  
YILDIZ D. E., GÜLLÜ H. H., BAYRAKLI Ö., PARLAK M.  
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- XXI. **Investigation of carrier transport mechanisms in the CuZnSe<sub>2</sub>-based heterostructure grown by sputtering technique**  
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- XXII. **Device Behavior Of CZTSe/Si Nanowire Heterojunction**  
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- XXIII. **Optimization of the Fabrication Process for Al-doped ZnO Thin Films on Soda Lime Glass Substrates by Thermal Heating**  
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- XXIV. **The electrical properties of p-CZTSSe/n-Si heterostructure**  
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- XXV. **Deposition of CZTSe thin films and investigation of their devices properties**  
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- XXVI. **Influence of the Heat Treatment on the Material Properties of Self-Aligned Planar Cu-Ag-In-Sn Nanowires**  
GÜLLÜ H. H., BAYRAKLI Ö., YILDIZ D. E., PARLAK M.  
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- XXVII. **Temperature dependent current-voltage characteristics of SnTe-based Schottky Barrier Diode**  
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- XXVIII. **Synthesis and Characterization of MoO<sub>3</sub> Thin Films under the Effect of Sputtering Power**

- GÜLLÜ H. H., BAYRAKLI Ö., TERLEMEZOĞLU M., PARLAK M.  
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- XXIX. **Characterization of CuIn<sub>0.7</sub>Ga<sub>0.3</sub>Se<sub>2</sub>Thin Films Deposited by Single Stage Thermal Evaporation Process**  
KARAAĞAÇ H., PEKSU E., BEHZAD H., AKGOZ S., PARLAK M.  
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- XXX. **Preparation of CuIn<sub>0.7</sub>Ga<sub>0.3</sub>Se<sub>2</sub> Thin Films for the Fabrication of a Si-Nanowires Based Third Genaration Solar Cell**  
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- XXXII. **Theoretical and Experimental Invesitgation of Nano-mechanical Characteristics of SnTe Thin Films**  
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- XXXIV. **Physical properties and device application of CZTSSe thin films deposited by thermal evaporation method**  
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- XXXV. **The Effect of CdCl<sub>2</sub> Treatment on CdZnTe Thin Films**  
DOĞRU Ç., BAYRAKLI Ö., TERLEMEZOĞLU M., PARLAK M.  
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- XXXVI. **Synthesis and Structural Characterization on the (Cu,Ag)GaTe<sub>2</sub> Thin Films Deposited on Si Nanowires**  
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- XXXVII. **Influence of Chemical Post-deposition Treatment on the Structural Properties of ZnSnTe<sub>2</sub> Thin Films**  
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- XXXVIII. **Deposition and characterization of ZTSeS thin films for photovoltaic applications**  
BAYRAKLI Ö., TERLEMEZOĞLU M., GÜLLÜ H. H., SÜRÜCÜ G., PARLAK M.  
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- XXXIX. **Investigation of Defects in CZT Single Crystals**  
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- XL. **Zn Sn Se İnce Filmlerinin Üretimi ve Karakterizasyonu**  
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22. Yoğun Madde Fiziği Ankara Toplantısı, 16 Aralık 2016, Türkiye, 16 Aralık 2016
- XLI. **Investigation of the device properties of CZTSe Thin Films for solar Cells**  
BAYRAKLI Ö., GÜLLÜ H. H., PARLAK M.  
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- XLII. **Fabrication and investigation of extremely thin CdTe absorber layer solar cells**  
HOSSEINI A., GÜLLÜ H. H., BAYRAKLI Ö., PARLAK M., TURAN R., ERÇELEBİ A. Ç.

- 2nd international congress on the world of technology and advanced materials, 28 Eylül - 02 Ekim 2016
- XLIII. Electrical Characterization of Cu<sub>0.5</sub>Ag<sub>0.5</sub>InSe<sub>2</sub> thin films**  
GÜLLÜ H. H., BAYRAKLI Ö., PARLAK M.  
2nd International congress on the world of technology and advanced materials, 28 Eylül - 02 Ekim 2016
- XLIV. Investigation of material properties of magnetron sputtered Cu Ag In Se thin films**  
GÜLLÜ H. H., PARLAK M.  
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- XLV. Effects of Substrate Temperature on material characteristics of sputtered Aluminum doped ZnO thin films**  
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- XLVI. Design And device Application of Si based Cu Ag Ga Te thin film Heterostructure**  
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SARF 2016 Science and Application of Thin Films Conference, İzmir, Çeşme, Türkiye, 19 - 23 Eylül 2016
- XLVII. Effect of Zn Doping on CdS thin film deposited by RF magnetron sputtering**  
TERLEMEZ OĞLU M., GÜLLÜ H. H., BAYRAKLI Ö., PARLAK M.  
EU PVSEC 2016 32nd European Photovoltaic Solar Energy Conference, Munich, Almanya, 20 - 24 Haziran 2016
- XLVIII. Fabrication and characterization of p CuInSe<sub>2</sub> n Si Heterojunction Diode**  
GÜLLÜ H. H., BAYRAKLI Ö., COŞKUN E., PARLAK M.  
EU PVSEC 2016, Munich, Almanya, 20 - 24 Haziran 2016
- XLIX. Improvement on the photovoltaic device performance of n CdS p Si heterojunction diode with the inclusion of Ag plasmonic layer**  
KAYRA GÜLLÜ S., GÜLLÜ H. H., PARLAK M., BEK A.  
12th international nanoscience and nanotechnology conference, Türkiye, 3 - 05 Haziran 2016
- L. Plasmonic Enhancement for the Performance of CdTe n Si Heterojunction Diode**  
KAYRA GÜLLÜ S., GÜLLÜ H. H., PARLAK M., BEK A.  
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- LI. Device Characterization of In p Cu<sub>0.5</sub>Ag<sub>0.5</sub>InSe<sub>2</sub> n Si Ag Heterojunction Diode V P2 8**  
GÜLLÜ H. H., PARLAK M.  
EMRS Spring Meeting in Lille April 30-May 5 2016, Lille, Fransa, 30 Nisan - 05 Mayıs 2016
- LII. The effect of different annealing procedures on CZTSe thin film properties V P3 4**  
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- LIII. Device Characterization of ZnInSe<sub>2</sub> Thin Films T P2 28**  
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- LIV. Device Characterization of Zn Sn Se ZTSe Thin Films for Solar Cells T P2 69**  
BAYRAKLI Ö., GÜLLÜ H. H., COŞKUN E., PARLAK M.  
EMRS Spring Meeting in Lille April 30-May 5 2016, Lille, Fransa, 30 Nisan - 05 Mayıs 2016
- LV. Optical Behavior of Sequential ThermalEvaporated ZnInSe<sub>2</sub> Thin Films V P2 9**  
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Emre Coskun Ozge Bayrakli Mehmet Parlak  
GÜLLÜ H. H., COŞKUN E., BAYRAKLI Ö., PARLAK M.  
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- LVI. Plasmonic Enhancement for the Performance of p CdTe n Si Heterojunction Diode T P2 33**  
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GÜLLÜ H. H., PARLAK M., GÜLLÜ KAYRA S., BEK A.  
EMRS Spring Meeting in Lille April 30-May 5 2016, Lille, Fransa, 30 Nisan - 05 Mayıs 2016
- LVII. Studies on Device Properties of n ZnSe p Si Heterojunction Diode T P1 63**  
GÜLLÜ H. H., BAYRAKLI Ö., COŞKUN E., PARLAK M.  
EMRS Spring Meeting in Lille April 31-May 5 2016, Lille, Fransa, 30 Nisan - 05 Mayıs 2016
- LVIII. Effect of nanowire length on device performance of n In<sub>2</sub>Se<sub>3</sub> p Si nanowire heterojunctions T P1**

- 85 Emre Coskun Tahir Colakoglu Hasan Huseyin Gullu Ozge Bayraklı Mehmet Parlak**  
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- LIX. 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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- LX. Device Characterization of ZnInSe2 Thin Films**  
Gullu H. H., PARLAK M.  
E-MRS Spring Meeting / Symposium T on Advanced Materials and Characterization Techniques for Solar Cells III, Lille, Fransa, 2 - 06 Mayıs 2016, cilt.102, ss.110-120
- LXI. Saçtırma Yöntemi ile Üretilen ITO İnce Filmlerin Farklı Alttaş ve Tavlama Sıcaklıklarına göre İncelenmesi**  
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21. Yoğun Madde Fiziği-Ankara Toplantısı,, Ankara, Türkiye, 25 Aralık 2015
- LXII. AgGa x In 1 x Te 2 İnce Filmlerin Üretilmesi ve Aygit Özelliklerinin Belirlenmesi**  
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21. Yoğun Madde Fiziği-Ankara Toplantısı, Gazi Univer., 2015, Ankara, Türkiye, 25 Aralık 2015
- LXIII. Saçtırma Yöntemiyle Üretilen Ag Zengin AgInSe2 İnce Filmlerinin Özellikleri**  
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- LXIV. Üretim Sonrası Isıl İşlem Sıcaklığının ZnSe İnce Film Özellikleri Üzerine Etkisi**  
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- LXV. Synthesis and characterization of CuZnSe2 thin film structures II VI Conference Paris 2015 September 13 18**  
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- LXVI. Investigation of Electrical Properties of Cu Ag In Se Thin Films Deposited by Thermal Evaporation Method**  
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- LXVII. Structural Characterization and Optical Properties of AgInSe2Thin Films**  
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- LXVIII. Device Measurements and Analysis of Ag Ga In Te Based Thin Film Heterojunction Diode Ö Bayraklı H H Güllü and M Parlak SolarTR 3 3rd Turkish Solar Electricity Conference and Exhibition 27 29 April 2015**  
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- LXIX. Characterization of Ag Ga In Te Thin Films for Solar Cell Applications Ö Bayraklı H H Güllü 1 E Coşkun İ Candan M Parlak Ç Erçelebi**  
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- LXX. Investigation of optical parameters of thermally evaporated ZnSe thin films**  
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- LXXI. Preparation and Characterization of Sputtered CuZnSe2 Thin Films**  
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SolarTR-3: 3rd Turkish Solar Electricity Conference and Exhibition, Ankara, Türkiye, 27 - 29 Nisan 2015
- LXXII. Material and Device Characterization of Cu0 5Ag0 5InSe2 and ZnInSe2 Thin Films for Photovoltaic**

## **Applications**

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- LXXIII. **Nano heterojunctions of cadmium sulfide and cadmium telluride for photoelectrochemical cell applications**

Sankir N. D., Dogan B., PARLAK M., Kucukyavuz Z.

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## **Desteklenen Projeler**

PARLAK M., TÜBİTAK Projesi, KIZIL ÖTESİ GÖRÜNTÜLEYİCİ ARAYICI BAŞLIK GELİŞTİRİLMESİ PROJESİ, 2013 - Devam Ediyor

PARLAK M., TERLEMEZOĞLU M., DEMİR M., ERÇELEBİ A. Ç., Yükseköğretim Kurumları Destekli Proje, Alternatif soğurucu katman olarak SnSexTe(1-x) ince film yapısının üretimi ve özelliklerinin araştırılması, 2018 - 2019

PARLAK M., BAYRAKLI Ö., TERLEMEZOĞLU M., ERÇELEBİ A. Ç., GÜLLÜ H. H., Yükseköğretim Kurumları Destekli Proje, Cu<sub>2</sub>ZnSn(S,Se)<sub>4</sub> İnce Filmlerinin Fiziksel Buharlaştırma Tekniği ile Üretilmesi ve Özelliklerinin Belirlenmesi, 2017 - 2017

PARLAK M., BAYRAKLI Ö., TERLEMEZOĞLU M., ERÇELEBİ A. Ç., GÜLLÜ H. H., Yükseköğretim Kurumları Destekli Proje, Cu<sub>2</sub>ZnSnSe<sub>4</sub> İnce Filmlerinin Fiziksel Buharlaştırma Tekniği ile Üretilmesi ve Özelliklerinin Belirlenmesi, 2016 - 2016

PARLAK M., BAYRAKLI Ö., ERÇELEBİ A. Ç., GÜLLÜ H. H., Yükseköğretim Kurumları Destekli Proje, ZnSnS<sub>2</sub> ince filmlerinin Isısal buharlaştırma tekniği ile üretilmesi ve özelliklerinin belirlenmesi, 2015 - 2015

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KALAY Y. E., Başkan M., PARLAK M., TURAN R., Yükseköğretim Kurumları Destekli Proje, ALTTAŞ OLARAK

KULLANILACAK Cd<sub>1-x</sub>ZnxTe (CZT) TEK KRİSTALLERİNİN MİKROYAPISAL KARAKTERİZASYONU, 2013 - 2013

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## **Metrikler**

Yayın: 203

Atıf (WoS): 2199

Atıf (Scopus): 2275

H-İndeks (WoS): 24

H-İndeks (Scopus): 24

## **Davetli Konuşmalar**

24. Yoğun Madde Fiziği-Ankara Toplantısı, Bilkent Üniversitesi 21 Aralık 2018, Seminer, İhsan Doğramacı Bilkent Üniversitesi, Türkiye, Aralık 2018

CZTS Workshop İYTE Gülbahçe, Çalıştay, İzmir Yüksek Teknoloji Enstitüsü, Türkiye, Mart 2018

## **Akademi Dışı Deneyim**

TÜBİTAK

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