

## Doç. Dr. Esmâ ÖZEROL

### Kişisel Bilgiler

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### Uluslararası Araştırmacı ID'leri

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Yoksis Araştırmacı ID: 53102

### Eğitim Bilgileri

Doktora, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Türkiye 2010 - 2015

Yüksek Lisans, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Polymer Science And Technology, Türkiye 2007 - 2010

Lisans, İstanbul Üniversitesi, Fen Edebiyat Fakültesi, Fizik, Türkiye 2002 - 2006

### Yabancı Diller

İngilizce, C1 İleri

### Yaptığı Tezler

Doktora, Synthesis of conducting polymers and investigation of their electrical properties, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Polymer Science And Technology, 2015

Yüksek Lisans, Synthesis of new organic semiconductors based on poly(2-anilinoethanol) doped different acids and investigation of their electro-optical properties , İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü, Polymer Science And Technology, 2010

### Araştırma Alanları

Temel Bilimler, Mühendislik ve Teknoloji

### Akademik Unvanlar / Görevler

Doç. Dr., Yıldız Teknik Üniversitesi, Kimya-Metalurji Fakültesi, Biyomühendislik Böl., 2016 - Devam Ediyor

Diğer, Technische Universitaet Berlin, Institut Für Festkörperphysik, Festkörperphysik, 2008 - 2008

### Akademik İdari Deneyim

Yıldız Teknik Üniversitesi, Meslek Yüksek Okulu, El Sanatları Bölümü, 2014 - 2016

## Verdiği Dersler

Biyoenstrümental Teknikler, Lisans, 2017 - 2018, 2016 - 2017

Vocational English in Bioengineering I, Lisans, 2016 - 2017, 2015 - 2016

Biothermodynamics, Lisans, 2016 - 2017

Biyomedikal Elektronik, Lisans, 2016 - 2017

Biomedical Electronics, Lisans, 2016 - 2017

## SCI, SSCI ve AHCI İndekslerine Giren Dergilerde Yayımlanan Makaleler

- I. **Carbon based materials in conducting tissue engineering**  
Sancar E., Oktay B., Özerol E.  
MATERIALS RESEARCH EXPRESS, cilt.11, sa.12, ss.122001, 2024 (SCI-Expanded)
- II. **Preparation and characterization of graphene oxide quantum dots/silver nanoparticles and investigation of their antibacterial effects**  
Oktay B., ERARSLAN A., ÜSTÜNDAĞ C. B., Ahlatcıoğlu Özerol E.  
Materials Research Express, cilt.11, sa.1, 2024 (SCI-Expanded)
- III. **Recent Advances in Biosensors Based on Conducting Polymers for Biomedical Applications**  
Acar T., Nur Çimen K., Özalp E., Ilıca Ö., Ahlatcıoğlu Özerol E.  
ChemistrySelect, cilt.8, sa.30, 2023 (SCI-Expanded)
- IV. **Production and Characterization of PLA/HA/GO Nanocomposite Scaffold**  
Oktay B., ÖZEROL E., ŞAHİN A., GÜNDÜZ O., ÜSTÜNDAĞ C. B.  
CHEMISTRYSELECT, cilt.7, sa.30, 2022 (SCI-Expanded)
- V. **The synthesis and investigation of mesomorphic, dielectric, and electro-optic behavior of novel chiral imine-based rod-like liquid crystal**  
CEYLAN ERDOĞAN D., Ahlatcıoğlu Özerol E., OCAK H., BİLGİN ERAN B.  
JOURNAL OF MATERIALS SCIENCE-MATERIALS IN ELECTRONICS, cilt.32, sa.24, ss.28870-28881, 2021 (SCI-Expanded)
- VI. **Conductivity mechanism and dielectric properties of poly (2-aminophenol) with boron nitride and graphite composites**  
Çoğalmış F. T., Ahlatcıoğlu Özerol E., Okutan M., Şenkal B. F.  
Chemical Papers, cilt.75, sa.9, ss.4719-4727, 2021 (SCI-Expanded)
- VII. **Impedance spectroscopy of polyaniline coated hydrogel**  
Okutan M., Yavuz E., Ahlatcıoğlu Özerol E., Şenkal B. F., Yalçın O., Yıldız A.  
Polymer Bulletin, cilt.78, sa.8, ss.4473-4486, 2021 (SCI-Expanded)
- VIII. **The synthesis and dielectric properties of a new phenylbenzoate-based calamitic liquid crystal**  
Ahlatcıoğlu Özerol E., OCAK H., BİLGİN ERAN B., Karavelioğlu S.  
Journal of the Iranian Chemical Society, cilt.18, sa.1, ss.225-232, 2021 (SCI-Expanded)
- IX. **The synthesis, mesomorphic and dielectric investigation of new unsymmetrical bent-core mesogens derived from 3-hydroxybenzoic acid**  
Ocak H., Ahlatcıoğlu Özerol E., Çelikel F. Ç., Okutan M., Bilgin Erhan B.  
Chemical Papers, cilt.74, sa.11, ss.3899-3911, 2020 (SCI-Expanded)
- X. **Electro-optical properties of poly(N-vinyl carbazole) nanoclay composites**  
Özerol E.  
Polymer Bulletin, cilt.76, ss.5301-5311, 2019 (SCI-Expanded)
- XI. **Dielectric Parameters of a Benzoate-Based Chiral Rod-Like Liquid Crystal**  
Özerol E., Ocak H.  
CHEMISTRYSELECT, cilt.4, sa.31, ss.9006-9010, 2019 (SCI-Expanded)
- XII. **The impedance and dielectric properties of a chiral biphenylcarboxylic acid liquid crystal**  
Özerol E., Ocak H.

MATERIALS RESEARCH EXPRESS, cilt.6, 2019 (SCI-Expanded)

- XIII. **The synthesis and dielectric characterization of liquid crystalline hydrogen bonded complex of 3-(4-(dimethyl amino) phenyl)-1-(4-hydroxyphenyl) prop-2-en-1-one with 8-(4-cyanobiphenyl-4'-oxy) octan-1-ol**  
Korkmaz B., Ozerol E., Gürsel Y., Şenkal B. F., Okutan M.  
Journal of Molecular Liquids, cilt.266, ss.132-138, 2018 (SCI-Expanded)
- XIV. **Synthesis and characterization of a new hydrogen bonded side chain liquid crystal block copolymer and investigation of electrical properties**  
Korkmaz B., Ozerol E., Bozdoğan A., Okutan M., Şenkal B. F., Gürsel Y. H.  
Pure and Applied Chemistry, cilt.89, sa.1, ss.19-28, 2017 (SCI-Expanded)
- XV. **The effect on the impedance characteristics of the metal oxides (Al<sub>2</sub>O<sub>3</sub> and ZnO) doping into polyaniline**  
Özerol E., Bozdoğan A., Şenkal B. F., Okutan M.  
Materials Science in Semiconductor Processing, cilt.56, ss.357-361, 2016 (SCI-Expanded)
- XVI. **Preparation and characterization of graphite composites of polyaniline**  
Ozerol E., Şenkal B. F., Okutan M.  
MICROELECTRONIC ENGINEERING, cilt.146, ss.76-80, 2015 (SCI-Expanded)
- XVII. **Preparation and Electrical Characterization of Poly(Aniline) NanoClay Composites**  
Ahlatcioglu E., Şenkal B. F., Okutan M.  
High Temperature Materials and Processes, cilt.34, sa.4, ss.341-346, 2015 (SCI-Expanded)
- XVIII. **Addition of single-wall carbon nanotubes to a liquid crystal material: Impact on dielectric properties**  
Gürsel Y., Şenkal B. F., Canlı N., Özdemir Z., Ahlatcioglu E., Yılmaz O., Okutan M.  
MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING, cilt.34, ss.182-188, 2015 (SCI-Expanded)
- XIX. **Preparation of poly (N-vinylcarbazole)-co-poly(2-(dimethylamino)ethyl methacrylate) based hydrogen bonded side-chain liquid crystal copolymer**  
Ahlatcioglu E., Gürsel Y., Okutan M., Şenkal B. F.  
MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING, cilt.28, ss.144-150, 2014 (SCI-Expanded)
- XX. **Preparation and polymerization of chalcone substituted aniline and investigation of impedance properties**  
Ahlatcioglu E., Şenkal B. F., Okutan M., Gürsel Y.  
MATERIALS SCIENCE IN SEMICONDUCTOR PROCESSING, cilt.28, ss.103-107, 2014 (SCI-Expanded)
- XXI. **Synthesis of new organic semiconductors based on poly(2-anilinoethanol) doped with different acids and investigation of their electro-optical properties**  
Ahlatcioglu E., Şenkal B. F., Yakuphanoglu F., Mansour S. A.  
POLYMER ENGINEERING AND SCIENCE, cilt.53, sa.2, ss.251-256, 2013 (SCI-Expanded)
- XXII. **Pyrolysis of Low Rank Lignites**  
KOYUN A., Yoruc A. B. H., Erdogan D. C., Ahlatcioglu E.  
ACTA PHYSICA POLONICA A, cilt.123, sa.2, ss.396-397, 2013 (SCI-Expanded)

## **Diğer Dergilerde Yayınlanan Makaleler**

- I. **Graphene-based materials for bone tissue engineering**  
Oktay B., Özerol E., Üstündağ C. B.  
Sigma Journal of Engineering and Natural Sciences, cilt.41, sa.3, ss.1-21, 2022 (ESCI)
- II. **Preparation and Electro-optical Characterization of Poly (N-Vinyl Carbazole) Magnetite Composites**  
Özerol E.  
İğdır Üniversitesi Fen Bilimleri Enstitüsü Dergisi, cilt.9, sa.1, ss.187-194, 2019 (Hakemli Dergi)
- III. **Preparation of Propiolic Acid Doped Polyaniline and Investigation of Opto electronic Properties**  
Özerol E., Okutan M., Şenkal B. F.  
Key Engineering Materials, cilt.605, ss.531-535, 2014 (Scopus)

## Kitap & Kitap Bölümleri

- I. **Latex-Based Carbon Nanotube Composites**  
Özerol E., Üstündağ C. B., Dikici B., Bozlar M.  
Handbook of Carbon Nanotubes, Jiji Abraham, Sabu Thomas, Nandakumar Kalarikkal, Editör, Springer, London/Berlin, London, ss.1-24, 2021
- II. **Biofunctional Inks for 3D Printing in Skin Tissue Engineering**  
Ilhan E., Özerol E., Alpdağtaş S., Üstündağ C. B., Şengör M., Gündüz O.  
3D printable Gel-inks for Tissue Engineering, Anuj Kumar, Stefan Ioan Voicu, Vijay Kumar Thakur, Editör, Springer, London/Berlin, London, ss.229-259, 2021
- III. **Solid Waste Materials for Energy Storage Applications**  
Zaman A. C., Özerol E., Üstündağ C. B.  
Encyclopedia of Smart Materials, Abdul Ghani Olabi, Editör, Elsevier Science, Oxford/Amsterdam, Amsterdam, ss.1-13, 2020
- IV. **Biosensors and Their Principles**  
Koyun A., Özerol E., İpek Y.  
A Roadmap of Biomedical Engineers and Milestones, Sadik Kara, Editör, INTECH, London, ss.115-142, 2012

## Hakemli Kongre / Sempozyum Bildiri Kitaplarında Yer Alan Yayınlar

- I. **SYNTHESIS AND INVESTIGATION OF A NEW HYDROGEN BONDED CHALCONE BASED THERMOTROPIC LIQUID CRYSTALLINE COMPOUND**  
KORKMAZ B., ŞENKAL B. F., GÜRSEL Y., ÖZEROL E., OKUTAN M.  
47th IUPAC WORLD CHEMISTRY CONGRESS, 7 - 12 Temmuz 2019
- II. **N-(4-Asetilfenil)-4-metilbenzensülfonamid'in Dielektrik Özelliklerinin İncelenmesi (PSASF)**  
MÜFTÜOĞLU S., KORKMAZ B., ÖZEROL E., OKUTAN M., ŞENKAL B. F.  
VIII. Yoğun Madde Fiziği İzmir Toplantısı, Türkiye, 19 Nisan 2019, ss.39
- III. **Dielectric Parameters and AC Conductivity Mechanism of Poly(N-vinyl carbazole) Boron Nitride Composites at High Frequency**  
ÖZEROL E.  
MSNG2018, 4 - 06 Ekim 2018
- IV. **Preparation chalcone based hydrogen bonded liquid crystalline compound and Investigation of Its Electro-optical Properties**  
KORKMAZ B., ÖZEROL E., GÜRSEL Y., OKUTAN M., ŞENKAL B. F.  
msng2018, 4 - 06 Ekim 2018
- V. **CHEMICAL SYNTHESIS, DIELECTRIC AND OPTOELECTRONIC CHARACTERIZATION OF POLY(2-ANILINOETHANOL) DOPED WITH ORGANIC ACIDS**  
ÖZEROL E.  
OEMT 2018, Kırklareli, Türkiye, 20 Eylül 2018, ss.104
- VI. **Preparation and Characterization of Poly 2 Aminophenol Barium Titanate Composites**  
Çoğalmış T., ÖZEROL E., ÇELİK BOZDOĞAN A., ŞENKAL B. F., OKUTAN M.  
Nanong 2016, 20 - 22 Ekim 2016
- VII. **Preparation And Characterization of Poly 2 Aminophenol Boron Nitride Composites**  
Özerol E., Çelik Bozdoğan A., Çoğalmış T., Şenkal B. F., Okutan M.  
NANONG 2016, Antalya, Türkiye, 20 - 23 Ekim 2016
- VIII. **Preparation And Characterization Of Poly 2 Aminophenol Nanoclay Composites**  
Çelik Bozdoğan A., Çoğalmış T., Özerol E., Okutan M., Şenkal B. F.  
nanong2016, 20 - 22 Ekim 2016
- IX. **Preparation and Characterization of Poly 2 Anilinoethanol Barium Titanate Composites**  
ÖZEROL E., ŞENKAL B. F., OKUTAN M., ÇELİK BOZDOĞAN A., Kaya Y.

OEMT 2016, 17 - 19 Mayıs 2016

- X. **Preparation and Polymerization of 2 hydroxy aniline and Investigation of Electro optical Properties**  
Çoğalmış F. T., Korkmaz B., Okutan M., Senkal B. F., Özerol E.  
oemt2016, Çanakkale, Türkiye, 17 - 19 Mayıs 2016
- XI. **Preparation and Characterization of Poly 2 anilino ethanol Barium titanate Composites**  
ÖZEROL E., ŞENKAL B. F., OKUTAN M., ÇELİK BOZDOĞAN A., kaya y.  
oemt 2016, 17 - 19 Mayıs 2016
- XII. **Preparation And Characterization Of Poly N Vinyl Carbazole Boron Nitride Composites**  
AHLATCIOĞLU E., ŞENKAL B. F., OKUTAN M., ÇELİK BOZDOĞAN A.  
NANONG2015, 29 - 31 Ekim 2015
- XIII. **Preparation and Characterization of Poly N vinyl carbazole Nanoclay Composites**  
AHLATCIOĞLU E., OKUTAN M., YAKUPHANOĞLU F., ŞENKAL B. F., ÇELİK BOZDOĞAN A., DERE A.  
NANONG2015, 29 - 31 Ekim 2015
- XIV. **Preparation And Characterization Of Poly N Vinyl Carbazole Magnetite Composites**  
Ahlaticioğlu E., Çelik Bozdoğan A., Şenkal B. F., Okutan M.  
NANONG2015, Antalya, Türkiye, 29 - 31 Ekim 2015
- XV. **Poli 2 Anilinoetanol Organik Yarıiletken Polimerin Sentezi Ve Elektro Optik Özelliklerinin İncelenmesi**  
ÖZEROL E., SENKAL B. F., YAKUPHANOGLU F.  
3.Ulusal Polimer Bilim ve Teknolojisi Kongre ve Sergisi, Kocaeli, Türkiye, 12 Mayıs 2010, ss.1
- XVI. **PREPARATION AND CHARACTERIZATION OF POLY Thiophene modified NANOCCLAY COMPOSITES**  
AHLATCIOĞLU E., ŞENKAL B. F., OKUTAN M., ÇELİK BOZDOĞAN A.  
OEMT 2015, 25 - 28 Mart 2015
- XVII. **Preparation of poly N vinyl carbazole co poly 2 Dimethylamino ethyl methacrylate based hydrogen bonded side chain liquid crystal copolymer.**  
ÖZEROL E., BARIM G., GURSEL Y., OKUTAN M., SENKAL B. F.  
1st International Semiconductor Science and Technology Conference, İstanbul, Türkiye, 13 Ocak 2015, ss.1
- XVIII. **Preparation and Characterization of graphite composites of Poly Thiophene and Poly aniline.**  
Özerol E., Senkal B. F., Okutan M.  
NANONG 2014, Elazığ, Türkiye, 20 Ağustos 2014, ss.1
- XIX. **PREPARATION AND CHARACTERIZATION OF POLY THIOPHENE BORON NITRIDE COMPOSITES**  
AHLATCIOĞLU E., ŞENKAL B. F., YAKUPHANOĞLU F., OKUTAN M.  
International Nanoscience and Nanotechnology for Next Generation (NaNONG) 2014, 20 - 22 Ağustos 2014
- XX. **Preparation and Polymerization of Chalcone Substituted Aniline and Investigation of Electro optical Properties**  
AHLATCIOĞLU E., ŞENKAL B. F., OKUTAN M., GÜRSEL Y.  
1 st International Semiconductor Science and Technology Conference, 13 - 15 Ocak 2014
- XXI. **Preparation of Propiolic Acid Doped Polyaniline and Investigation of Opto-electronic Properties**  
Ahlaticioğlu E., Okutan M., SENKAL B. F.  
3rd International Conference on Materials and Applications for Sensors and Transducers (IC-MAST), Prague, Çek Cumhuriyeti, 13 - 17 Eylül 2013, cilt.605, ss.531-535
- XXII. **Pyrolysis of Low Rank Lignites**  
Koyun A., Hazar A. B., Ceylan Erdoğan D., Ahlatcioğlu E.  
2nd International Advances in Applied Physics and Materials Science Congress-APMAS 2012, Antalya, Türkiye, 26 Nisan - 29 Eylül 2012
- XXIII. **PREPARATION OF POLYANILINE IN THE PRESENCE OF CARBOXYLIC ACID CONTAINING CELLULOSE AND USING IT FOR REMOVAL OF DYES.**  
TORUNOĞLU TURAN G., ÖZEROL E., SENKAL B. F.  
Proceedings of the Second International Conference on Water, Energy and the Environment, Antalya, Türkiye, 21 Eylül 2013, ss.1
- XXIV. **Preparation of Propiolic Acid Doped Polyaniline and Investigation of Opto Electronic Properties**  
AHLATCIOĞLU E., OKUTAN M., ŞENKAL B. F.

3rd International Conference on Materials and Applications for Sensors and Transducers., 13 - 17 Eylül 2013

- XXV. **Preparation and Characterization of Poly Aniline Nanoclay Composites**  
ÖZEROL E., SENKAL B. F., OKUTAN M.  
NANOTR9, Erzurum, Türkiye, 24 Haziran 2013, ss.1
- XXVI. **Poli Akrilik Asit İle Modifiye Kilin Hazırlanması Ve Modifiye Kil Ortamında Polianilin Sentezi ve Karakterizasyonu**  
AHLATCIOĞLU E., YAKUPHANOĞLU F., ŞENKAL B. F.  
4. Ulusal Polimer Bilim ve Teknolojisi Kongresi, Türkiye, 5 - 07 Eylül 2012
- XXVII. **A Comparison of Two Production Methods of Wood Polymer Composites.**  
KOYUN A., CEYLAN ERDOĞAN D., ÖZEROL E.  
anque icce 2012, Sevilla, İspanya, 24 Haziran 2012, ss.1
- XXVIII. **A COMPARISON OF TWO PRODUCTION METHODS OF WOOD POLYMER COMPOSITES**  
KOYUN A., HAZAR A. B., AYDINOĞLU A., ÖZEROL E., CEYLAN ERDOĞAN D.  
International Congress of Chemical Engineering, İspanya, 24 Haziran 2012
- XXIX. **A Simulation Software Approach for the Pyrolysis of Low Rank Lignites.**  
KOYUN A., CEYLAN ERDOĞAN D., ÖZEROL E.  
anque icce 2012, Sevilla, İspanya, 24 Haziran 2012, ss.1
- XXX. **2nd International Advances in Applied Physics and Materials Science Congress**  
KOYUN A., HAZAR A. B., CEYLAN ERDOĞAN D., ÖZEROL E.  
APMAS 2012, Antalya, Türkiye, 26 Nisan 2012, ss.1
- XXXI. **The DMA, TG/DTA and FT-IR Characteristics of Wood Polymer Composites**  
Koyun A., Ahlatcioglu E., Erdogan D., Ipek Y. K.  
14th International Conference on Advances in Materials and Processing Technologies (AMPT), İstanbul, Türkiye, 13 - 16 Temmuz 2011, cilt.445, ss.219-224
- XXXII. **Statistical Evaluation Tensile Properties of High-Density Polyethylenes**  
KOYUN A., KOKSAL B., AHLATCIOGLU E., Yoruc A. B.  
14th International Conference on Advances in Materials and Processing Technologies (AMPT), İstanbul, Türkiye, 13 - 16 Temmuz 2011, cilt.445, ss.213-214
- XXXIII. **The DMA Characteristics of Wood Polymer Composite.**  
KOYUN A., CEYLAN ERDOĞAN D., ÖZEROL E., KOCA İPEK Y.  
14th International Conference on Advances in Materials and Processing Technology Congress, İstanbul, Türkiye, 13 Temmuz 2011, ss.1
- XXXIV. **Organic Semiconductors Based On Poly 2 Anilinoethanol Doped Citric Acid**  
ÖZEROL E., ŞENKAL B. F., YAKUPHANOGLU F.  
Advances in Applied Physics and Materials Science Congress 2011, Antalya, Türkiye, 12 Mayıs 2011, ss.1
- XXXV. **Preparation fluorescein doped poly (2-hydroxy aniline) and Investigation of Electro-optical Properties**  
ÇOĞALMIŞ F. T., ÖZEROL E., OKUTAN M., ŞENKAL B. F.  
MSG2018, 04 Ekim 2018 - 06 Ekim 2018

## Bilimsel Hakemlikler

synthetic metals, SCI Kapsamındaki Dergi, Mayıs 2017

Journal of Thermal Analysis and Calorimetry, SCI Kapsamındaki Dergi, Haziran 2012

## Metrikler

Yayın: 66

Atf (WoS): 86

Atıf (Scopus): 128  
H-İndeks (WoS): 5  
H-İndeks (Scopus): 6

## **Kongre ve Sempozyum Katılımı Faaliyetleri**

OEMT2016, Katılımcı, Çanakkale, Türkiye, 2016  
NANONG016, Katılımcı, Antalya, Türkiye, 2016  
NANONG2015, Katılımcı, Antalya, Türkiye, 2015  
OEMT2015, Katılımcı, Elazığ, Türkiye, 2015  
NANONG2014, Katılımcı, Elazığ, Türkiye, 2014  
1 st International Semiconductor Science and Technology Conference, Katılımcı, İstanbul, Türkiye, 2014  
Proceedings of the Second International Conference on Water, Energy and the Environment, Katılımcı, Antalya, Türkiye, 2013  
3rd International Conference on Materials and Applications for Sensors and Transducers, Katılımcı, Praha, Çek Cumhuriyeti, 2013  
NanoTR- 9, Katılımcı, Erzurum, Türkiye, 2013  
4. Ulusal Polimer Bilim ve Teknolojisi Kongresi, Katılımcı, Çanakkale, Türkiye, 2012  
ANQUE ICCE, Katılımcı, Sevilla, İspanya, 2012  
14th International Conference on Advances in Materials and Processing Technology Congress, Katılımcı, İstanbul, Türkiye, 2012  
apmas 2012, Katılımcı, İstanbul, Türkiye, 2012  
APMAS 2012, Katılımcı, Antalya, Türkiye, 2012  
Polymer Advanced Technologies 2011, Katılımcı, Polonya, 2011  
3. Ulusal Polimer Bilim ve Teknolojisi Kongre ve Sergisi, Katılımcı, Kocaeli, Türkiye, 2010

## **Akademi Dışı Deneyim**

BERLİN TEKNİK ÜNİVERSİTESİ KATIHAL FİZİĞİ ENSTİTÜSÜ (Institut für Festkörperphysik)