

HAKAN USTA

PROF.

Email : hakan.usta@agu.edu.tr

Office Phone : [+90 352 224 8800](tel:+903522248800) Extension: 7205

Fax Phone : [+90 352 338 8828](tel:+903523388828)

Address : Abdullah Gül Üniversitesi Mühendislik Fakültesi
Sümer Kampüsü Kocasinan, Kayseri, 38080

International Researcher IDs

ORCID: 0000-0002-0618-1979

Publons / Web Of Science ResearcherID: L-6636-2013

ScopusID: 14042943100

Yoksis Researcher ID: 57064



Learning Knowledge

Doctorate 2004 - 2008	Northwestern University, Weinberg College Of Arts And Sciences, Department of Chemistry and Materials Research Center, United States Of America
--------------------------	---

Undergraduate 2000 - 2004	Ihsan Dogramaci Bilkent University, Faculty Of Science, Department Of Chemistry, Turkey
------------------------------	---

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Solution-Processable Molecular and Polymeric Semiconductors for Ambient-Stable Organic Field-Effect Transistors, Northwestern University, Weinberg School Of Science And Arts, Kimya Bölümü, 2008

Academic Titles / Tasks

Professor 2019 - Continues	Abdullah Gul University, Mühendislik Fakültesi, Nanoteknoloji Mühendisliği
-------------------------------	--

Associate Professor 2014 - 2019	Abdullah Gul University, Mühendislik Fakültesi, Nanoteknoloji Mühendisliği
------------------------------------	--

Assistant Professor 2013 - 2014	Abdullah Gul University, Mühendislik Fakültesi, Nanoteknoloji Mühendisliği
------------------------------------	--

Research Assistant 2004 - 2008	Northwestern University, Weinberg School Of Science And Arts, Chemistry
-----------------------------------	---

Research Assistant
2002 - 2002

Texas A&M University, Faculty Of Science, Chemistry

Supported Projects

1. Usta H., TUBITAK Project, Yüksek performanslı OFETler için sıradışı bir moleküler mühendislik yaklaşımı: Yeşil çözücülerden işlenebilir yüksek çözünürlüklü organik yarı-iletkenlerin gram mertebesinde geliştirilmesi , 2022 - 2025
2. Alan I., Mutlugün E., Usta H., Gencer Akçok E. B., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Merkezi Araştırma Laboratuvarı Projesi, 2014 - 2022
3. Usta H., TUBITAK Project, Mezo-Heteroaromatik Bodipy-Temelli Düşük Bant Aralıklı Donör-Akseptör (D-A) Polimerler Geliştirilmesi Ve Yüksek Performanslı Yığın Heteroeklem Organik Fotovoltaik (Bhj-Opv) Uygulamaları, 2019 - 2021
4. USTA H., Deneme İ., Project Supported by Higher Education Institutions, Tiyazol Temelli Donör-Akseptör Yapısında Özgün Yarı-İletkenlerin Geliştirilmesi, 2018 - 2019
5. USTA H., Özdemir M., Project Supported by Higher Education Institutions, DESIGN, SYNTHESIS, AND CHARACTERIZATION OF FUNCTIONAL ORGANIC MATERIALS FOR OPTOELECTRONIC APPLICATIONS, 2017 - 2019
6. MUTLUGÜN E., USTA H., ŞEN Ü., Project Supported by Higher Education Institutions, Malzeme Bilimi ve Nanoteknoloji Araştırma Laboratuvarı Kurulumu, 2016 - 2017
7. USTA H., ÖZDEMİR R., Project Supported by Higher Education Institutions, Organik İnce-Film Transistör OTFT Uygulamaları için İndenoflorendiketon Temelli Moleküler Yarı-İletken Geliştirilmesi, 2016 - 2017
8. Usta H., TUBITAK Project, Organik Güneş Pili (OPV) ve İnce Film Transistörler (OTFT) için Yüksek Performanslı Yarı-İletken Polimer Geliştirilmesi, 2013 - 2015

Awards

1. Usta H., Tübitak Teşvik Ödülü (2020), Tübitak, February 2020
2. USTA H., Üstün Başarılı Genç Bilim İnsanı Ödülü (GEBİP-2015), Türkiye Bilimler Akademisi (TÜBA), May 2015
3. USTA H., Üstün Başarılı Genç Bilim Adamı Ödülü (BAGEP-2014), Bilim Akademisi, March 2014
4. USTA H., Flexi R&D Award, FlexTech Alliance, USA, 2011, FlexTech Alliance, USA, January 2011
5. USTA H., US National Institute of Standards and Technology (NIST) Innovation Award, USA, 2010, US National Institute of Standards and Technology (NIST), May 2010
6. USTA H., IDTechEx Printed Electronics Europe Award, Germany, 2010, IDTechEx, March 2010
7. USTA H., Allen S. Hussey Award, 2006, Northwestern University, Chemistry Department, October 2006
8. USTA H., Bölüm Birinciliği (Mezuniyet), Bilkent Üniversitesi, June 2004

Scholarships

TÜBİTAK-Bideb 2232-Yurda Dönüş Araştırma Bursu, 2013, TUBITAK, 2013 - Continues

Conference Travel Grant, 2007-2008, University, 2007 - Continues

Graduate School Full Scholarship (Stipend + Tuition), University, 2004 - Continues

NSF-REU Scholarship, 2002, University, 2002 - Continues

Distinguished Scholarship for Undergraduate Education, 2000 - 2004, TUBITAK, 2000 - Continues

Full (Tuition+Housing+Stipend) Undergraduate Scholarship, 2000 - 2004, University, 2000 - Continues

Published journal articles indexed by SCI, SSCI, and AHCI

- 1. Solution-Processable Indenofluorenes on Polymer Brush Interlayer: Remarkable N-Channel Field-Effect Transistor Characteristics under Ambient Conditions**
Can A., DENEME İ., DEMİREL G., USTA H.
ACS Applied Materials and Interfaces, vol.15, no.35, pp.41666-41679, 2023 (SCI-Expanded)
- 2. Dynamic Tuning of Plasmonic Hot-Spot Generation through Cilia-Inspired Magnetic Actuators**
LİMAN G., Ergene E., Yildiz E., ÖZKAN HÜKÜM K., YILGÖR HURİ P., Cetin A. E., USTA H., DEMİREL G.
Advanced Intelligent Systems, vol.5, no.6, 2023 (SCI-Expanded)
- 3. Revisiting the Role of Charge Transfer in the Emission Properties of Carborane-Fluorophore Systems: A TDDFT Investigation**
TAHAOĞLU D., USTA H., ALKAN F.
JOURNAL OF PHYSICAL CHEMISTRY A, vol.126, no.26, pp.4199-4210, 2022 (SCI-Expanded)
- 4. A dopant-free 2,7-dioctyl[1]benzothieno[3,2-b][1]benzothiophene (C8-BTBT)-based hole transporting layer for highly stable perovskite solar cells with efficiency over 22%**
Kaya I. C., ÖZDEMİR R., USTA H., SÖNMEZOĞLU S.
JOURNAL OF MATERIALS CHEMISTRY A, vol.10, pp.12464-12472, 2022 (SCI-Expanded)
- 5. Indenofluorenes for organic optoelectronics: the dance of fused five- and six-membered rings enabling structural versatility**
CAN A., Facchetti A., USTA H.
JOURNAL OF MATERIALS CHEMISTRY C, vol.10, no.22, pp.8496-8535, 2022 (SCI-Expanded)
- 6. Organic Light-Emitting Physically Unclonable Functions**
Kayaci N., ÖZDEMİR R., Kalay M., KİREMİTLER N. B., USTA H., ÖNSES M. S.
ADVANCED FUNCTIONAL MATERIALS, vol.32, 2022 (SCI-Expanded)
- 7. Meso- π -Extended/Deficient BODIPYs and Low-Band-Gap Donor-Acceptor Copolymers for Organic Optoelectronics**
CAN A., Choi G., ÖZDEMİR R., Park S., Park J. S., Lee Y., DENEME İ., MUTLUGÜN E., Kim C., Kim B. J., et al.
ACS APPLIED POLYMER MATERIALS, vol.4, no.3, pp.1991-2005, 2022 (SCI-Expanded)
- 8. Interplay between Charge Injection, Electron Transport, and Quantum Efficiency in Ambipolar Trilayer Organic Light-Emitting Transistors**
Moschetto S., Benvenuti E., USTA H., ÖZDEMİR R., Facchetti A., Muccini M., Prosa M., Toffanin S.
ADVANCED MATERIALS INTERFACES, vol.9, no.5, 2022 (SCI-Expanded)
- 9. Enabling three-dimensional porous architectures via carbonyl functionalization and molecular-specific organic-SERS platforms**
DENEME İ., LİMAN G., CAN A., DEMİREL G., USTA H.
NATURE COMMUNICATIONS, vol.12, no.1, 2021 (SCI-Expanded)
- 10. Understanding and Tailoring Excited State Properties in Solution-Processable Oligo(p-phenyleneethynylene)s: Highly Fluorescent Hybridized Local and Charge Transfer Character via Experiment and Theory**
USTA H., ÇOŞUT B., ALKAN F.
JOURNAL OF PHYSICAL CHEMISTRY B, vol.125, no.42, pp.11717-11731, 2021 (SCI-Expanded)
- 11. Engineering functionalized low LUMO [1]benzothieno[3,2-b][1]benzothiophenes (BTBTs): unusual molecular and charge transport properties**
ÖZDEMİR R., Ahn K., Deneme İ., ZORLU Y., Kim D., Kim M., USTA H.
JOURNAL OF MATERIALS CHEMISTRY C, vol.8, no.43, pp.15253-15267, 2020 (SCI-Expanded)
- 12. Microstructural modulation of organic passivation layers for metal oxide semiconductors to achieve high bias stability**
Ho D., Jeong H., Minh Nhut Le M. N. L., USTA H., Kwon H., Kim M., Kim C.
JOURNAL OF MATERIALS CHEMISTRY C, vol.8, no.32, pp.11209-11222, 2020 (SCI-Expanded)
- 13. A hybridized local and charge transfer excited state for solution-processed non-doped green electroluminescence based on oligo(p-phenyleneethynylene)**
USTA H., Alimli D., ÖZDEMİR R., Tekin E., ALKAN F., Kacar R., Altas A. G., Dabak S., Gurek A. G., MUTLUGÜN E., et al.
JOURNAL OF MATERIALS CHEMISTRY C, vol.8, no.24, pp.8047-8060, 2020 (SCI-Expanded)

14. **Molecular engineering of organic semiconductors enables noble metal-comparable SERS enhancement and sensitivity**
Demirel G., Giesekeing R. L. M., Ozdemir R., Kahmann S., Loi M. A., Schatz G. C., Facchetti A., USTA H.
NATURE COMMUNICATIONS, vol.10, 2019 (SCI-Expanded)
15. **Highly Efficient Deep-Blue Electroluminescence Based on a Solution-Processable A-pi-D-pi-A Oligo(p-phenyleneethynylene) Small Molecule**
USTA H., Alimli D., ÖZDEMİR R., Dabak S., Zorlu Y., ALKAN F., Tekin E., CAN A.
ACS APPLIED MATERIALS & INTERFACES, vol.11, no.47, pp.44474-44486, 2019 (SCI-Expanded)
16. **A Solution-Processable meso-Phenyl-BODIPY-Based n-Channel Semiconductor with Enhanced Fluorescence Emission**
Ozcan E., Ozdemir M., Ho D., Zorlu Y., ÖZDEMİR R., Kim C., USTA H., Cosut B.
CHEMPLUSCHEM, vol.84, no.9, pp.1423-1431, 2019 (SCI-Expanded)
17. **Electrochemical polymerization of ambipolar carbonyl-functionalized indenofluorene with memristive properties**
Figa V., USTA H., Macaluso R., Salzner U., Ozdemir M., Kulyk B., Krupka O., Bruno M.
OPTICAL MATERIALS, vol.94, pp.187-195, 2019 (SCI-Expanded)
18. **High Electron Mobility in [1]Benzothieno[3,2-b][1]benzothiophene-Based Field-Effect Transistors: Toward n-Type BTBTs**
USTA H., Kim D., ÖZDEMİR R., Zorlu Y., Kim S., Ruiz Delgado M. C., Harbuzaru A., Kim S., Demirel G., Hong J., et al.
CHEMISTRY OF MATERIALS, vol.31, no.14, pp.5254-5263, 2019 (SCI-Expanded)
19. **Ultrahigh Vacuum Self-Assembly of Rotationally Commensurate C8-BTBT/MoS2/Graphene Mixed-Dimensional Heterostructures**
Liu X., Balla I., Sangwan V. K., USTA H., Facchetti A., Marks T. J., Hersam M. C.
CHEMISTRY OF MATERIALS, vol.31, no.5, pp.1761-1766, 2019 (SCI-Expanded)
20. **BODIPY-Based Semiconducting Materials for Organic Bulk Heterojunction Photovoltaics and Thin-Film Transistors**
Ho D., ÖZDEMİR R., Kim H., Earmme T., USTA H., Kim C.
CHEMPLUSCHEM, vol.84, no.1, pp.18-37, 2019 (SCI-Expanded)
21. **Triisopropylsilylethynyl-substituted indenofluorenes: carbonyl versus dicyanovinylene functionalization in one-dimensional molecular crystals and solution-processed n-channel OFETs**
ÖZDEMİR R., PARK S., DENEME İ., PARK Y., Zorlu Y., ALIDAGI H. A., Harmandar K., Kim C., USTA H.
ORGANIC CHEMISTRY FRONTIERS, vol.5, no.20, 2018 (SCI-Expanded)
22. **Semiconducting Copolymers Based on meso-Substituted BODIPY for Inverted Organic Solar Cells and Field-Effect Transistors**
Ozdemir M., Kim S. W., Kim H., Kim M., Kim B. J., Kim C., USTA H.
ADVANCED ELECTRONIC MATERIALS, vol.4, no.10, 2018 (SCI-Expanded)
23. **The design and fabrication of supramolecular semiconductor nanowires formed by benzothienobenzothiophene (BTBT)-conjugated peptides**
Khalily M. A., USTA H., Ozdemir M., Bakan G., Dikecoglu F. B., Edwards-Gayle C., Hutchinson J. A., Hamley I. W., DANA A., Guler M. O.
NANOSCALE, vol.10, no.21, pp.9987-9995, 2018 (SCI-Expanded)
24. **Surface-enhanced Raman spectroscopy (SERS): an adventure from plasmonic metals to organic semiconductors as SERS platforms**
DEMİREL G., USTA H., YILMAZ M., Celik M., Alidagi H. A., BÜYÜKSERİN F.
JOURNAL OF MATERIALS CHEMISTRY C, vol.6, no.20, pp.5314-5335, 2018 (SCI-Expanded)
25. **Optimized Activation of Solution-Processed Amorphous Oxide Semiconductors for Flexible Transparent Conductive Electrodes**
Choi B. D., Park J., Baeg K., Kang M., Heo J. S., Kim S., Won J., Yu S., Ahn K., Lee T. H., et al.
ADVANCED ELECTRONIC MATERIALS, vol.4, no.1, 2018 (SCI-Expanded)
26. **Nanostructured organic semiconductor films for molecular detection with surface-enhanced Raman spectroscopy**

- Yilmaz M., Babur E., OZDEMİR M., Gieseck R. L., Dede Y., Tamer U., Schatz G. C., Facchetti A., USTA H., Demirel G. NATURE MATERIALS, vol.16, no.9, pp.918-925, 2017 (SCI-Expanded)
27. **Frequency and electric field controllable photodevice: FYTRONIX device**
Tataroğlu A., Al-Sehemi A. G., ÖZDEMİR M., ÖZDEMİR R., USTA H., AL-GHAMDI A. A., FAROOQ W., Yakuphanoglu F. Physica B: Condensed Matter, vol.519, pp.53-58, 2017 (SCI-Expanded)
28. **A new rod-shaped BODIPY-acetylene molecule for solution-processed semiconducting microribbons in n-channel organic field-effect transistors**
Ozdemir M., Choi D., ZORLU Y., ÇOŞUT B., Kim H., Kim C., USTA H. NEW JOURNAL OF CHEMISTRY, vol.41, no.14, pp.6232-6240, 2017 (SCI-Expanded)
29. **Three-Dimensional Au-Coated Electrospayed Nanostructured BODIPY Films on Aluminum Foil as Surface-Enhanced Raman Scattering Platforms and Their Catalytic Applications**
YILMAZ M., ERKARTAL M., Ozdemir M., ŞEN Ü., USTA H., DEMİREL G. ACS APPLIED MATERIALS & INTERFACES, vol.9, no.21, pp.18199-18206, 2017 (SCI-Expanded)
30. **Insights Into Interface Treatments in p-Channel Organic Thin-Film Transistors Based on a Novel Molecular Semiconductor**
Liguori R., USTA H., Fusco S., Facchetti A., Licciardo G. D., Di Benedetto L., Rubino A. IEEE TRANSACTIONS ON ELECTRON DEVICES, vol.64, no.5, pp.2338-2344, 2017 (SCI-Expanded)
31. **A Solution-Processable Liquid-Crystalline Semiconductor for Low-Temperature-Annealed Air-Stable N-Channel Field-Effect Transistors**
ÖZDEMİR R., CHOI D., OZDEMİR M., KIM H., Kostakoglu S. T., ERKARTAL M., KIM H., Kim C., USTA H. CHEMPHYSICHEM, vol.18, no.7, pp.850-861, 2017 (SCI-Expanded)
32. **Ultralow bandgap molecular semiconductors for ambient-stable and solution-processable ambipolar organic field-effect transistors and inverters**
ÖZDEMİR R., CHOI D., ÖZDEMİR M., KWON G., KIM H., SEN U., KIM C., USTA H. JOURNAL OF MATERIALS CHEMISTRY C, vol.5, no.9, pp.2368-2379, 2017 (SCI-Expanded)
33. **Enhanced mass transfer rate and solubility of methane via addition of alcohols for Methylosinus trichosporium OB3b fermentation**
Kim K., Kim Y., Yang J., Ha K., USTA H., Lee J., Kim C. JOURNAL OF INDUSTRIAL AND ENGINEERING CHEMISTRY, vol.46, pp.350-355, 2017 (SCI-Expanded)
34. **From 2-methylimidazole to 1,2,3-triazole: a topological transformation of ZIF-8 and ZIF-67 by post-synthetic modification**
ERKARTAL M., ERKILIC U., TAM B., USTA H., YAZAYDIN O., HUPP J. T., Farha O. K., Sen U. Chemical Communications, vol.53, no.12, pp.2028-2031, 2017 (SCI-Expanded)
35. **Ambipolar small molecular semiconductor-based heterojunction diode**
OCAYA R., ÖZDEMİR M., ÖZDEMİR R., AL-GHAMDI A., USTA H., FAROOQ W., Yakuphanoglu F. Synthetic Metals, vol.221, pp.48-54, 2016 (SCI-Expanded)
36. **pi-Conjugated donor-acceptor small molecule thin-films on gold electrodes for reducing the metal work-function**
Azum N., Taib L. A., Al Angari Y. M., Asiri A. M., Denti M., Zhao W., USTA H., Facchetti A. THIN SOLID FILMS, vol.616, pp.320-327, 2016 (SCI-Expanded)
37. **Anhydrous proton conducting polyvinyl alcohol (PVA)/poly(2-acrylamido-2-methylpropane sulfonic acid) (PAMPS)/1,2,4-triazole composite membrane**
ERKARTAL M., Asian A., ERKILIC U., DADI Ş., Yazaydin O., USTA H., SEN U. INTERNATIONAL JOURNAL OF HYDROGEN ENERGY, vol.41, no.26, pp.11321-11330, 2016 (SCI-Expanded)
38. **Solution-Processable BODIPY-Based Small Molecules for Semiconducting Microfibers in Organic Thin-Film Transistors**
Ozdemir M., Choi D., Kwon G., ZORLU Y., ÇOŞUT B., Kim H., Facchetti A., Kim C., USTA H. ACS APPLIED MATERIALS & INTERFACES, vol.8, no.22, pp.14077-14087, 2016 (SCI-Expanded)
39. **Design and development of functional organic small molecules and polymers for optoelectronics**
USTA H., DEMİREL G., Facchetti A., Muccini M. ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, vol.251, 2016 (SCI-Expanded)

40. **Novel method based on photothermal cleavage of thermolabile molecules on Au nanoparticles for controlled release**
Goren E., ÇAVUŞOĞLU H., Yavuz E., USTA H., ÇITIR M., YAVUZ M. S.
ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, vol.251, 2016 (SCI-Expanded)
41. **Naphthalene diimide-based polymeric semiconductors. Effect of chlorine incorporation and n-channel transistors operating in water**
Ryu G., Chen Z., USTA H., Noh Y., Facchetti A.
MRS COMMUNICATIONS, vol.6, no.1, pp.47-60, 2016 (SCI-Expanded)
42. **Proton conducting poly(vinyl alcohol) (PVA)/poly (2-acrylamido-2-methylpropane sulfonic acid) (PAMPS)/zeolitic imidazolate framework (ZIF) ternary composite membrane**
ERKARTAL M., USTA H., Citir M., Sen U.
JOURNAL OF MEMBRANE SCIENCE, vol.499, pp.156-163, 2016 (SCI-Expanded)
43. **Design, synthesis, and characterization of alpha,omega-disubstituted indeno[1,2-b]fluorene-6,12-dione-thiophene molecular semiconductors. Enhancement of ambipolar charge transport through synthetic tailoring of alkyl substituents**
OZDEMİR M., CHOI D., KWON G., Zorlu Y., KIM H., KIM M., SEO S., Sen U., Citir M., KIM C., et al.
RSC ADVANCES, vol.6, no.1, pp.212-226, 2016 (SCI-Expanded)
44. **Logarithmic organic photodetectors**
Elgazzar E., OZDEMİR M., USTA H., AL-GHAMDI A. A., Dere A., EL-TANTAWY F., YAKUPHANOĞLU F.
SYNTHETIC METALS, vol.210, pp.288-296, 2015 (SCI-Expanded)
45. **Trans-cis isomerization assisted synthesis of solution-processable yellow fluorescent maleic anhydrides for white-light generation**
Özdemir M., GENÇ S., ÖZDEMİR R., ALTINTAS Y., Citir M., Sen U., MUTLUGÜN E., USTA H.
SYNTHETIC METALS, vol.210, pp.192-200, 2015 (SCI-Expanded)
46. **Development of highly transparent Pd-coated Ag nanowire electrode for display and catalysis applications**
Canlier A., UCAK U. V., USTA H., CHO C., LEE J., Sen U., Citir M.
APPLIED SURFACE SCIENCE, vol.350, pp.79-86, 2015 (SCI-Expanded)
47. **Micro-/Nanostructured Highly Crystalline Organic Semiconductor Films for Surface-Enhanced Raman Spectroscopy Applications**
Yilmaz M., OZDEMİR M., Erdogan H., Tamer U., SEN U., Facchetti A., USTA H., Demirel G.
ADVANCED FUNCTIONAL MATERIALS, vol.25, no.35, pp.5669-5676, 2015 (SCI-Expanded)
48. **Photophysical properties of self-assembled supramolecular peptide nanofiber organic semiconductors**
Khalily M. A., USTA H., GÜLER M. Ö.
ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, vol.250, 2015 (SCI-Expanded)
49. **Novel photothermal-based release mechanism for controlled release on Au nanoparticles through light**
Goren E., ÇAVUŞOĞLU H., Yavuz E., USTA H., YAVUZ M. S.
ABSTRACTS OF PAPERS OF THE AMERICAN CHEMICAL SOCIETY, vol.250, 2015 (SCI-Expanded)
50. **Photosensing Properties of Pentacene OFETs Based on a Novel PMMA Copolymer Gate Dielectric**
Loffredo F., Grimaldi I. A., Miscioscia R., Nenna G., Villani F., Minarini C., Petrosino M., Rubino A., Usta H., Facchetti A.
JOURNAL OF DISPLAY TECHNOLOGY, vol.11, no.6, pp.533-540, 2015 (SCI-Expanded)
51. **Enhancement of Anhydrous Proton Conductivity of Poly(vinylphosphonic acid)-Poly(2,5-benzimidazole) Membranes via In Situ Polymerization**
Sen U., USTA H., Acar O., Citir M., Canlier A., Bozkurt A., Ata A.
MACROMOLECULAR CHEMISTRY AND PHYSICS, vol.216, no.1, pp.106-112, 2015 (SCI-Expanded)
52. **Symmetric naphthalenediimidequaterthiophenes for electropolymerized electrochromic thin films**
FIGA V., CHIAPPARA C., FERRANTE F., CASALETTO M. P., PRINCIPATO F., CATALDO S., CHEN Z., USTA H., FACCHETTI A., PIGNATARO B.
JOURNAL OF MATERIALS CHEMISTRY C, vol.3, no.23, pp.5985-5994, 2015 (SCI-Expanded)

53. **Selective Remanent Ambipolar Charge Transport in Polymeric Field-Effect Transistors For High-Performance Logic Circuits Fabricated in Ambient**
Fabiano S., Usta H., Forchheimer R., Crispin X., Facchetti A., Berggren M.
ADVANCED MATERIALS, vol.26, no.44, pp.7438-7443, 2014 (SCI-Expanded)
54. **Perfluoroalkyl-Functionalized Thiazole Thiophene Oligomers as N-Channel Semiconductors in Organic Field-Effect and Light-Emitting Transistors**
USTA H., Sheets W. C., Denti M., Generali G., Capelli R., Lu S., Yu X., Muccini M., Facchetti A.
CHEMISTRY OF MATERIALS, vol.26, no.22, pp.6542-6556, 2014 (SCI-Expanded)
55. **BODIPY-Thiophene Copolymers as p-Channel Semiconductors for Organic Thin-Film Transistors**
Usta H., Yilmaz M. D., Avestro A., Boudinet D., Denti M., Zhao W., Stoddart J. F., Facchetti A.
ADVANCED MATERIALS, vol.25, no.31, pp.4327-4334, 2013 (SCI-Expanded)
56. **Size-controlled conformal nanofabrication of biotemplated three-dimensional TiO₂ and ZnO nanonetworks**
Ceylan H., Ozgit-Akgun C., Erkal T. S., Donmez I., Garifullin R., Tekinay A. B., Usta H., Biyikli N., Guler M. O.
SCIENTIFIC REPORTS, vol.3, 2013 (SCI-Expanded)
57. **3,6-Dithiophen-2-yl-diketopyrrolo[3,2-b]pyrrole (isoDPPT) as an Acceptor Building Block for Organic Opto-Electronics**
Lu S., Drees M., Yao Y., Boudinet D., Yan H., Pan H., Wang J., Li Y., Usta H., Facchetti A.
MACROMOLECULES, vol.46, no.10, pp.3895-3906, 2013 (SCI-Expanded)
58. **Dialkoxybithiazole: A New Building Block for Head-to-Head Polymer Semiconductors**
Guo X., Quinn J., Chen Z., Usta H., Zheng Y., Xia Y., Hennek J. W., Ortiz R. P., Marks T. J., Facchetti A.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.135, no.5, pp.1986-1996, 2013 (SCI-Expanded)
59. **Dithienocoronediimide-Based Copolymers as Novel Ambipolar Semiconductors for Organic Thin-Film Transistors**
Usta H., Newman C., Chen Z., Facchetti A.
ADVANCED MATERIALS, vol.24, no.27, pp.3678-3684, 2012 (SCI-Expanded)
60. **Combining Electron-Neutral Building Blocks with Intramolecular "Conformational Locks" Affords Stable, High-Mobility P- and N-Channel Polymer Semiconductors**
Huang H., Chen Z., Ponce Ortiz R., Newman C., Usta H., Lou S., Youn J., Noh Y., Baeg K., Chen L. X., et al.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.134, no.26, pp.10966-10973, 2012 (SCI-Expanded)
61. **Anthracenedicarboximide-based semiconductors for air-stable, n-channel organic thin-film transistors: materials design, synthesis, and structural characterization**
Usta H., Kim C., Wang Z., Lu S., Huang H., Facchetti A., Marks T. J.
JOURNAL OF MATERIALS CHEMISTRY, vol.22, no.10, pp.4459-4472, 2012 (SCI-Expanded)
62. **Solution-Deposited Organic-Inorganic Hybrid Multilayer Gate Dielectrics. Design, Synthesis, Microstructures, and Electrical Properties with Thin-Film Transistors**
Ha Y., Emery J. D., Bedzyk M. J., Usta H., Facchetti A., Marks T. J.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.133, no.26, pp.10239-10250, 2011 (SCI-Expanded)
63. **n-Channel Semiconductor Materials Design for Organic Complementary Circuits**
Usta H., Facchetti A., Marks T. J.
ACCOUNTS OF CHEMICAL RESEARCH, vol.44, no.7, pp.501-510, 2011 (SCI-Expanded)
64. **Organic light-emitting transistors with an efficiency that outperforms the equivalent light-emitting diodes**
Capelli R., Toffanin S., Generali G., Usta H., Facchetti A., Muccini M.
NATURE MATERIALS, vol.9, no.6, pp.496-503, 2010 (SCI-Expanded)
65. **Design, Synthesis, and Characterization of Ladder-Type Molecules and Polymers. Air-Stable, Solution-Processable n-Channel and Ambipolar Semiconductors for Thin-Film Transistors via Experiment and Theory**
Usta H., Risko C., Wang Z., Huang H., Deliomeroğlu M. K., Zhukhovitskiy A., Facchetti A., Marks T. J.
JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.131, no.15, pp.5586-5608, 2009 (SCI-Expanded)
66. **Air-stable, solution-processable n-channel and ambipolar semiconductors for thin-film transistors**

based on the indenofluorenebis(dicyanovinylene) core

Usta H., Facchetti A., Marks T. J.

JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.130, no.27, pp.8580-8582, 2008 (SCI-Expanded)

67. **Synthesis, characterization, and transistor response of semiconducting silole polymers with substantial hole mobility and air stability. Experiment and theory**

Lu G., Usta H., Risko C., Wang L., Facchetti A., Ratner M. A., Marks T. J.

JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.130, no.24, pp.7670-7685, 2008 (SCI-Expanded)

68. **Synthesis and characterization of electron-deficient and highly soluble (Bis)Indenofluorene building blocks for n-type semiconducting polymers**

Usta H., Facchetti A., Marks T. J.

ORGANIC LETTERS, vol.10, no.7, pp.1385-1388, 2008 (SCI-Expanded)

69. **Dithienosilole- and dibenzosilole-thiophene copolymers as semiconductors for organic thin-film transistors**

Usta H., Lu G., Facchetti A., Marks T. J.

JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol.128, no.28, pp.9034-9035, 2006 (SCI-Expanded)

Books & Book Chapters

1. **Paper-based substrates for sustainable (opto)electronic devices**

Usta H., Facchetti A.

in: Sustainable Strategies in Organic Electronics, Assunta Marrocchi, Editor, Woodhead Publishing Limited, Massachusetts, pp.339-390, 2022

2. **Organic Semiconductors for Transparent Electronics**

USTA H., Facchetti A.

in: Flexible Carbon-based Electronics, Paolo Samorì, Vincenzo Palermo, Xinliang Feng, Editor, John Wiley Sons, Weinheim, pp.13-50, 2018

3. **Polymeric and Small-Molecule Semiconductors for Organic Field-Effect Transistors**

USTA H., Facchetti A.

in: Large Area and Flexible Electronics, Mario Caironi, Yong-Young Noh, Editor, Wiley-VCH Verlag Weinheim GmbH, Weinheim, pp.1-100, 2015

Refereed Congress / Symposium Publications in Proceedings

1. **Polymeric semiconductors based on meso-substituted BODIPY for (opto)electronic applications**

USTA H., Kim C., Kim B.

257th National Meeting of the American-Chemical-Society (ACS), Florida, United States Of America, 31 March - 04 April 2019, vol.257

2. **SOLUTION-PROCESSABLE AMBIPOLAR SMALL MOLECULAR SEMICONDUCTOR BASED ONDIETHYNYLINDENO[1,2-B]FLUORENE-6,12-DIONE**

ÖZDEMİR R., USTA H.

3rd International Conference on Material Science and Technology in Cappadocia, 17 - 19 September 2018

3. **DICYANOVINYLENE FUNCTIONALIZED AIR STABLE N-TYPE ORGANIC FIELD EFFECT TRANSISTORS**

ÖZDEMİR R., ardic alidagi h., USTA H.

3rd International Conference on Material Science and Technology in Cappadocia, 17 - 19 September 2018

4. **Organic semiconductor based surface-enhanced Raman spectroscopy platforms**

DEMİREL G., USTA H., Facchetti A.

256th National Meeting and Exposition of the American-Chemical-Society (ACS) - Nanoscience, Nanotechnology and Beyond, Massachusetts, United States Of America, 19 - 23 August 2018, vol.256

5. **Novel Small Molecule Based Semiconductors for Solution Processable and Ambient Stable Ambipolar**

Organic Field Effect Transistors

ÖZDEMİR R., Ozdemir M., Kim C., USTA H.

Ancon-International Congress on Chemistry and Materials Science, Ankara, Turkey, 5 - 07 October 2017

6. **AMBIPOLAR SMALL MOLECULAR SEMICONDUCTORS FOR FIELD EFFECT TRANSISTOR AND COMPLEMENTARY LIKE INVERTER APPLICATIONS**
ÖZDEMİR R., Deneme İ., Ozdemir M., USTA H.
The International Conference on Material Science and Technology in Cappadocia, 11 - 13 October 2017
7. **MOLECULAR SEMICONDUCTORS BASED ON LADDER TYPE ACCEPTOR CORE AND THIOPHENEDONOR UNITS**
ÖZDEMİR R., Ozdemir M., USTA H.
The International Conference on Material Science and Technology in Cappadocia, 11 - 13 October 2017
8. **Novel Molecular Microribbons for Organic Field-Effect Transistors**
Usta H., Özdemir M.
2nd International Conference on Material Science and Technology, Nevşehir, Turkey, 11 - 13 October 2017, pp.536
9. **Molecular Engineering Approaches to High-Performance Organic Materials for Optoelectronics**
USTA H.
INTERNATIONAL CONGRESS ON CHEMISTRY AND MATERIALS SCIENCE, 5 - 07 October 2017, pp.20
10. **A New Solution-Processable Molecules for Semiconducting Microfibers in Organic Thin-Film Transistors**
Usta H., Özdemir M.
International Congress on chemistry and materials science, Ankara, Turkey, 5 - 07 October 2017, no.87, pp.126
11. **Development of Solution-Processed BODIPY-Based Semiconducting Microfibers and Microribbons for Organic Thin-Film Transistors**
USTA H., Özdemir M., Kim C., Choi D., Facchetti A.
European Materials Research Society (E-MRS) Spring Meeting, 22 - 26 May 2017
12. **Nanostructured superhydrophobic organic semiconductor films enable sub-zeptomole level molecular sensing in surface-enhanced Raman spectroscopy**
DEMİREL G., USTA H., Facchetti A.
253rd National Meeting of the American-Chemical-Society (ACS) on Advanced Materials, Technologies, Systems, and Processes, San-Francisco, Costa Rica, 2 - 06 April 2017, vol.253
13. **Interface Engineering in Organic Thin Film Transistors**
Liguori R., Fusco S., Rubino A., Usta H., Facchetti A.
40th International Semiconductor Conference (CAS), Sinaia, Romania, 11 - 14 October 2017, pp.143-146
14. **Small Bandgap Molecular Semiconductors for Ambient Stable and Solution Processable Ambipolar Organic Field Effect Transistors**
ÖZDEMİR R., Özdemir M., USTA H.
Nanoscience and Nanotechnology for Next Generation (NanoNG-2016), Antalya, Turkey, 20 - 22 October 2016, pp.33
15. **BODIPY Based Small Molecules for Solution Processed N Channel Organic Thin Film Transistors**
Özdemir M., ÖZDEMİR R., USTA H.
Nanoscience and Nanotechnology for Next Generation (NanoNG-2016), Antalya, Turkey, 20 - 22 October 2016, pp.35
16. **DESIGN SYNTHESIS AND CHARACTERIZATION OF THREE NEW DISUBSTITUTED MOLECULES BASED ON INDENO 1 2 B FLUORENE 6 12 DIONE AND THIOPHENE BUILDINGBLOCKS IMPROVEMENT OF AMBIPOLAR CHARGE CARRIER MOBILITIES VIA TAILORING OF ALKYL SUBSTITUENTS**
Özdemir M., ÖZDEMİR R., Kim C., USTA H.
International Conference on Materials Science and Technology (IMSTEC 2016), Nevşehir, Turkey, 6 - 08 April 2016, pp.996
17. **Design and development of functional organic small molecules and polymers for optoelectronics**
USTA H., DEMİREL G., Facchetti A., Muccini M.
251st ACS National Meeting & Exposition, San Diego, United States Of America, 13 - 17 March 2016

18. **Kinetic Study on Catalytic Degradation of Organic Dyes with Copper Nanowire Catalyst**
TAHAOĞLU D., USTA H., ŞEN Ü., ÇITIR M.
2nd International Nanoscience and Nanotechnology for Next Generation Conference (NaNONG) 2015, Antalya, Turkey, 29 - 31 October 2015, pp.15-16
19. **Design Synthesis and Characterization of Disubstituted Indeno 1 2 b fluorene 6 12 dione Thiophene Molecular Semiconductors Enhancement of Ambipolar Charge Transport Through Synthetic Tailoring of Alkyl Substituents**
Özdemir M., Kim C., USTA H.
2nd International Nanoscience and Nanotechnology for Next Generation Conference (NaNONG) 2015, 29 - 31 October 2015, pp.43
20. **Proton Conducting PVA PAMPS ZIF8 Composite Membranes for PEMFC**
ERKARTAL M., USTA H., ÇITIR M., ŞEN Ü.
1st European Conference on Metal Organic Frameworks and Porous Polymers, 11 - 14 October 2015
21. **Proton Conducting MOF-Polymer Composites**
ERKARTAL M., Aslan A., USTA H., ÇITIR M., ŞEN Ü.
International Porous Powder Materials (PPM) 2015, İzmir, Turkey, 15 - 18 September 2015, pp.28
22. **High Proton Conductive PVA/PAMPS/Triazole Composite Membranes for PEMFC**
ERKARTAL M., DADI Ş., USTA H., ÇITIR M., ŞEN Ü.
International Symposium on Materials for Energy Storage and Conversion, Ankara, Turkey, 7 - 09 September 2015, pp.34
23. **High Proton Conductive PVA PAMPS Triazole Composite Membranes for PEMFC PEM Membrane**
ERKARTAL M., DADI Ş., USTA H., ÇITIR M., ŞEN Ü.
International Symposium on Materials for Energy Storage and Conversion, Ankara, Turkey, 7 - 09 September 2015, pp.34
24. **Photophysical properties of self assembled supramolecular peptide nanofiber organic semiconductors**
Khalily M. A., USTA H., GÜLER M. Ö.
250th ACS National Meeting, 16 - 20 August 2015, pp.278
25. **Novel photothermal based release mechanism for controlled release on Au nanoparticles through light**
gören e., cavuşoğlu h., YAVUZ E., USTA H., YAVUZ M. S.
250th ACS National Meeting, 16 - 20 August 2015, pp.179
26. **Development of Novel Boron-Based Polymer Semiconductors for Organic Thin-Film Transistors**
USTA H., Özdemir M., ÇITIR M., ŞEN Ü.
International Semiconductor Science and Technology Conference 2015, Aydın, Turkey, 11 - 13 May 2015, pp.19
27. **High-performance organic materials development for optoelectronic applications**
USTA H., Facchetti A., ÇITIR M., ŞEN Ü.
1st International Conference on Organic Electronic Material Technologies (OEMT'2015), Elazığ, Turkey, 25 - 28 March 2015, pp.11
28. **Experimental Methods for Thin Layer Coating of Metal Nanowires with Inert Metals**
ÇITIR M., CANLIER A., ŞEN Ü., USTA H.
6th NANOCON International Conference, Brno, Czech Republic, 5 - 07 November 2014, pp.1
29. **THIN FILMS OF INERT METAL NANOWIRES FOR DISPLAY APPLICATIONS**
Citir M., Sen U., USTA H., Canlier A.
6th NANOCON International Conference, Brno, Czech Republic, 5 - 07 November 2014, pp.64-76
30. **Electrodeposition of novel poly (naphthalenediimide-quaterthiophene) thin films and applications in plastic optoelectronics devices**
USTA H.
Transparent Optical Networks (ICTON), 2013 15th International Conference on, Cartegana, Spain, 3 - 06 June 2013, vol.1, pp.1

Academic and Administrative Experience

2020 - 2022	Member of the Senate	Abdullah Gul University, Rektörlük
2020 - 2022	Director of The Institution	Abdullah Gul University, Fen Bilimleri Enstitüsü
2019 - 2022	Assistant Manager of Research and Application Center	Abdullah Gul University, Rektörlük, Central Research Facility
2014 - 2020	Assistant Director of the Institute	Abdullah Gul University, Fen Bilimleri Enstitüsü

Courses

Molecular Photochemistry, Doctorate, 2022 - 2023

Molecular Engineering and Soft Nanomaterials, Postgraduate, 2021 - 2022

Organic Electronics, Postgraduate, 2022 - 2023

Macromolecular Chemistry and Physics, Doctorate, 2017 - 2018

Memberships / Tasks in Scientific Organizations

Materials Research Society (MRS), Member, 2006 - Continues

Royal Society of Chemistry (RSC), Member, 2005 - Continues

American Chemical Society (ACS), Member, 2004 - Continues

Scientific Refereeing

Journal of Materials Chemistry A, SCI Journal, October 2014

Polymers, SCI Journal, September 2014

New Journal of Chemistry, SCI Journal, September 2014

Dyes and Pigments (Elsevier), SCI Journal, September 2014

TUBITAK Project, September 2014

Journal of Materials Chemistry A, SCI Journal, August 2014

TUBITAK Project, August 2014

Journal of Materials Chemistry A, SCI Journal, July 2014

TUBITAK Project, July 2014

Journal of Materials Chemistry C, SCI Journal, June 2014

RSC Advances, SCI Journal, June 2014

RSC Advances, SCI Journal, May 2014

Energy and Environmental Science, SCI Journal, April 2014

New Journal of Chemistry, SCI Journal, March 2014

Chemical Communications, SCI Journal, March 2014

TUBITAK Project, March 2014

Journal of Materials Chemistry A, SCI Journal, February 2014

Journal of Materials Chemistry C, SCI Journal, January 2014

TUBITAK Project, December 2013

Metrics

Publication: 102

Citation (WoS): 3591

Citation (Scopus): 3585

H-Index (WoS): 26

H-Index (Scopus): 25

Congress and Symposium Activities

International NanoNG-2014 (Nanoscience and Nanotechnology for Next Generation) Conference, Attendee, Elazığ, Turkey, 2014

International Workshop on Flexible Bio- and Organic Printed Electronics, Attendee, Konya, Turkey, 2014

15th International Conference on Transparent Optical Networks (ICTON), Attendee, Cartagena, Spain, 2013

7th COPE-SOLVAY Symposium on Organic Electronics, Attendee, Bordeaux, France, 2013

SPIE Optics and Photonics, Organic Photovoltaics XIII, Attendee, San Diego, CA, United States Of America, 2012

Active-Matrix Flatpanel Displays and Devices (AM-FPD), Attendee, Kyoto, Japan, 2012

Materials Research Society (MRS) Fall Meeting, Attendee, Boston, MA, United States Of America, 2010

International Institute for Nanosymposium, Attendee, Evanston, IL, United States Of America, 2010

Gordon Research Conferences, Attendee, South Hadley, MA, United States Of America, 2008

Materials Research Society (MRS) Spring Meeting, Attendee, March 2008, San Francisco, CA., United States Of America, 2008

Northwestern University Fall BIP Lectures, Attendee, Northwestern University, Evanston, IL., United States Of America, 2007

233rd American Chemical Society (ACS) Meeting, Attendee, Chicago, IL, United States Of America, 2007

Industrial Associates Meeting, Attendee, Evanston, IL, United States Of America, 2007

38th Central Regional Meeting of the American Chemical Society (ACS), Attendee, Frankenmuth, MI, Turkey, 2006

NSF-Research Experience for Undergraduates Final Seminar, Attendee, Texas A&M University, College Station, TX, United States Of America, 2002

Research Areas

Metallurgical and Materials Engineering, Material science and engineering, Semiconductor and Superconductor Materials, Optical Properties, Polymeric Materials, Nanomaterials, Structure-Property Relationship, Chemistry, Organic Chemistry, Chemistry of Aromatic Compounds, Natural Sciences, Engineering and Technology

Non Academic Experience

Business Organization (private), Polyera Corporation, Illinois Science And Technology Park

Business Organization (private), Polyera Corporation, Illinois Science And Technology Park