

Assoc. Prof. MEMED DUMAN

Personal Information

Email: memi@hacettepe.edu.tr

Education Information

Doctorate, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Biyomühendislik, Turkey 2001 - 2007

Postgraduate, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Biyomühendislik, Turkey 1999 - 2001

Undergraduate, Orta Doğu Teknik Üniversitesi, Fen Edebiyat, Biyoloji, Turkey 1994 - 1998

Foreign Languages

English, C1 Advanced

Research Areas

Medicine, Health Sciences, Fundamental Medical Sciences, Biophysics, Life Sciences, Biophysics, Molecular Biophysics, Biotechnology, Biomaterial, Biosensor, Chemistry, Analytical Chemistry, Separation Methods, Sensors, Natural Sciences

Academic Titles / Tasks

Associate Professor, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, 2015 - Continues

Assistant Professor, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Nanoteknoloji Ve Nanotıp (Dr), 2011 - 2015

Lecturer PhD, Johannes Kepler Universitaet Linz, 2008 - 2011

Lecturer PhD, University Of Florida, 2007 - 2008

Research Assistant, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Biyomühendislik (Dr), 2001 - 2007

Academic and Administrative Experience

Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, 2016 - Continues

Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, 2016 - Continues

Advising Theses

DUMAN M., MİKROBOLOMETRE UYGULAMALARI İÇİN TUNGSTEN KATKILI VANADYUM OKSİT İNCE FİLMLEİNİN SENTEZİ, Doctorate, Ö.ÇELİK(Student), 2017

ÇELİKBIÇAK Ö., DUMAN M., LDI-MS analizleri için etkin ve seçici yeni hedef yüzeylerin geliştirilmesi, Postgraduate, G.AYLAZ(Student), 2016

DUMAN M., A novel microcantilever sensor system for the selective determination of antibiotics, Postgraduate, M.OKAN(Student), 2016

DUMAN M., Design and development of paper-based biosensor, Postgraduate, S.MALEKGHAŞEMİ(Student), 2015

DUMAN M., Gaitada gizli kan tanısında kullanılacak moleküler baskılanmış polimer tabanlı hasta başı test kiti için altın

nanopartikül işaretli sentetik hemoglobin molekülünün geliştirilmesi ve karakterizasyonu, Postgraduate,

U.AYDIN(Student), 2015

DUMAN M., Atomik kuvvet mikroskobu ile biyomoleküllerin doğal ortamlarında tayini ve karakterizasyonu, Doctorate,

D.ÇATÇAT(Student), 2014

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

- I. **Recognition of human hemoglobin with macromolecularly imprinted polymeric nanoparticles using non-covalent interactions**
AYLAZ G., Andac M., DENİZLİ A., DUMAN M.
JOURNAL OF MOLECULAR RECOGNITION, 2021 (Journal Indexed in SCI)
- II. **Recent developments on magnetic molecular imprinted polymers (MMIPs) for sensing, capturing, and monitoring pharmaceutical and agricultural pollutants**
AYLAZ G., Kuhn J., Lau E. C. H. T., Yeung C., Roy V. A. L., DUMAN M., Yiu H. H. P.
JOURNAL OF CHEMICAL TECHNOLOGY AND BIOTECHNOLOGY, 2021 (Journal Indexed in SCI)
- III. **Study on Cost-Efficient Carbon Aerogel to Remove Antibiotics from Water Resources**
AYLAZ G., Okan M., DUMAN M., AYDIN H. M.
ACS OMEGA, vol.5, no.27, pp.16635-16644, 2020 (Journal Indexed in SCI)
- IV. **Selective binding of antibiotics using magnetic molecular imprint polymer (MMIP) networks prepared from vinyl-functionalized magnetic nanoparticles**
Kuhn J., AYLAZ G., Sari E., Marco M., Yiu H. H. P., DUMAN M.
JOURNAL OF HAZARDOUS MATERIALS, vol.387, 2020 (Journal Indexed in SCI)
- V. **Synthesis of Conductive Carbon Aerogels Decorated with beta-Tricalcium Phosphate Nanocrystallites**
Tevlek A., Atya A. M. N., Almemar M., DUMAN M., GÖKCEN D., Ganin A. Y., Yiu H. H. P., AYDIN H. M.
SCIENTIFIC REPORTS, vol.10, no.1, 2020 (Journal Indexed in SCI)
- VI. **High temperature coefficient of resistance and low noise tungsten oxide doped amorphous vanadium oxide thin films for microbolometer applications**
Celik O., DUMAN M.
THIN SOLID FILMS, vol.691, 2019 (Journal Indexed in SCI)
- VII. **Prism coupler-based sensor system for simultaneous screening of synthetic glucocorticosteroid as doping control agent**
Sari E., ÜZEK R., DUMAN M., Alagoz H. Y., DENİZLİ A.
SENSORS AND ACTUATORS B-CHEMICAL, vol.260, pp.432-444, 2018 (Journal Indexed in SCI)
- VIII. **Functional polymeric nanoparticle decorated microcantilever sensor for specific detection of erythromycin**
Okan M., DUMAN M.
SENSORS AND ACTUATORS B-CHEMICAL, vol.256, pp.325-333, 2018 (Journal Indexed in SCI)
- IX. **Detection of ciprofloxacin through surface plasmon resonance nanosensor with specific recognition sites**
Sari E., ÜZEK R., DUMAN M., DENİZLİ A.
JOURNAL OF BIOMATERIALS SCIENCE-POLYMER EDITION, vol.29, no.11, pp.1302-1318, 2018 (Journal Indexed in SCI)
- X. **Molecularly imprinted polymer based micromechanical cantilever sensor system for the selective determination of ciprofloxacin**
Okan M., Sari E., DUMAN M.
BIOSENSORS & BIOELECTRONICS, vol.88, pp.258-264, 2017 (Journal Indexed in SCI)
- XI. **Rapid and alternative fabrication method for microfluidic paper based analytical devices**
Malekghasemi S., Kahveci E., DUMAN M.
TALANTA, vol.159, pp.401-411, 2016 (Journal Indexed in SCI)
- XII. **Fabrication of Plasmonic Nanorod-Embedded Dipeptide Microspheres via the Freeze-Quenching**

Method for Near-Infrared Laser-Triggered Drug-Delivery Applications

Erdogan H., Yilmaz M., Babur E., DUMAN M., AYDIN H. M., Demirel G.
BIOMACROMOLECULES, vol.17, no.5, pp.1788-1794, 2016 (Journal Indexed in SCI)

- XIII. **Fabrication of surface plasmon resonance nanosensor for the selective determination of erythromycin via molecular imprinted nanoparticles**
SARI E., ÜZEK R., DUMAN M., DENİZLİ A.
TALANTA, vol.150, pp.607-614, 2016 (Journal Indexed in SCI)
- XIV. **Nanoscale characteristics of antibacterial cationic polymeric brushes and single bacterium interactions probed by force microscopy**
Gultekinoglu M., OH Y. J., HINTERDORFER P., DUMAN M., CATCAT D., ULUBAYRAM K.
RSC ADVANCES, vol.6, no.21, pp.17092-17099, 2016 (Journal Indexed in SCI)
- XV. **Combined Topography, Recognition, and Fluorescence Measurements on Cells**
Zhu R., DUMAN M., Madl J., Schuetz G. J., Hinterdorfer P.
CELL MEMBRANE NANODOMAINS: FROM BIOCHEMISTRY TO NANOSCOPY, pp.367-390, 2015 (Journal Indexed in SCI)
- XVI. **Fabrication of monodispersive nanoscale alginate-chitosan core-shell particulate systems for controlled release studies**
Korpe D. A., Malekghasemi S., Aydin U., DUMAN M.
JOURNAL OF NANOPARTICLE RESEARCH, vol.16, no.12, 2014 (Journal Indexed in SCI)
- XVII. **Probing and mapping the binding sites on streptavidin imprinted polymer surface**
Duman M.
MATERIALS SCIENCE & ENGINEERING C-MATERIALS FOR BIOLOGICAL APPLICATIONS, vol.43, pp.214-220, 2014 (Journal Indexed in SCI)
- XVIII. **Characterizing the S-layer structure and anti-S-layer antibody recognition on intact Tannerella forsythia cells by scanning probe microscopy and small angle X-ray scattering**
Oh Y. J., Sekot G., Duman M., Chtcheglova L., Messner P., Peterlik H., Schaeffer C., Hinterdorfer P.
JOURNAL OF MOLECULAR RECOGNITION, vol.26, no.11, pp.542-549, 2013 (Journal Indexed in SCI)
- XIX. **Nanomapping of CD1d-glycolipid complexes on THP1 cells by using simultaneous topography and recognition imaging**
Duman M., Chtcheglova L. A., Zhu R., Bozna B. L., Polzella P., Cerundolo V., Hinterdorfer P.
JOURNAL OF MOLECULAR RECOGNITION, vol.26, no.9, pp.408-414, 2013 (Journal Indexed in SCI)
- XX. **High-frequency electromagnetic dynamics properties of THP1 cells using scanning microwave microscopy**
Oh Y. J., Huber H., Hochleitner M., Duman M., Bozna B., Kastner M., Kienberger F., Hinterdorfer P.
ULTRAMICROSCOPY, vol.111, no.11, pp.1625-1629, 2011 (Journal Indexed in SCI)
- XXI. **Binding Strength and Dynamics of Invariant Natural Killer Cell T Cell Receptor/CD1d-Glycosphingolipid Interaction on Living Cells by Single Molecule Force Spectroscopy**
Bozna B. L., Polzella P., Rankl C., Zhu R., Salio M., Shepherd D., Duman M., Cerundolo V., Hinterdorfer P.
JOURNAL OF BIOLOGICAL CHEMISTRY, vol.286, no.18, 2011 (Journal Indexed in SCI)
- XXII. **Detection of Mycobacterium tuberculosis complex and Mycobacterium gordonae on the same portable surface plasmon resonance sensor**
Duman M., Piskin E.
BIOSENSORS & BIOELECTRONICS, vol.26, no.2, pp.908-912, 2010 (Journal Indexed in SCI)
- XXIII. **Molecular recognition imaging using tuning fork-based transverse dynamic force microscopy**
Hofer M., Adamsmaier S., van Zanten T. S., Chtcheglova L. A., Manzo C., Duman M., Mayer B., Ebner A., Moertelmaier M., Kada G., et al.
ULTRAMICROSCOPY, vol.110, no.6, pp.605-611, 2010 (Journal Indexed in SCI)
- XXIV. **Improved localization of cellular membrane receptors using combined fluorescence microscopy and simultaneous topography and recognition imaging**
Duman M., Pflieger M., Zhu R., Rankl C., Chtcheglova L. A., Neundlinger I., Bozna B. L., Mayer B., Salio M., Shepherd D., et al.

NANOTECHNOLOGY, vol.21, no.11, 2010 (Journal Indexed in SCI)

- XXV. **A versatile toolset for nanometer scale research in life science**
Kada G., Duman M., Huber H., Rankl C., Hinterdorfer P., Kienberger F.
European Cells and Materials, vol.20, pp.129, 2010 (Journal Indexed in SCI Expanded)
- XXVI. **Detection of Mycobacterium tuberculosis Complex Using Surface Plasmon Resonance Based Sensors Carrying Self-Assembled Nano-Overlayers of Probe Oligonucleotide**
Duman M., Caglayan M. O. , Demirel G., Piskin E.
SENSOR LETTERS, vol.7, no.4, pp.535-542, 2009 (Journal Indexed in SCI)
- XXVII. **ATP scavenging by the intracellular pathogen Porphyromonas gingivalis inhibits P2X(7)-mediated host-cell apoptosis**
Yilmaz O., Yao L., Maeda K., Rose T. M. , Lewis E. L. , Duman M., Lamont R. J. , Ojcius D. M.
CELLULAR MICROBIOLOGY, vol.10, no.4, pp.863-875, 2008 (Journal Indexed in SCI)
- XXVIII. **Formation and organization of amino terminated self-assembled layers on Si(001) surface**
DEMİREL G. N. , Caglayan M. O. , Garipcan B., DUMAN M., Piskin E.
NANOSCALE RESEARCH LETTERS, vol.2, no.7, pp.350-354, 2007 (Journal Indexed in SCI)
- XXIX. **Preparation and in vitro evaluation of bFGF-loaded chitosan nanoparticles**
Cetin M., Aktas Y., Vural İ., Capan Y., Dogan L. A. , Duman M., Dalkara T.
DRUG DELIVERY, vol.14, no.8, pp.525-529, 2007 (Journal Indexed in SCI)
- XXX. **Oriented immobilization of IgG on hydroxylated Si(001) surfaces via protein-A by a multiple-step process based on a self-assembly approach**
DEMİREL G. N. , Çağlayan M., Garipcan B., DUMAN M., Pişkin E.
Journal of Materials Science, vol.42, no.22, pp.9402-9408, 2007 (Journal Indexed in SCI)
- XXXI. **Materials specificity and directed assembly of a gold-binding peptide**
Tamerler C., Duman M., Oren E. E. , Gungormus M., Xiong X., Kacar T., Parviz B. A. , Sarikaya M.
SMALL, vol.2, no.11, pp.1372-1378, 2006 (Journal Indexed in SCI)
- XXXII. **Adsorption kinetics of an engineered gold binding peptide by surface plasmon resonance spectroscopy and a quartz crystal microbalance**
Tamerler C., Oren E. E. , Duman M., Venkatasubramanian E., Sarikaya M.
LANGMUIR, vol.22, no.18, pp.7712-7718, 2006 (Journal Indexed in SCI)
- XXXIII. **A new approach for immobilization of oligonucleotides onto piezoelectric quartz crystal for preparation of a nucleic acid sensor for following hybridization**
Duman M., Saber R., Piskin E.
BIOSENSORS & BIOELECTRONICS, vol.18, no.11, pp.1355-1363, 2003 (Journal Indexed in SCI)

Refereed Congress / Symposium Publications in Proceedings

- I. **FUNCTIONAL POLYMERIC NANOPARTICLE DECORATED MICROCANTILEVER SENSOR FOR SPECIFIC DETECTION OF ERYTHROMYCIN**
DUMAN M., Okan M.
MicroTAS 2017, 22 - 26 October 2017
- II. **Akıllı ve Basit Biyosensörler**
DUMAN M.
Lipid Araştırma Grubu Seminerleri, Turkey, 30 March 2017
- III. **Molecularly Imprinted Polymeric Nanoparticle Modified Film Based MALDI Sample Probe for Detection of Ciprofloxacin**
AYLAZ G., ÇELİKBIÇAK Ö., DUMAN M.
19. Linz Winter Workshop, 3 - 06 February 2017
- IV. **Molecularly Imprinted Polymeric Nanoparticle Modified Film Based MALDI Sample Probe for Detection of Ciprofloxacin**
AYLAZ G., ÇELİKBIÇAK Ö., DUMAN M.

XIX Annual Linz Winter Workshop, Linz, Austria, 3 - 06 February 2017

- V. **A Novel Fiber based MALDI Probe for Selective Detection of Ciprofloxacin**
AYLAZ G., Tevek A., ÇELİKBIÇAK Ö., DUMAN M.
3rd International Congress on Biosensors, 5 - 07 October 2016
- VI. **GENERATION AND EVALUATION OF NANOCAVITIES WITH SPECIFIC BINDING SITES**
DUMAN M.
XXV International Materials Research Congress, 14 - 19 August 2016
- VII. **Biosynthesis of metallic nanoparticles: A comparative optimization study for plant leaf extracts and their biological assays**
Korpe D. A. , Iseri O. D. , DUMAN M., DENKBAŞ E. B. , ŞAHİN F. İ. , Haberal M.
European Biotechnology Conference, Latvia, 5 - 07 May 2016, vol.231
- VIII. **Synthesis of Gelatine Methacrylate Hydrogels as Cell Carriers**
körpe d., hosseinian p., GÜLER S., DUMAN M., AYDIN H. M.
9. Meeting of Scandinavian Society of Biomaterials, 30 May - 04 June 2016
- IX. **Preparation of Molecularly Imprinted Nanoparticles for Selective Determination of Hemoglobin with UV visible spectrometer**
AYLAZ G., Çiçek Ç., ANDAÇ ÖZDİL A. M. , DUMAN M.
26th Anniversary World Congress on Biosensors 2016, 25 - 27 May 2016
- X. **Molecularly Imprinted Polymer Based Micromechanical Cantilever Sensor System for the Selective Determination of Ciprofloxacin**
Okan M., DUMAN M.
26th Anniversary World Congress on Biosensors 2016, 25 - 27 May 2016
- XI. **Preparation of Molecular Imprinted Nanoparticle for the Selective Determination of Ciprofloxacin with Surface Plasmon Resonance Sensor**
DUMAN M., Sari E., ÜZEK R., DENİZLİ A.
26th Anniversary World Congress on Biosensors 2016, 25 - 27 May 2016
- XII. **Elucidation of interactions between single bacterium and polycationic brushes by force microscopy**
YOO JİN O., GÜLTEKİNOĞLU M., HINTERDORFER P., DUMAN M., CATCAT D., ULUBAYRAM K.
6th Multifrequency AFM Conference, 30 March - 01 April 2016
- XIII. **Elucidation of interactions between single bacterium and polycationic brushes by force microscopy**
Oh Y. J. , GÜLTEKİNOĞLU M., Hinterdorfer P., DUMAN M., Çatçat Kayım D., ULUBAYRAM K.
6th multifrequency AFM Conference, Madrid, Spain, 30 March - 01 April 2016
- XIV. **Hızlı basit hassas ve seçici biyosensör sistemlerin tasarımı ve geliştirilmesi**
DUMAN M., DENİZLİ A., sülek S., aydın U, Kazancı E., Okan M., Aylaz G.
Aselsan 1. sağlık teknolojileri çalıştayı, Turkey, 9 - 11 December 2015
- XV. **Nanoscale Adhesion Kinetics of Single Bacteria Polymeric Brushes via Single Cell Force Microscopy**
GÜLTEKİNOĞLU M., YOO JİN O., DUMAN M., PETER H., ULUBAYRAM K.
21st International Biomedical Science and Technology Symposium 22 - 24 October 2015, Antalya, Turkey, 22 - 24 October 2015
- XVI. **Nanoscale Adhesion Kinetics of Single Bacteria Polymeric Brushes via Single Cell Force Microscopy**
GÜLTEKİNOĞLU M., OH Y. J. , DUMAN M., HINTERDORFER P., ULUBAYRAM K.
21st International Biomedical Science and Technology Symposium, 22 - 24 October 2015
- XVII. **Characterization of Modified Gold Nanoparticles For Competitive Affinity Chromatography Method**
Aydın U, Çiçek Ç., Andaç A. M. , DENİZLİ A., DUMAN M.
Advance Material World Congress 2015, 23 - 26 August 2015
- XVIII. **Single Molecule Detection via Atomic Force Microscope**
DUMAN M.
2nd International Congress on Biosensor, 10 - 12 June 2015
- XIX. **Estradiol Imprinted Nanoparticles for POC Diagnostics**
DUMAN M., Sarı E., DENİZLİ A.
Point of Care Diagnostic, 17 - 18 March 2015

- XX. **Preparation of Molecular Imprinted Nanoparticle for the Selective Determination of Erythromycin with Surface Plasmon Resonance Sensor**
Sarı E., Meltem O., Süzek R., DENİZLİ A., DUMAN M.
17. Annual Linz Winter Workshop, 30 January - 02 February 2015
- XXI. **Nanoscale Characterization of Cationic Polymeric Brushes and Bacterial Interactions Probed by Force Microscopy**
GÜLTEKİNOĞLU M., OH Y. J. , DUMAN M., Hinterdorfer P., ULUBAYRAM K.
26th European Conference on Biomaterials(ESB), 31 August - 03 September 2014
- XXII. **Characterizing the Cell Surface Structure and Antibody Recognition Forces on Intact Microbial Cells using Scanning Probe Microscopy**
Oh Y. J. , Sekot G., Duman M., Chtcheglova L., Messner P., Peterlik H., Schaeffer C., Hinterdorfer P.
58th Annual Meeting of the Biophysical-Society, San-Francisco, Costa Rica, 15 - 19 February 2014, vol.106
- XXIII. **High-Frequency Electromagnetic Dynamics Properties of THP1 Cells Using Scanning Microwave Microscopy**
Oh Y. J. , Huber H., Hochleitner M., Duman M., Bozna B., Kastner M., Kienberger F., Hinterdorfer P.
55th Annual Meeting of the Biophysical-Society, Maryland, United States Of America, 5 - 09 March 2011, vol.100, pp.161
- XXIV. **Detection of Mycobacterium tuberculosis complex using SPR based oligonucleotide sensors**
Duman M.
THE AMERICAN CHEMICAL SOCIETY, Washington, United States Of America, 20 - 23 March 2009, pp.1-3
- XXV. **POLY(N-ISOPROPYLACRYLAMIDE) (PNIPAM) BASED NANOPARTICLES FOR IN VITRO PLASMID DNA DELIVERY**
Ozdemir N., Tuncel A., DUMAN M., Engin D., Denkbaz E. B.
NATO Advanced Study Institute on Functionalized Nanoscale Materials, Devices and Systems for Chem-Bio Sensors, Photonics and Energy Generation and Storage, Sinaia, Romania, 4 - 15 June 2007, pp.325-326

Supported Projects

DUMAN M., Project Supported by Higher Education Institutions, Çok Bölmeli Salm Sistemlerinde Kullanılmak Üzere Aljinat Kaplı Kitosan Nanopartiküllerinin Hazırlanması, 2014 - Continues

DUMAN M., Project Supported by Higher Education Institutions, Atomik Kuvvet Mikroskopisi için Polyetilenglikol Uç Modifikasyonu, 2012 - Continues

AYDIN H. M. , Türkel D., Tevlek A., DUMAN M., Project Supported by Higher Education Institutions, Biyobozunur Akıllı Kemik Onarım Plakalarının Üretimi, 2017 - 2019

DUMAN M., Project Supported by Higher Education Institutions, Su Kaynaklarında Bulunan Yeni Kirleticilerin Belirlenmesi için Nanopartikül Modifiye Mikromanivela Sensörü, 2017 - 2018

DUMAN M., Sari Üzek E., Aylaz G., Project Supported by Higher Education Institutions, 3.Uluslararası Biyosensör Kongresi, 2016 - 2016

DUMAN M., Project Supported by Higher Education Institutions, ÖZGÜN BAĞLANMA BÖLGELERİ BULUNAN NANOKAVİTELERİN OLUŞTURULMASI VE DEĞERLENDİRİLMESİ, 2016 - 2016

DUMAN M., Project Supported by Higher Education Institutions, Malzeme Araştırma Cemiyeti 2015 MRS Sonbahar Toplantısı Katılımı, 2015 - 2016

DUMAN M., Kazancı E., Project Supported by Higher Education Institutions, Altın Nanopartikül Bazlı Kapasitif Biyosensör Sisteminin Geliştirilmesi, 2015 - 2016

DUMAN M., Project Supported by Higher Education Institutions, Yarışmalı Afinite Kromatografisi için Modifiye Altın Nanopartiküllerinin Karakterizasyonu, 2015 - 2016

DUMAN M., TUBITAK Project, Development and production of Point of Care Test Kit for detection of fecal occult blood, 2014 - 2016

DUMAN M., Project Supported by Higher Education Institutions, Probing and mapping the binding sites on streptavidin imprinted polymer surface, 2015 - 2015

Citations

Total Citations (WOS):676

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