

Assoc. Prof. OSMAN TOLGA GÜL

Personal Information

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International Researcher IDs

ScholarID: [msiqJPEAAAAJ](#)

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Publons / Web Of Science ResearcherID: [CAF-4566-2022](#)

ScopusID: [16021705800](#)

Yoksis Researcher ID: [233990](#)

Education Information

Doctorate, University of California, Irvine, Physical Sciences, Physics and Astronomy, United States Of America 2009 - 2014

Undergraduate, Mersin University, Fen-Edebiyat Fakültesi, Fizik Bölümü, Turkey 2002 - 2006

Foreign Languages

English, C2 Mastery

Research Areas

Electronic, Nanotechnology, Material science and engineering, Nanomaterials, Biotechnology, Biomaterial, Biosensor, Physics, Materials Science

Academic Titles / Tasks

Assistant Professor, Ankara Hacı Bayram Veli University, Polatlı Faculty of Arts and Sciences, Department of Physics, 2021 - Continues

Lecturer PhD, Ankara Hacı Bayram Veli University, Polatlı Faculty of Arts and Sciences, Department of Physics, 2018 - 2021

Lecturer PhD, Gazi University, Polatlı Fen-Edebiyat Fakültesi, Fizik Bölümü, 2015 - 2018

Research Assistant, University of California, Irvine, Physical Science, Physics And Astronomy, 2009 - 2014

Academic and Administrative Experience

Director of the Center, Ankara Hacı Bayram Veli University, Rector's Office, Proje Koordinasyon Uygulama ve Araştırma Merkezi, 2018 - 2019

Courses

Genel Fizik 1, Undergraduate, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016
Bilgisayar Programlama 1, Undergraduate, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017
Genel Fizik 2, Undergraduate, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016
Bilgisayar Programlama 2, Undergraduate, 2021 - 2022, 2019 - 2020, 2018 - 2019, 2017 - 2018, 2016 - 2017
Fizik 1, Undergraduate, 2020 - 2021
Fizik 2, Undergraduate, 2020 - 2021
Mesleki İngilizce 2, Undergraduate, 2018 - 2019, 2016 - 2017
Maddenin Yapısı ve Özellikleri, Undergraduate, 2018 - 2019, 2017 - 2018
Maddenin Manyetik Özellikleri, Undergraduate, 2018 - 2019
Mesleki İngilizce 1, Undergraduate, 2018 - 2019, 2017 - 2018, 2016 - 2017, 2015 - 2016
Malzeme Bilimi, Undergraduate, 2018 - 2019, 2016 - 2017, 2015 - 2016
Araştırma Projesi 1, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016
Kuantum Fiziği 1, Undergraduate, 2017 - 2018, 2016 - 2017
Araştırma Projesi 2, Undergraduate, 2017 - 2018, 2016 - 2017
Teorik Mekanik 2, Undergraduate, 2017 - 2018
Kuantum Fiziği 2, Undergraduate, 2017 - 2018, 2016 - 2017
Yoğun Madde Fiziği 1, Undergraduate, 2017 - 2018
Elektromanyetik Teori, Undergraduate, 2017 - 2018, 2016 - 2017, 2015 - 2016
Bilgisayar 1, Undergraduate, 2016 - 2017
İstatistik Fizik, Undergraduate, 2016 - 2017
Yarı İletken Fiziği, Undergraduate, 2015 - 2016
Biyofizik, Undergraduate, 2015 - 2016
İngilizce İletişim 4, Undergraduate, 2015 - 2016
İngilizce İletişim 2, Undergraduate, 2015 - 2016

Advising Theses

GÜL O. T., DEMİREL G., Deri İçine İlaç Gönderimi Gerçekleştirecek Polimer Destekli Karbon Nanotüp Mikro İğne Dizisi Fabrikasyonu, Postgraduate, N.ÜNVER(Student), 2021

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **In Situ Synthesis of Horseradish Peroxidase Nanoflower@Carbon Nanotube Hybrid Nanobiocatalysts with Greatly Enhanced Catalytic Activity**
Dadi S., Temur N., GÜL O. T., YILMAZ V., ÖÇSOY İ.
Langmuir, vol.39, no.13, pp.4819-4828, 2023 (SCI-Expanded)
- II. **Hollow microneedle array fabrication using a rational design to prevent skin clogging in transdermal drug delivery**
Unver N., Odabas S., Demirel G., Gül O. T.
Journal of Materials Chemistry B, vol.10, no.41, pp.8419-8431, 2022 (SCI-Expanded)
- III. **A simple method to grow millimeters long vertically aligned carbon nanotube forests**
Gül O. T.
Diamond and Related Materials, vol.120, 2021 (SCI-Expanded)
- IV. **Preparation of magnetic horseradish peroxidase-laccase nanoflower for rapid and efficient dye degradation with dual mechanism and cyclic use**
Gül O. T., ÖÇSOY İ.
Materials Letters, vol.303, 2021 (SCI-Expanded)
- V. **Co-Enzymes based nanoflowers incorporated-magnetic carbon nanotubes: A new generation nanocatalyst for superior removal of cationic and anionic dyes with great repeated use**

Gul O. T., ÖÇSOY İ.

Environmental Technology and Innovation, vol.24, 2021 (SCI-Expanded)

- VI. **Decoupling the catalyst reduction and annealing for suppressing Ostwald ripening in carbon nanotube growth**
Gul O. T.
Applied Physics A: Materials Science and Processing, vol.127, no.10, 2021 (SCI-Expanded)
- VII. **Transfer of hydrophobic colloidal gold nanoparticles to aqueous phase using catecholamines**
Karaagac Z., Gul O. T., ILDIZ N., ÖÇSOY İ.
Journal of Molecular Liquids, vol.315, 2020 (SCI-Expanded)
- VIII. **Formation of functional nanobiocatalysts with a novel and encouraging immobilization approach and their versatile bioanalytical applications**
Celik C., Tasdemir D., DEMİRBAŞ A., Kati A., Gul O. T., ÇİMEN B., ÖÇSOY İ.
RSC Advances, vol.8, no.45, pp.25298-25303, 2018 (SCI-Expanded)
- IX. **One-Dimensional Poole-Frenkel Conduction in the Single Defect Limit**
Pan D., Fuller E. J., Gul O. T., Collins P. G.
Nano Letters, vol.15, no.8, pp.5248-5253, 2015 (SCI-Expanded)
- X. **Processive incorporation of deoxynucleoside triphosphate analogs by single-molecule DNA polymerase i (Klenow Fragment) nanocircuits**
Pugliese K. M., Gul O. T., Choi Y., Olsen T. J., Sims P. C., Collins P. G., Weiss G. A.
Journal of the American Chemical Society, vol.137, no.30, pp.9587-9594, 2015 (SCI-Expanded)
- XI. **Observing Lysozymes Closing and Opening Motions by High-Resolution Single-Molecule Enzymology**
Akhterov M. V., Choi Y., Olsen T. J., Sims P. C., Iftikhar M., Gul O. T., Corso B. L., Weiss G. A., Collins P. G.
ACS Chemical Biology, vol.10, no.6, pp.1495-1501, 2015 (SCI-Expanded)
- XII. **Mean free paths in single-walled carbon nanotubes measured by Kelvin probe force microscopy**
Fuller E. J., Pan D., Corso B. L., Gul O. T., Collins P. G.
Physical Review B - Condensed Matter and Materials Physics, vol.89, no.24, 2014 (SCI-Expanded)
- XIII. **Electrochemical charge-transfer resistance in carbon nanotube composites**
Corso B. L., Perez I., Sheps T., Sims P. C., Gul O. T., Collins P. G.
Nano Letters, vol.14, no.3, pp.1329-1336, 2014 (SCI-Expanded)
- XIV. **Electronic measurements of single-molecule processing by DNA polymerase i (Klenow fragment)**
Olsen T. J., Choi Y., Sims P. C., Gul O. T., Corso B. L., Dong C., Brown W. A., Collins P. G., Weiss G. A.
Journal of the American Chemical Society, vol.135, no.21, pp.7855-7860, 2013 (SCI-Expanded)
- XV. **Electronic measurements of single-molecule catalysis by cAMP-dependent protein kinase A**
Sims P. C., Moody I. S., Choi Y., Dong C., Iftikhar M., Corso B. L., Gul O. T., Collins P. G., Weiss G. A.
Journal of the American Chemical Society, vol.135, no.21, pp.7861-7868, 2013 (SCI-Expanded)
- XVI. **Quantitative Kelvin probe force microscopy of current-carrying devices**
Fuller E. J., Pan D., Corso B. L., Gul O. T., Gomez J. R., Collins P. G.
Applied Physics Letters, vol.102, no.8, 2013 (SCI-Expanded)
- XVII. **Four-wave mixing microscopy with electronic contrast of individual carbon nanotubes**
Sheps T., Brocious J., Corso B. L., Gul O. T., Whitmore D., Durkaya G., Potma E. O., Collins P. G.
Physical Review B - Condensed Matter and Materials Physics, vol.86, no.23, 2012 (SCI-Expanded)

Articles Published in Other Journals

- I. **Investigation and Optimization of Temperature Dependent Parameters for Growing Millimeter-Long Vertically Aligned Carbon Nanotubes**
GÜL O. T.
Erzincan Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.13, no.3, pp.1354-1361, 2020 (Peer-Reviewed Journal)
- II. **Single Molecule Bioelectronics and Their Application to Amplification-Free Measurement of DNA Lengths**

Refereed Congress / Symposium Publications in Proceedings

- I. **Microneedle Application of Vertically Aligned Carbon Nanotubes**
GÜL O. T.
23. International Conference on Nanotechnology and Biotechnology, Melbourne, Australia, 01 February 2021
- II. **A Detailed Study of Hydrogen Treatment of Iron Catalyst for Carbon Nanotube Synthesis**
GÜL O. T.
5th Global Conference on Materials Sciences (GC-MAS 2020), İstanbul, Turkey, 30 October - 01 November 2020
- III. **Effects of Some Synthesis Parameters on Vertically Aligned Carbon Nanotube Forest Height**
GÜL O. T.
3. International Conference on Physical Chemistry and Functional Materials (PCFM-2020), Malatya, Turkey, 22 September 2020
- IV. **Deri İçine İlaç Gönderiminde Kullanılmak Üzere Polimer Destekli Karbon Nanotüp Mikro İğnelerin Hazırlanması ve Karakterizasyonu**
Ünver N., GÜL O. T., DEMİREL G., DEMİREL G.
32. Ulusal Genel Kimya Kongresi, Turkey, 17 - 19 September 2020
- V. **Bioelectronics at the Single Molecule Level**
Gul O. T., Pugliese K. M., Choi Y., Rajapakse A. J., Lau C. J., Kumar N., Gabriel K. N., Marushchak D., Olsen T. J., Pan D., et al.
64th Annual IEEE International Electron Devices Meeting, IEDM 2018, California, United States Of America, 1 - 05 December 2018, vol.2018-December
- VI. **Monitoring Single-Molecule DNA Pol I Response to Unnatural dNTPs using Carbon NanotubeField-Effect Transistors**
GÜL O. T., Choi Y., Pugliese K. M., Weiss G. A., Collins P. G.
13th International Nanoscience and Nanotechnology Conference (NANOTR-13), Antalya, Turkey, 22 - 25 October 2017
- VII. **Single Molecule Electronic Measurements of DNA Poymerase I with Carbon Nanotube Devices**
GÜL O. T., Choi Y., Pugliese K., Weiss G., Collins P.
12th International Nanoscience and Nanotechnology Conference (NANOTR-12), Gebze, Turkey, 3 - 05 June 2016
- VIII. **Single Molecule Electronic Monitoring of DNA Polymerase Activity**
Marushchak D., Kaitlin P., Turvey M., Choi Y., GÜL O. T., Olsen T., Rajapakse A., Weiss G., Collins P.
2016 APS March Meeting, Baltimore, United States Of America, 14 - 18 March 2016
- IX. **Base by Base Counting of Nucleotide Incorporations by DNA Polymerase**
Turvey M., GÜL O. T., Pugliese K., Marushchak D., Rajapakse A., Weiss G., Collins P.
2016 APS March Meeting, Baltimore, United States Of America, 14 - 18 March 2016
- X. **Using Nanotube Transistors for Single Molecule Studies of DNA Polymerase I**
GÜL O. T., Choi Y., Pugliese K. M., Weiss G. A., Collins P. G.
International Conference on the Science and Application of Nanotubes, Los-Angeles, Chile, 2 - 06 June 2014
- XI. **Single Molecule Comparison of DNA Pol I Activity with Native and Analog Nucleotides**
GÜL O. T., Pugliese K. M., Choi Y., Weiss G. A., Collins P. G.
American Physical Society (APS), Denver, United States Of America, 3 - 07 March 2014
- XII. **Single molecule enzymology using carbon nanotube circuits**
Choi Y., Sims P. C., Olsen T. J., GÜL O. T., Corso B. L., İftikhar M., Weiss G. A., Collins P. G.
2013 Transducers & Eurosensors XXVII: The 17th International Conference on Solid-State Sensors, Actuators and Microsystems (TRANSDUCERS & EUROSENSORS XXVII), Barcelona, Spain, 16 June 2013
- XIII. **Single molecule sensing with carbon nanotube devices**
Choi Y., Sims P. C., Olsen T. J., İftikhar M., Corso B. L., GÜL O. T., Weiss G. A., Collins P. G., TAŞKIRAN ÇÖMEZ A.

SPIE 2013, San Diego, California, United States, United States Of America, 25 - 29 August 2013

XIV. Electronic effects of defects in one dimensional channels

Elliot J F., Pan D., GÜL O. T., Collins P. G.

SPIE 2013, San Diego, California, United States, United States Of America, 25 - 29 August 2013

XV. Growth of Single Walled Carbon Nanotubes Using Added Oxygen

GÜL O. T., Rajapakse A., Collins P. G.

Materials Research Society (MRS), San-Francisco, Costa Rica, 1 - 05 April 2013

XVI. Oxygen Assisted SWNT Synthesis

GÜL O. T., Rajapakse A., Collins P. G.

American Physical Society (APS), Baltimore, United States Of America, 18 - 22 March 2013

Supported Projects

Gül O. T., TUBITAK Project, Üç Boyutlu Eğri Yüzeylere Sahip Karbon Nanotüp Mikro-Yapıların Fabrikasyonu Ve Elde Edilen Yapılar Ile Su Akışını Yönlendirebilen Akıllı Yüzeylerin Tasarlanması, 2023 - 2025

Gül O. T., Demirel G., TUBITAK Project, Polymer Reinforced Carbon Nanotube Micro Needles Fabrication for Transdermal Drug Delivery, 2018 - 2021

Gül O. T., Öçsoy I., TUBITAK Project, Synthesis and Use of Magnetic Featured Carbon Nanotubes - Flower like Double Enzyme Inorganic Hybrid Structures for Dye Degradation, 2018 - 2020

Metrics

Publication: 35

Citation (WoS): 289

Citation (Scopus): 284

H-Index (WoS): 10

H-Index (Scopus): 10