

Assoc. Prof. Ayşe Özge Kürkçüoğlu Levitas

Personal Information

Web: <https://avesis.itu.edu.tr/olevitas>

International Researcher IDs

ScholarID: OzgeKurkcuoglu

ORCID: 0000-0003-0228-3211

ScopusID: 6504233664

Yoksis Researcher ID: 111236

Education Information

Doctorate, Bogazici University, Faculty Of Engineering, Department Of Chemistry Engineering, Turkey 2003 - 2008

Postgraduate, Bogazici University, Faculty Of Engineering, Department Of Chemistry Engineering, Turkey 2001 - 2003

Undergraduate, Bogazici University, Faculty Of Engineering, Department Of Chemistry Engineering, Turkey 1996 - 2001

Foreign Languages

English

Dissertations

Doctorate, Mixed-resolution elastic network models for biological supramolecules, Boğaziçi Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2008

Postgraduate, Mixed Coarse-Graining of Large Proteins Using Elastic Network Model , Boğaziçi Üniversitesi, Mühendislik Fakültesi, Kimya Mühendisliği Bölümü, 2003

Research Areas

Simulation and Modelling, Chemical Engineering and Technology

Academic Titles / Tasks

Associate Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2021 - Continues

Assistant Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2018 - 2021

Assistant Professor, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2013 - 2018

Lecturer PhD, Istanbul Technical University, Kimya-Metalurji, Kimya Mühendisliği, 2010 - 2013

Research Assistant, Bogazici University, Faculty Of Engineering, Department Of Chemistry Engineering, 2001 - 2008

Courses

Mathematical Modeling in Chemical Engineering, Undergraduate, 2016 - 2017

Kimya Mühendisliği Tasarım I, Undergraduate, 2016 - 2017

INTRODUCTION TO SCIENTIFIC AND ENGINEERING COMPUTING, Undergraduate, 2015 - 2016

Jury Memberships

Doctorate, Tez Savunma Jürisi, Boğaziçi Üniversitesi, May, 2016

Post Graduate, Tez Savunma Jürisi, İstanbul Teknik Üniversitesi, May, 2016

Post Graduate, Tez Savunma Jürisi, Boğaziçi Üniversitesi, June, 2014

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Exploring species-specific inhibitors with multiple target sites on *S. aureus* pyruvate kinase using a computational workflow**
Yüce M., Sarica Z., Ates B., Kurkcuoglu O.
JOURNAL OF BIOMOLECULAR STRUCTURE & DYNAMICS, vol.41, no.8, pp.3496-3510, 2023 (SCI-Expanded)
- II. **Molecular dynamics simulations can predict the optimum drug loading amount in pectin hydrogels for controlled release**
Kocaaga B., Güner F. S., Kurkcuoglu O.
MATERIALS TODAY COMMUNICATIONS, vol.31, 2022 (SCI-Expanded)
- III. **Pectin-Zeolite-Based Wound Dressings with Controlled Albumin Release**
Kocaaga B., Kurkcuoglu O., Tatlier M., Dinler-Doganay G., BATIREL S., Guner F. S.
POLYMERS, vol.14, no.3, 2022 (SCI-Expanded)
- IV. **Potential allosteric sites captured in glycolytic enzymes via residue-based network models: Phosphofructokinase, glyceraldehyde-3-phosphate dehydrogenase and pyruvate kinase**
Celebi M., Inan T., Kurkcuoglu O., Akten E. D.
BIOPHYSICAL CHEMISTRY, vol.280, 2022 (SCI-Expanded)
- V. **Monte Carlo and Molecular Dynamics Simulations suggest controlled release of corticosteroids from mesoporous host MIL-101 (Cr)**
Koroglu M. A., Kurkcuoglu O., Sungur F. A.
MOLECULAR SIMULATION, vol.47, no.18, pp.1530-1539, 2021 (SCI-Expanded)
- VI. **Elucidating doxycycline loading and release performance of imprinted hydrogels with different cross-linker concentrations: a computational and experimental study**
Inan T., Dalgakıran D., Kurkcuoglu O., Güner F. S.
JOURNAL OF POLYMER RESEARCH, vol.28, no.11, 2021 (SCI-Expanded)
- VII. **Repurposing of FDA-approved drugs against active site and potential allosteric drug-binding sites of COVID-19 main protease**
Yüce M., Çiçek E., Inan T., Dag A. B., Kurkcuoglu O., Sungur F. A.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.89, no.11, pp.1425-1441, 2021 (SCI-Expanded)
- VIII. **2-Thiobarbituric acid addition improves structural integrity and controlled drug delivery of biocompatible pectin hydrogels**
Guner O. Z., Kocaaga B., Batirel S., Kurkcuoglu O., Guner F. S.
INTERNATIONAL JOURNAL OF POLYMERIC MATERIALS AND POLYMERIC BIOMATERIALS, vol.70, no.10, pp.703-711, 2021 (SCI-Expanded)
- IX. **Fmoc-PEG Coated Single-Wall Carbon Nanotube Carriers by Non-covalent Functionalization: An Experimental and Molecular Dynamics Study**
Yeniyurt Y., Kilic S., Guner-Yilmaz O. Z., Bozoglu S., Meran M., Baysak E., Kurkcuoglu O., Hızal G., Karatepe N., Batirel S., et al.
FRONTIERS IN BIOENGINEERING AND BIOTECHNOLOGY, vol.9, 2021 (SCI-Expanded)
- X. **Computational assessment of thermostability in miRNA:CNT system using molecular dynamics**

simulations

Güvensoy Morkoyun A., Kurkcuoglu O.

BIOCHIMICA ET BIOPHYSICA ACTA-GENERAL SUBJECTS, vol.1865, no.2, 2021 (SCI-Expanded)

- XI. **Local and Global Motions Underlying Antibiotic Binding in Bacterial Ribosome**
Kurkcuoglu O., Gunes M. U., Haliloğlu T.
JOURNAL OF CHEMICAL INFORMATION AND MODELING, vol.60, no.12, pp.6447-6461, 2020 (SCI-Expanded)
- XII. **Exploring Allosteric Signaling in the Exit Tunnel of the Bacterial Ribosome by Molecular Dynamics Simulations and Residue Network Model**
Güzel P., Yildirim H. Z., Yüce M., Kurkcuoglu O.
FRONTIERS IN MOLECULAR BIOSCIENCES, vol.7, 2020 (SCI-Expanded)
- XIII. **Low-methoxyl pectin-zeolite hydrogels controlling drug release promote in vitro wound healing**
Kocaaga B., Kurkcuoglu O., Tatlier M., BATIREL S., Güner F. S.
JOURNAL OF APPLIED POLYMER SCIENCE, vol.136, no.24, 2019 (SCI-Expanded)
- XIV. **Molecular dynamics simulations of adsorption of long pyrene-PEG chains on a thin carbon nanotube**
Akkus P. D., Kürkçüoğlu Levitas A. Ö.
TURKISH JOURNAL OF CHEMISTRY, vol.43, no.4, pp.1159-1169, 2019 (SCI-Expanded)
- XV. **A computational and experimental approach to develop minocycline-imprinted hydrogels and determination of their drug delivery performances**
Eroglu B., Dalgakıran D., Inan T., Kurkcuoglu O., Güner F. S.
JOURNAL OF POLYMER RESEARCH, vol.25, no.12, 2018 (SCI-Expanded)
- XVI. **Exploring allosteric communication in multiple states of the bacterial ribosome using residue network analysis**
Kurkcuoglu O.
TURKISH JOURNAL OF BIOLOGY, vol.42, no.5, pp.392-404, 2018 (SCI-Expanded)
- XVII. **Identification of potential allosteric communication pathways between functional sites of the bacterial ribosome by graph and elastic network models**
Guzel P., Kürkçüoğlu Levitas A. Ö.
Biochimica Et Biophysica Acta-General Subjects, vol.1861, pp.3131-3141, 2017 (SCI-Expanded)
- XVIII. **A multiscale investigation on controlling bovine serum albumin adsorption onto polyurethane films**
Kurkcuoglu S. S., Kürkçüoğlu Levitas A. Ö., Güner F. S.
JOURNAL OF APPLIED POLYMER SCIENCE, pp.1-14, 2017 (SCI-Expanded)
- XIX. **Conformational dynamics of bacterial trigger factor in apo and ribosome-bound states**
Can M. T., Kurkcuoglu Z., Ezeroglu G., Uyar A., Kurkcuoglu O., Doruker P.
PLOS ONE, vol.12, no.4, 2017 (SCI-Expanded)
- XX. **The elastic network model reveals a consistent picture on intrinsic functional dynamics of type II restriction endonucleases**
Uyar A. Ö., Kurkcuoglu O., Nilsson L., Doruker P.
PHYSICAL BIOLOGY, vol.8, no.5, 2011 (SCI-Expanded)
- XXI. **Mechanism of Cohesin Loading onto Chromosomes: A Conformational Dynamics Study**
Kurkcuoglu O., BATES P. A.
BIOPHYSICAL JOURNAL, vol.99, no.4, pp.1212-1220, 2010 (SCI-Expanded)
- XXII. **Focused Functional Dynamics of Supramolecules by Use of a Mixed-Resolution Elastic Network Model**
Kurkcuoglu O., Turgut O. T., Cansu S., Jernigan R. L., Doruker P.
BIOPHYSICAL JOURNAL, vol.97, no.4, pp.1178-1187, 2009 (SCI-Expanded)
- XXIII. **Collective dynamics of the ribosomal tunnel revealed by elastic network modeling**
Kurkcuoglu O., Kurkcuoglu Z., Doruker P., Jernigan R. L.
PROTEINS-STRUCTURE FUNCTION AND BIOINFORMATICS, vol.75, no.4, pp.837-845, 2009 (SCI-Expanded)
- XXIV. **The ribosome structure controls and directs mRNA entry, translocation and exit dynamics**
Kurkcuoglu O., Doruker P., SEN T. Z., Kloczkowski A., Jernigan R. L.
PHYSICAL BIOLOGY, vol.5, no.4, 2008 (SCI-Expanded)

- XXV. **Loop motions of triosephosphate isomerase observed with elastic networks**
Kurkcuoglu O., JERNIGAN R., DORUKER P.
BIOCHEMISTRY, vol.45, no.4, pp.1173-1182, 2006 (SCI-Expanded)
- XXVI. **Collective dynamics of large proteins from mixed coarse-grained elastic network model**
Kurkcuoglu O., JERNIGAN R., DORUKER P.
QSAR & COMBINATORIAL SCIENCE, vol.24, no.4, pp.443-448, 2005 (SCI-Expanded)
- XXVII. **Mixed levels of coarse-graining of large proteins using elastic network model succeeds in extracting the slowest motions**
Kurkcuoglu O., JERNIGAN R., DORUKER P.
POLYMER, vol.45, no.2, pp.649-657, 2004 (SCI-Expanded)

Articles Published in Other Journals

- I. **Preparation and Determination of In Vivo and In Vitro Performance of Doxycycline Imprinted Contact Lenses for Corneal Neovascularization Treatment.**
ERKAL İLHAN S., KÜRKÇÜOĞLU LEVİTAS A. Ö., İNAN T., güner ö. z., DALGAKIRAN D., okutan b., torun köse g., okçu heper a., gürses ö., GÜNER F. S.
Journal of the Turkish Chemical Society, Section A: Chemistry, vol.5, no.3, pp.1185-1192, 2018 (Scopus)

Books & Book Chapters

- I. **Kaba Ölçekli Elastik Ağyapı Modelleri ve Bakteriyel Ribozomun Yapı-İşlev İlişkisi**
Güzel P., Kürkçüoğlu Levitas A. Ö.
in: Protein: Yapısı, Mühendisliği, Etkileşimleri, Dinamiği ve İlaç Tasarımındaki Yeri, Saliha Ece Acuner, Editor, Ankara Nobel Tıp Yayınevi, Ankara, pp.259-271, 2021
- II. **Polyurethanes: Surface Protein Adsorption**
Kürkçüoğlu Levitas A. Ö., Güner F. S.
in: Encyclopedia of Biomedical Polymers and Polymeric Biomaterials, Munmaya Mishra, Editor, Taylor And Francis Group Publishing, Park Drive, pp.6724-6742, 2015
- III. **Coarse-graining the nano-machine ribosome to elucidate its functional dynamics**
Kürkçüoğlu Levitas A. Ö., DORUKER P.
in: Ribosomes: Molecular Structure, Role in Biological Functions and Implications for Genetic Diseases, Zhou Lin, Wang Liu, Editor, Nova Science Specialty Technical Publishers, Inc. (Stp), Hauppauge, pp.119-132, 2013
- IV. **Elastic network models of coarse-grained proteins are effective for studying the structural control exerted over their dynamics**
Song G., DORUKER P., JERNIGAN R. L., Kürkçüoğlu Levitas A. Ö., Yang L.
in: Coarse-Graining of Condensed Phase and Biomolecular Systems, Voth G., Editor, Taylor & Francis Group, Llc, Boca Raton, pp.237-254, 2008

Supported Projects

- Kürkçüoğlu Levitas A. Ö., Güner F. S., Kocaağa A. B., Project Supported by Higher Education Institutions, Kontrollü İlaç Salımı için Zeolit-Pektin Kompozitlerin Hesaplamalı ve Deneysel Yöntemlerle Geliştirilmesi, 2018 - 2019
- Kürkçüoğlu Levitas A. Ö., Project Supported by Higher Education Institutions, Serum Proteinlerinde Dinamik, Esneklik ve Yüzey Özelliklerinin Protein Adsorpsiyonuna Etkilerinin Araştırılması, 2015 - 2018
- Kürkçüoğlu Levitas A. Ö., Project Supported by Higher Education Institutions, Bakteriyel Ribozomun İşlevsel Bölgeleri Arasındaki Alternatif Haberleşme Yaolları, 2013 - 2018
- Kürkçüoğlu Levitas A. Ö., Project Supported by Higher Education Institutions, Protein Yapılarında İşlevsel Bölgelerin

Metrics

Publication: 106

Citation (WoS): 280

Citation (Scopus): 359

H-Index (WoS): 8

H-Index (Scopus): 10

Congress and Symposium Activities

5th International BAU Drug Design Congress, Attendee, Turkey, 2017

International Symposium on Chemstiry ViA Computation, Attendee, İstanbul, Turkey, 2017

4th International BAU Drug Design Congress, Attendee, Turkey, 2016

Ulusal Kimya Mühendisliği Kongresi, Attendee, İzmir, Turkey, 2016

BAU 3rd Drug Design Congress, Attendee, Turkey, 2015

Molecular Chemistry, Attendee, Turkey, 2014

2nd International BAU Drug Design Congress, Attendee, Turkey, 2014

Biophysical Society Thematic Meeting, Attendee, Turkey, 2014

2nd International Congress of the Molecular Biology Association of Turkey, Attendee, Turkey, 2013

EMBO Conference on Allosteric Interactions in Cell Signalling and Regulation, Attendee, Paris, France, 2013

Non Academic Experience

Cancer Research UK, London Research Institute