

Assoc. Prof. Demet Aktaş

Personal Information

Email: demet@itu.edu.tr

Address: İTÜ Fen Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, Maslak İstanbul

International Researcher IDs

ORCID: 0000-0003-2352-9129

ScopusID: 56260235800

Yoksis Researcher ID: 117602

Education Information

Post Doctorate, Université de Montreal, Canada 2004 - 2005

Doctorate, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, Turkey 1998 - 2004

Postgraduate, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, Turkey 1995 - 1998

Undergraduate, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, Turkey 1990 - 1994

Foreign Languages

English

French, B1 Intermediate

Dissertations

Doctorate, Floresans teknik kullanarak farklı polimer sistemlerinde ağ yapı oluşum sürecinin incelenmesi, İstanbul Teknik Üniversitesi, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, 2004

Postgraduate, Floresans ve dilatometrik teknik kullanarak stiren ve divinilbenzenin serbest radikal zincir kopolimerizasyonu ile ağ yapı oluşumunun incelenmesi, İstanbul Teknik Üniversitesi, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, 1998

Research Areas

Basic Sciences, Physics, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Optical Properties, Spectroscopy of Matter

Academic Titles / Tasks

Associate Professor, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, 2011 - Continues

Assistant Professor, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, 2007 - 2011

Research Assistant, Istanbul Technical University, Fen-Edebiyat Fakültesi, Fizik Mühendisliği Bölümü, 1997 - 2007

Courses

101E, Undergraduate, 2016 - 2017

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Structural characterization, bandgap energy, and mechanic deformation studies of polyacrylamide (PAAm) nanocomposite hydrogels doped with homogeneously-distributed multiwalled carbon nanotubes (MWCNTs)**
Öztürk M. C., Aktaş D.
Journal of Polymer Research, vol.30, no.9, 2023 (SCI-Expanded)
- II. **pH-Sensitive poly (acrylic acid-co-acrylamide) anionic hydrogels for jejunum targeted drug delivery systems**
Aktas D., Oztekin F.
POLYMER BULLETIN, vol.80, no.3, pp.2801-2813, 2023 (SCI-Expanded)
- III. **The effect of crosslinker contents on the up-conversion luminescence properties of CdNb2O6: Er³⁺ powders embedded in the polyethylmethacrylate (PEMA) networks**
Buhari T., Aktaş D., Erdem M., Eryürek G.
JOURNAL OF LUMINESCENCE, vol.251, 2022 (SCI-Expanded)
- IV. **Effect of kappa-carrageenan on volume phase transition for polyacrylamide (PAAm) hydrogel using the fluorescence technique**
Aktas D.
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.114, no.3, pp.951-956, 2014 (SCI-Expanded)
- V. **A fluorescence study for the critical behavior of polymethylmethacrylate doped by multiwalled carbon nanotube (PMMA-MWNT) composite bulk gel systems**
Aktas D., UZUN H.
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.111, no.3, pp.959-964, 2013 (SCI-Expanded)
- VI. **Critical Exponents of Gelation and Conductivity in Polyacrylamide Gels Doped by Multiwalled Carbon Nanotubes**
Aktas D., EVINGUR G. A., Pekcan O.
COMPOSITE INTERFACES, vol.17, no.4, pp.301-318, 2010 (SCI-Expanded)
- VII. **A Fluorescence Study on Swelling of Hydrogels (PAAm) at Various Cross-Linker Contents**
Aktaş D., Evingur G. A., Pekcan O.
ADVANCES IN POLYMER TECHNOLOGY, vol.28, no.4, pp.215-223, 2009 (SCI-Expanded)
- VIII. **Elucidation of multiple-point interactions of pyranine fluoroprobe during the gelation**
Yilmaz Y., UYSAL N., GELIR A., Güney O., Aktaş D., GOGEBAKAN S., ONER A.
SPECTROCHIMICA ACTA PART A-MOLECULAR AND BIOMOLECULAR SPECTROSCOPY, vol.72, no.2, pp.332-338, 2009 (SCI-Expanded)
- IX. **In situ steady state fluorescence (SSF) technique to study drying of PAAm hydrogels made of various cross-linker contents**
Evinguer G. A., Aktas D., Pekcan O.
CHEMICAL ENGINEERING AND PROCESSING-PROCESS INTENSIFICATION, vol.48, no.2, pp.600-605, 2009 (SCI-Expanded)
- X. **Steady state fluorescence technique for studying phase transitions in PAAm-PNIPA mixture**
Evinguer G. A., Aktaş D., Pekcan O.
PHASE TRANSITIONS, vol.82, no.1, pp.53-65, 2009 (SCI-Expanded)
- XI. **Study on swelling of hydrogels (PAAm) at various temperatures by using fluorescence technique**
Aktas D., EVINGUER G. A., PEKCAN O.
JOURNAL OF MATERIALS SCIENCE, vol.42, no.20, pp.8481-8488, 2007 (SCI-Expanded)
- XII. **Drying of PAAm hydrogels at various temperatures: A fluorescence study**
Aktas D., EVINGUR G. A., PEKCAN O.
JOURNAL OF MACROMOLECULAR SCIENCE PART B-PHYSICS, vol.46, no.3, pp.581-590, 2007 (SCI-Expanded)

- XIII. **Study on critical behaviour in N-isopropyl acrylamide gels by using fluorescence technique**
Aktas D., PEKCAN O.
PHASE TRANSITIONS, vol.79, no.11, pp.921-933, 2006 (SCI-Expanded)
- XIV. **A fluorescence study on the critical exponents for the linear polymerization of butyl-methacrylate**
Aktas D.
PHASE TRANSITIONS, vol.79, no.11, pp.863-873, 2006 (SCI-Expanded)
- XV. **Molecular alignment during gel formation from methyl methacrylate: An excimer fluorescence study**
Kaya D., ERDOGAN M., PEKCAN O.
PHASE TRANSITIONS, vol.78, no.5, pp.387-400, 2005 (SCI-Expanded)
- XVI. **Determination of pre gelation and post gelation activationenergies during free radical crosslinking copolymerization**
Aktaş D., PEKCAN M. Ö.
COMPOSITE INTERFACES, vol.12, no.5, pp.395-410, 2005 (SCI-Expanded)
- XVII. **Universal behaviour of glass transition exponentsin various polymeric systems**
PEKCAN M. Ö., Aktaş D.
COMPOSITE INTERFACES, vol.12, no.6, pp.501-521, 2005 (SCI-Expanded)
- XVIII. **COMPARISION OF CRITICAL PARAMETERS OF POLYMERIZATION AND GELATION PROCESSES A FAST TRANSIENT FLUORESCENCE STUDY**
Aktaş D., PEKCAN M. Ö.
INTERNATIONAL JOURNAL OF MODERN PHYSICS B, vol.19, pp.971-987, 2005 (SCI-Expanded)
- XIX. **Studying of the critical exponents around the glass transition in bulk polymerization of ethyl methacrylate by using fluorescence techniques**
Kaya D., PEKCAN O.
PHASE TRANSITIONS, vol.77, no.4, pp.359-373, 2004 (SCI-Expanded)
- XX. **Sol gel transition in polyacrylamide gels by using a fluorescence technique**
Yilmaz Y., PEKCAN M. Ö., AKTAŞ D.
Progress in Colloid and Polymer Science, vol.128, pp.255-263, 2004 (SCI-Expanded)
- XXI. **Can the glass transition in bulk polymers be modeled by percolation picture**
Yilmaz Y., AKTAŞ D., PEKCAN M. Ö.
EUROPEAN PHYSICAL JOURNAL A, vol.15, no.1, pp.19-25, 2004 (SCI-Expanded)
- XXII. **Fast transient fluorescence technique for studying sol gel phasetransition in polymeric mixtures**
PEKCAN M. Ö., Aktaş D.
MATERIALS CHEMISTRY AND PHYSICS, vol.85, pp.137-144, 2004 (SCI-Expanded)
- XXIII. **Direct test of the critical exponents at the sol gel transition**
AKTAŞ D., PEKCAN M. Ö., Yilmaz Y.
PHYSICAL REVIEW B, vol.69, no.1, pp.161171-1611710, 2004 (SCI-Expanded)
- XXIV. **Fast transient fluorescence technique to study critical exponents at the glass transition**
Kaya D., PEKCAN O., YILMAZ Y.
PHASE TRANSITIONS, vol.76, no.6, pp.543-556, 2003 (SCI-Expanded)
- XXV. **Experimental Determination of Gelation and Swelling Parameters Using Time Resolved Fluorescence Technique**
PEKCAN M. Ö., Aktaş D., ERDOĞAN M.
ADVANCES IN POLYMER TECHNOLOGY, vol.22, no.3, pp.238-245, 2003 (SCI-Expanded)
- XXVI. **Fast transient fluorescence technique for determination of gelation activation energies in free-radical cross-linking copolymerization**
Kaya D., Pekcan O.
JOURNAL OF PHYSICAL CHEMISTRY B, vol.106, no.27, pp.6961-6965, 2002 (SCI-Expanded)
- XXVII. **Gelation in free radical crosslinking copolymerization fast transient fluorescence study**
PEKCAN M. Ö., Aktaş D.
INTERNATIONAL JOURNAL OF PHOTONENERGY, vol.4, pp.153-160, 2002 (SSCI)
- XXVIII. **Monomer consumption rates during celation at various temperatures: A fast transient fluorescence**

study

Pekcan O., Kaya D.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.81, no.13, pp.3161-3168, 2001 (SCI-Expanded)

- XXIX. **Fast transient fluorescence (FTRF) technique for monitoring free-radical crosslinking copolymerization (FCC) of styrene (S) with various divinylbenzene (DVB) contents**
Pekcan O., Kaya D.

POLYMER, vol.42, no.18, pp.7865-7871, 2001 (SCI-Expanded)

- XXX. **Fluorescence quenching method for measuring monomer consumption rates during free-radical crosslinking copolymerization**
Pekcan O., Kaya D., Erdogan M.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.80, no.11, pp.1907-1913, 2001 (SCI-Expanded)

- XXXI. **Fast transient fluorescence technique for monitoring gelation in free-radical crosslinking copolymerization**
Pekcan O., Kaya D., Erdogan M.

POLYMER, vol.42, no.2, pp.645-650, 2001 (SCI-Expanded)

- XXXII. **Monomer Consumption Rates During Gelation at Various Temperatures A Fast Transient Fluorescence Study**
PEKCAN M. Ö., Aktaş D.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.81, pp.3161-3168, 2001 (SCI-Expanded)

- XXXIII. **Fast transient fluorescence technique FTRF for monitoring free radical crosslinking copolymerization FCC of styrene S with various divinylbenzene DVB contents**
PEKCAN M. Ö., Aktaş D.

POLYMER, vol.42, pp.7865-7871, 2001 (SCI-Expanded)

- XXXIV. **Fast transient fluorescence technique for monitoring swelling of poly(methyl methacrylate) gels**
Pekcan O., Kaya D., Erdogan M.

POLYMER, vol.41, no.13, pp.4915-4921, 2000 (SCI-Expanded)

- XXXV. **Fast transient fluorescence (FTRF) technique to study swelling of densely and loosely formed gels**
Pekcan O., Kaya D., Erdogan M.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.76, no.10, pp.1494-1502, 2000 (SCI-Expanded)

- XXXVI. **Observation of critical opalescence in free radical crosslinking copolymerization of styrene and divinylbenzene by fluorescence method**
PEKCAN O., Kaya D., Okay O.

EUROPEAN POLYMER JOURNAL, vol.35, no.11, pp.2025-2029, 1999 (SCI-Expanded)

- XXXVII. **Heterogeneities during the formation of poly(sodium acrylate) hydrogels**
Okay O., Yilmaz Y., Kaya D., KESKINEL M., PEKCAN O.

POLYMER BULLETIN, vol.43, no.4-5, pp.425-431, 1999 (SCI-Expanded)

- XXXVIII. **Free-radical crosslinking copolymerization of styrene and divinylbenzene: real time monitoring of the gel effect using fluorescence probe**
Okay O., Kaya D., PEKCAN P.

POLYMER, vol.40, no.22, pp.6179-6187, 1999 (SCI-Expanded)

- XXXIX. **In situ fluorescence experiments for real-time monitoring of annealed high-T latex film dissolution**
Pekcan O., CANPOLAT M., Kaya D.

JOURNAL OF APPLIED POLYMER SCIENCE, vol.60, no.12, pp.2105-2112, 1996 (SCI-Expanded)

Articles Published in Other Journals

- I. **volume phase transition for composite hydrogels by fluorescence technique**
AKTAŞ D.

Congress on Mechanical, Chemical, and Material Engineering (MCM 2015), no.265, 2015 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **Structural, optical and mechanical properties of polyacrylamide hydrogels doped with multiwalled carbon nanotubes**
Aktaş D., Öztürk M. C.
3rd International Eurasian Conference on Science, Engineering and Technology (EurasianSciEnTech 2021), Ankara, Turkey, 15 - 17 December 2021
- II. **Volume phase transitions in anionic hydrogels by fast transient fluorescence technique**
AKTAŞ D., Öztek F.
ICCE-26, 15 - 21 July 2018
- III. **Study ing on universality principle for hydrogels using time resolved fluorescence technique**
AKTAŞ D., Öztek F.
7th international conference on advanced technologies, 28 April - 01 May 2018
- IV. **Time resolved fluorescence technique for studying pH responce on intelligent p(AAm-co-AAc) hydrogels**
AKTAŞ D., Öztek F.
7th international conference on advanced technologies, 28 April - 01 May 2018
- V. **Time resolved fluorescence technique for studying swelling process in hydrogels**
AKTAŞ D., Öztek F.
ICAT 2017, 9 - 12 May 2017
- VI. **Computer programme for studying on hydrogel swelling process using fast transient fluorescence technique**
Öztek F., AKTAŞ D.
ECS 2017, 19 - 22 June 2017
- VII. **Drying of ionic hydrogels using fluorescence technique**
AKTAŞ D.
international conference on advanced technology and science ICAT 2016, Konya, Turkey, 1 - 03 September 2016
- VIII. **volume phase transition in ionic hydrogels**
AKTAŞ D., ucar g., Turan B.
macro 2016, 17 - 21 July 2016
- IX. **Swelling and drying process in ionic hydrogels for low and high pH using fluorescence technique**
Aktaş D.
32nd International Conference of the Polymer-Processing-Society (PPS), Lyon, France, 25 - 29 July 2016, vol.1914
- X. **Studying on volume phase transition in composite hydrogels by fluorescence technique**
AKTAŞ D.
2015, Proceedings of the World Congress on Mechanical, Chemical, and Material Engineering (MCM 2015), Barcelona, Spain, 20 - 21 July 2015
- XI. **Women in Physics in Turkey**
Er Z., Uğur Ş., Aktaş D.
4th IUPAP International Conference on Women in Physics, Stellenbosch, South Africa, 5 - 08 April 2011, vol.1517, pp.158-159
- XII. **Fluorescence technique for monitoring swelling of PAAm-kappa-carrageenan gel composites**
Evingur G. A., Aktaş D., Pekcan O.
4th International Conference on Optical Measurement Techniques for Structures and Systems (OPTIMESS2009), Antwerp, Belgium, 25 - 26 May 2009, pp.151-152
- XIII. **Phase Transitions in Pure and Hybrid Hydrogels: A Fluorescence Study**
Aktaş D., Evingur G. A., Pekcan O.
48th Microsymposium on Polymer Colloids - From Design to Biomedical and Industrial Applications, Prague, Czech Republic, 20 - 24 July 2008, vol.281, pp.150-159
- XIV. **Computing the distance spectrum of space-time trellis codes**
Aktaş D., Fitz M.

Supported Projects

Aktaş D., Öztekin F., Project Supported by Higher Education Institutions, Anyonik hidrojellerde hacim faz geçişlerine pH etkisinin zaman ayırmalı floresans spektrometre ile incelenmesi, 2018 - 2019

Aktaş D., Project Supported by Higher Education Institutions, İyonik jellerde düşük ve yüksek pH değişimine bağlı olarak şişme ve kuruma faz geçişlerinin floresans teknik ile çalışılması., 2016 - 2018

Aktaş D., Project Supported by Higher Education Institutions, KOMPOZİT JELLERDE ŞİŞME DAVRANIŞINA PH ETKİSİNİN FLORESANS TEKNİK İLE ÇALIŞILMASI, 2015 - 2018

Aktaş D., Project Supported by Higher Education Institutions, Poli8Akrilamit-Akrilik Asit) Kompozit Hidrojellerde Hacim Faz Geçişlerine Ph Etkisinin Floresans Teknik İncelenmesi, 2014 - 2018

Aktaş D., Project Supported by Higher Education Institutions, Çift Duvarlı Karbon Nanotüp Katkılı Poliakrilamit Jellerde Jelleşme ve İletkenliğinin İncelenmesi, 2009 - 2018

Aktaş D., Project Supported by Higher Education Institutions, Zaman Ayırmalı Floresans Teknik kullanılarak hidrojellerde faz geçiş süreçlerinin çalışılması, 2016 - 2017

Aktaş D., Project Supported by Higher Education Institutions, Karışık Jellerde Faz Geçişleri, 2008 - 2013

Scientific Refereeing

polymer engineering science, SCI Journal, October 2016
journal of fluorescence, SCI Journal, July 2016
journal of fluorescence, SCI Journal, June 2016
journal of fluorescence, SCI Journal, May 2016
journal of fluorescence, SCI Journal, May 2015
journal of fluorescence, SCI Journal, May 2014
journal of fluorescence, SCI Journal, April 2013
journal of fluorescence, SCI Journal, April 2012
journal of fluorescence, SCI Journal, May 2011
journal of fluorescence, SCI Journal, July 2007
journal of fluorescence, SCI Journal, April 2007
journal of fluorescence, SCI Journal, June 2005

Metrics

Publication: 55
Citation (WoS): 362
Citation (Scopus): 366
H-Index (WoS): 12
H-Index (Scopus): 11

Congress and Symposium Activities

ICAT2016, Attendee, Konya, Turkey, 2016
PPS32, Attendee, Lyon, France, 2016
MCM2015, Attendee, Barcelona, Spain, 2015
MODEST 2014, Attendee, Povazhská Bystrica, Slovakia, 2014

POLYMERFEST, Attendee, Palermo, Italy, 2009
OPTIMESS2009, Attendee, Antwerpen, Belgium, 2009
DRESDEN POLYMER DISCUSSION, Attendee, Dresden, Germany, 2007
44th microsymposium polymer gels AND NETWORKS, Attendee, Praha, Czech Republic, 2005
MACRO2004, Attendee, Paris, France, 2004
11TH INTERNATIONAL CONFERENCE ON SURFACE AND COLLOID SCIENCE, Attendee, Ilhéus, Brazil, 2003
MODEST, Attendee, Budapest, Hungary, 2002
7th conference on methods and applications of fluorescence spectroscopy imaging and probes, Attendee, Amsterdam, Netherlands, 2001
MACRO2000, Attendee, Warszawa, Poland, 2000
Third conference on fluorescence microscopy and fluorescence probes, Attendee, Praha, Czech Republic, 1999

Non Academic Experience

Montreal Üniversitesi