

## Prof. MUSTAFA POLAT

### Personal Information

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### International Researcher IDs

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### Education Information

Doctorate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği, Turkey 1995 - 2000

Postgraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği, Turkey 1993 - 1995

Undergraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği, Turkey 1986 - 1991

### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, Işınlama ile bazı gıdalarda oluşan kökçelerin spektroskopik özelliklerinin incelenmesi ve bu gıdaların dozimetrik potansiyellerinin belirlenmesi, Hacettepe Üniversitesi, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2000  
Postgraduate, Işınlanmış tavuk etlerinde ESR yöntemi ile doz belirlenmesi, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Fizik Mühendisliği, 1995

### Research Areas

Physics, Atomic and Molecular Physics, Atomic and Molecular Interactions, Natural Sciences

### Academic Titles / Tasks

Professor, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2010 - Continues

Associate Professor, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2004 - 2010

Lecturer, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2003 - 2004

Research Assistant, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 1994 - 2003

### Courses

FİZİK II, Undergraduate, 2018 - 2019

Elektromanyetik Teori, Postgraduate, 2018 - 2019  
İstatistik Fizik Lab., Undergraduate, 2018 - 2019  
Mezuniyet Projesi, Undergraduate, 2016 - 2017  
Kuantum Laboratuvarı, Undergraduate, 2016 - 2017  
FİZİK I, Undergraduate, 2016 - 2017  
Titreşim ve Dalgalar, Undergraduate, 2016 - 2017

## Advising Theses

POLAT M., Glukoz, fraktoz ve galaktozun radyasyon doz ölçümünde kullanılabilirliklerinin elektron spin rezonans (ESR) ile incelenmesi, Postgraduate, F.ÖZSAYIN(Student), 2012  
POLAT M., Potasyum tartarat ve Potasyum sitrat örneklerinin elektron spin rezonans(ESR) tekniği kullanılarak dozimetrik özelliklerinin incelenmesi, Postgraduate, G.KORKMAZ(Student), 2010

## Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Ni-Pt nanoparticle decorated, C, N-doped titania microparticles with low band gap energy as an efficient catalyst for hydrogen generation from hydrous hydrazine**  
DEMİR M. C., HACİFENDİOĞLU D., POLAT M., Tuncel A.  
COLLOIDS AND SURFACES A-PHYSICOCHEMICAL AND ENGINEERING ASPECTS, 2024 (SCI-Expanded)
- II. **A new magnetic heterogeneous catalyst for fast degradation of rhodamine B by peroxymonosulfate oxidation: Monodisperse-porous and Fe<sub>3</sub>O<sub>4</sub> incorporated manganese oxide microspheres**  
Kip Ç., Çolak G., POLAT M., Tuncel A.  
Journal of Molecular Structure, vol.1301, 2024 (SCI-Expanded)
- III. **A new multimodal magnetic nanozyme and a reusable peroxymonosulfate oxidation catalyst: Manganese oxide coated-monodisperse-porous and magnetic core-shell microspheres**  
Özcan S., Süngü Akdoğan Ç. Z., POLAT M., Kip Ç., Tuncel A.  
Chemosphere, vol.341, 2023 (SCI-Expanded)
- IV. **Porous, Oxygen Vacancy Enhanced CeO<sub>2-x</sub> Microspheres with Efficient Enzyme-Mimetic and Photothermal Properties**  
Akdogan C. Z. S., GÖKÇAL B., POLAT M., HAMALOĞLU K. Ö., Kip C., Tuncel A.  
ACS SUSTAINABLE CHEMISTRY & ENGINEERING, vol.10, pp.9492-9505, 2022 (SCI-Expanded)
- V. **Monodisperse-porous Mn<sub>5</sub>O<sub>8</sub> microspheres as an efficient catalyst for fast degradation of organic pollutants via peroxymonosulfate activation**  
Ozcan S., YILDIRIM D., ÇILDIRIĞLU H. Ö., POLAT M., HAMALOĞLU K. Ö., Tosun R. B., KİP F. Ç., Tuncel A.  
NEW JOURNAL OF CHEMISTRY, vol.46, no.30, pp.14605-14615, 2022 (SCI-Expanded)
- VI. **ESR investigation on the potential use of potassium citrate as a dosimeter material**  
KORKMAZ G., DİLAVER M., POLAT M.  
APPLIED RADIATION AND ISOTOPES, vol.153, 2019 (SCI-Expanded)
- VII. **ESR detection of irradiated carob pods (Ceratoniasiliqua L) and its dosimetric feature**  
Tuner H., POLAT M.  
RADIATION PHYSICS AND CHEMISTRY, vol.141, pp.196-199, 2017 (SCI-Expanded)
- VIII. **The ESR dosimetric features of strontium sulfate and temperature effects on radiation-induced signals**  
ACAR A. O., POLAT M., AYDIN T., AYDAŞ C.  
RADIATION PHYSICS AND CHEMISTRY, vol.123, pp.31-36, 2016 (SCI-Expanded)
- IX. **Investigation of free radical formation in human lymphocyte, leukemia, breast fibroblast and breast adenocarcinoma cell cultures after radio frequency exposure using electron spin resonance**  
Cam S. T., EŞMEKAYA M. A., POLAT M., CANSEVEN KURŞUN A. G., Seyhan N.

INDIAN JOURNAL OF BIOCHEMISTRY & BIOPHYSICS, vol.53, pp.7-11, 2016 (SCI-Expanded)

- X. **Tea extracts protect normal lymphocytes but not leukemia cells from UV radiation-induced ROS production: An EPR spin trap study**  
Cam S. T., POLAT M., Esmekaya M. A., Canseven A. G., Seyhan N.  
INTERNATIONAL JOURNAL OF RADIATION BIOLOGY, vol.91, no.8, pp.673-680, 2015 (SCI-Expanded)
- XI. **Radiation sensitivity and EPR dosimetric potential of gallic acid and its esters**  
Tuner H., Bal M. O., POLAT M.  
RADIATION PHYSICS AND CHEMISTRY, vol.107, pp.115-120, 2015 (SCI-Expanded)
- XII. **The use of human hair as biodosimeter**  
Cam S. T., POLAT M., Seyhan N.  
APPLIED RADIATION AND ISOTOPES, vol.94, pp.272-281, 2014 (SCI-Expanded)
- XIII. **ESR and TL investigations on gamma irradiated linden (*Tilia vulgaris*)**  
Paksu U., Aydas C., Yuce U. R., Aydin T., POLAT M., ENGİN B.  
RADIATION AND ENVIRONMENTAL BIOPHYSICS, vol.52, no.2, pp.255-267, 2013 (SCI-Expanded)
- XIV. **The use of ESR spectroscopy for the identification and dose assessment of irradiated pink shrimp (*Parapenaeus longirostris*) from Turkey**  
Aydas C., Cam S. T., ENGİN B., AYDIN T., POLAT M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.168, no.3, pp.212-223, 2013 (SCI-Expanded)
- XV. **ESR and TL investigations on gamma irradiated Linden *Tilia vulgaris***  
PAKSU U., AYDAŞ C., RABİA YÜCE Ü., AYDIN T., POLAT M., ENGİN B.  
Radiation And Environmental Biophysics, vol.52, pp.255-257, 2013 (SCI-Expanded)
- XVI. **AN ELECTRON SPIN RESONANCE (ESR) INVESTIGATION OF THE DOSIMETRIC POTENTIAL OF POTASSIUM TARTRATE**  
Korkmaz G., ÖZSAYIN F., POLAT M.  
RADIATION PROTECTION DOSIMETRY, vol.148, no.3, pp.337-343, 2012 (SCI-Expanded)
- XVII. **ESR and TL studies of irradiated Anatolian laurel leaf (*Laurus nobilis* L.)**  
Cam S. T., Aydas C., Engin B., Yuce U. R., Aydin T., POLAT M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.167, no.6, pp.410-420, 2012 (SCI-Expanded)
- XVIII. **Detection of gamma irradiated fig seeds by analysing electron spin resonance**  
ENGİN B., AYDAŞ C., POLAT M.  
FOOD CHEMISTRY, vol.126, no.4, pp.1877-1882, 2011 (SCI-Expanded)
- XIX. **Irradiation detection of coffee mate by electron spin resonance (ESR)**  
ÖZSAYIN F., POLAT M.  
RADIATION PHYSICS AND CHEMISTRY, vol.80, no.6, pp.771-775, 2011 (SCI-Expanded)
- XX. **Usability of tartaric acid in dose measurements: an ESR study**  
Korkmaz G., POLAT M., Korkmaz M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.165, no.3, pp.252-259, 2010 (SCI-Expanded)
- XXI. **The effects of temperature on ESR spectrum of gamma-irradiated ammonium tartrate**  
POLAT M., Korkmaz M.  
RADIATION PHYSICS AND CHEMISTRY, vol.78, no.11, pp.966-970, 2009 (SCI-Expanded)
- XXII. **Radiation sensitivity and dosimetric features of sultamicillin tosylate: an electron spin resonance study**  
Cam S. T., POLAT M., Korkmaz M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.164, no.2, pp.90-100, 2009 (SCI-Expanded)
- XXIII. **Exacerbative role of vitamin A on radiation damage in vivo**  
Balabanli B., Turkozkan N., Akmansu M., POLAT M.  
MEDICINAL CHEMISTRY RESEARCH, vol.17, no.1, pp.12-18, 2008 (SCI-Expanded)
- XXIV. **Detection of irradiated black tea (*Camellia sinensis*) and rooibos tea (*Aspalathus linearis*) by ESR spectroscopy**  
POLAT M., Korkmaz M.  
FOOD CHEMISTRY, vol.107, no.2, pp.956-961, 2008 (SCI-Expanded)

- XXV. **Electron spin resonance study of gamma-irradiated Anatolian chickpea (*Cicer arietinum* L.)**  
Aydas C., Engin B., POLAT M., Aydin T.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.163, no.1, pp.7-17, 2008 (SCI-Expanded)
- XXVI. **Identification and dosimetric features of gamma-irradiated cefadroxil by electron spin resonance**  
AYDAŞ C., Polat M., Korkmaz M.  
RADIATION PHYSICS AND CHEMISTRY, vol.77, no.1, pp.79-86, 2008 (SCI-Expanded)
- XXVII. **Molecular damages produced by gamma radiation in solid piperacillin monohydrate: an ESR investigation**  
Tepe S., Polat M., Korkmaz M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.162, no.9, pp.659-668, 2007 (SCI-Expanded)
- XXVIII. **Role of free radicals on mechanism of radiation nephropathy**  
BALABANLI K. B., Turkozkan N., AKMANSU M., POLAT M.  
MOLECULAR AND CELLULAR BIOCHEMISTRY, vol.293, pp.183-186, 2006 (SCI-Expanded)
- XXIX. **Effects of radiation on carbapenems: ESR identification and dosimetric features of gamma irradiated solid meropenem trihydrate**  
Tepe S., Polat M., Korkmaz M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.161, no.11, pp.653-664, 2006 (SCI-Expanded)
- XXX. **Effect of gamma radiation on amlodis and its potential for radiosterilization**  
Polat M., Korkmaz M.  
JOURNAL OF PHARMACEUTICAL AND BIOMEDICAL ANALYSIS, vol.40, no.4, pp.882-888, 2006 (SCI-Expanded)
- XXXI. **Effect of radiation on solid paracetamol: ESR identification and dosimetric features of gamma-irradiated paracetamol**  
Polat M., Korkmaz M.  
RADIATION EFFECTS AND DEFECTS IN SOLIDS, vol.161, no.1, pp.51-62, 2006 (SCI-Expanded)
- XXXII. **ESR identification of gamma-irradiated redoxon and determination of ESR parameters of radicals produced in irradiated ascorbic acid**  
POLAT M., KORKMAZ M.  
ANALYTICA CHIMICA ACTA, vol.535, pp.331-337, 2005 (SCI-Expanded)
- XXXIII. **An electron spin resonance study of radicals induced by radiation in oat (*Avena sativa* L.)**  
KORKMAZ M., POLAT M.  
INTERNATIONAL JOURNAL OF FOOD SCIENCE AND TECHNOLOGY, vol.39, no.9, pp.975-983, 2004 (SCI-Expanded)
- XXXIV. **The ESR spectroscopic features and kinetics of the radiation-induced free radicals in maize (*Zea mays* L.)**  
POLAT M., KORKMAZ M.  
FOOD RESEARCH INTERNATIONAL, vol.37, no.4, pp.293-300, 2004 (SCI-Expanded)
- XXXV. **The effect of temperature and storage time on the resonance signals of irradiated pea *Pisum sativum* L and applicability of ESR technique to the detection of irradiated pea**  
POLAT M., KORKMAZ M.  
Food Research International, vol.36, pp.857-862, 2003 (SCI-Expanded)
- XXXVI. **ESR Detection of Irradiated Broad Bean *Vicia faba* L and Kinetics of the Induced Free Radical and Mn<sup>2+</sup> Signals**  
POLAT M., KORKMAZ M.  
International Journal Of Food Science And Technology, vol.38, pp.641-651, 2003 (SCI-Expanded)
- XXXVII. **ESR Detection and Dosimetric Properties of Irradiated Naproxen Sodium**  
POLAT M., KORKMAZ M.  
International Journal Of Pharmaceutics, vol.255, pp.209-215, 2003 (SCI-Expanded)
- XXXVIII. **Kinetics of the Mn<sup>2+</sup> ion and the free radical observed in gamma-irradiated soybean (*Glycine max* L.)**  
POLAT M., KORKMAZ M.  
FOOD RESEARCH INTERNATIONAL, vol.36, pp.1073-1080, 2003 (SCI-Expanded)
- XXXIX. **Use of electron spin resonance measurements on irradiated sperma lentil seeds to indicate**

### **accidental irradiation**

KORKMAZ M., POLAT M.

INTERNATIONAL JOURNAL OF FOOD SCIENCE AND TECHNOLOGY, vol.38, no.1, pp.1-9, 2003 (SCI-Expanded)

- XL. **Use of Electron Spin Resonance ESR Technique for the Detection of Irradiated Rice Seeds Oryza Sativa L**  
POLAT M., KORKMAZ M.  
International Journal Of Food Science And Technology, vol.38, pp.653-659, 2003 (SCI-Expanded)
- XLI. **Kinetics of the Radicals in Gamma irradiated Naproxen Sodium and Apranax Applicability of ESR Technique to Monitor Radiosterilization of Naproxen Sodium containing Drugs**  
POLAT M., KORKMAZ M.  
International Journal Of Pharmaceutics, vol.244, pp.169-179, 2002 (SCI-Expanded)
- XLII. **An EPR study into the effect of annealing on both the Mn<sup>2+</sup> and free radical signal in lentil**  
POLAT M., KORKMAZ M.  
INTERNATIONAL JOURNAL OF FOOD SCIENCE AND TECHNOLOGY, vol.36, no.3, pp.313-320, 2001 (SCI-Expanded)
- XLIII. **Radical Kinetics and Characterization of the Free Radicals in Gamma Irradiated Red Pepper**  
KORKMAZ M., POLAT M.  
Radiation Physics And Chemistry, vol.62, pp.411-421, 2001 (SCI-Expanded)
- XLIV. **Free Radical Kinetics of Irradiated Durum Wheat**  
KORKMAZ M., POLAT M.  
Radiation Physics And Chemistry, vol.58, pp.169-179, 2000 (SCI-Expanded)
- XLV. **ESR Spectroscopic Technique of Testing for Irradiation of Chicken**  
DULKAN B., TUTLUER H., AYHAN FİDANCI H., POLAT M.  
Radiation Physics And Chemistry, vol.51, pp.305-308, 1998 (SCI-Expanded)
- XLVI. **Detection of Irradiated Chicken and Dosimetric Properties of Drumstick Bones**  
POLAT M., KORKMAZ M.  
Radiation Physics And Chemistry, vol.49, pp.363-369, 1997 (SCI-Expanded)
- XLVII. **The Effect of Temperature on Radiation Induced Radicals in Irradiated Chicken Drumstick Bones**  
POLAT M., KORKMAZ M., KORKMAZ Ö.  
Radiation Physics And Chemistry, vol.49, pp.477-481, 1997 (SCI-Expanded)

### **Articles Published in Other Journals**

- I. **Radyasyonun Oluşturduğu Serbest Radikal Aracılıklı Karaciğer Harabiyetinin Nitrik Oksit Oluşumu Yoluyla İncelenmesi**  
BALABANLI K. B., TÜRKÖZKAN N., POLAT M., AKMANSU M.  
KLİNİK GELİŞİM, vol.11, pp.402-403, 1998 (Peer-Reviewed Journal)

### **Books & Book Chapters**

- I. **Çözümlü Elektrostatik Problemleri**  
KORKMAZ M., POLAT M.  
Hacettepe Üniversitesi, Ankara, 2014
- II. **Çözümlü Doğru Akım ve Elektromanyetizma Problemleri**  
POLAT M., KORKMAZ M.  
Hacettepe Üniversitesi Yayınları, Ankara, 2013
- III. **Irradiation of fresh fruit and vegetables**  
Korkmaz M., Polat M.  
in: Improving the safety of fresh fruit and vegetables, Wim Jongen, Editor, CRC, New York , Florida, pp.387-428, 2005

## Supported Projects

POLAT M., DİLAVER M., Project Supported by Higher Education Institutions, Işınlanmış Şeker ve Şeker İçeren Kuru Gıdaların Elektron Spin Rezonans ESR Tekniğı İle Teşhisi ve Bu Gıdalarda Işınlama İle Oluşan Radikalik Araürünlerin Karakterizasyonu, 2018 - 2019

ÇOLAK Ş., POLAT M., Project Supported by Higher Education Institutions, Araştırma Laboratuvarında Yenileme Çalışmaları, 2017 - 2018

POLAT M., Project Supported by Higher Education Institutions, Elektron Paramanyetik Rezonans Yöntemiyle Stronsiyum Sülfat SrSO<sub>4</sub> Örneğinin Dozimetrik Özelliklerinin İncelenmesi, 2015 - 2015

İDE S., SÜNETÇİOĞLU M. M., YILDIRIM L., ÖZBEY S., POLAT M., ÇOLAK Ş., Project Supported by Higher Education Institutions, FİZ301 FİZİK LAB. V. (Kuantum Fiziğı Laboratuvarı) dersi kapsamındaki bazı deney donanımlarının sarf malzeme eksikliklerinin giderilmesi, 2014 - 2015

## Metrics

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