

## Asst. Prof. ESRA UYAR

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: AAW-6828-2021

ScopusID: 57510373400

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### Education Information

Doctorate, Gazi University, Fen Bilimleri Enstitüsü, Fizik, Turkey 2018 - 2022

Postgraduate, Ankara University, Nükleer Bilimler Enstitüsü, Sağlık Fiziği (YI) (Tezli), Turkey 2007 - 2010

Undergraduate, Ankara University, Fen Fakültesi, Fizik Bölümü, Turkey 2003 - 2007

### Certificates, Courses and Trainings

Vocational Training, Deney ve Kalibrasyon Laboratuvarlarının Yeterliliği İçin Genel Şartlar ve Ölçüm Belirsizliği (TS EN ISO/IEC 17025), Fizik Mühendisleri Odası, 2022

Vocational Training, Particle and Heavy Ion Transport Code System (PHITS) Basic course, Japan Atomic Energy Agency Nuclear Science and Engineering Center, 2021

Vocational Training, Inter-Regional Training Course on Safeguards and Security Aspects of Nuclear Material Accounting and Control at Facilities, İstanbul, 2015

Vocational Training, Workshop on Nuclear Structure, Astrophysics and Reactions, Yıldız Teknik Üniversitesi, İstanbul, 2014

Vocational Training, Europe & Metrology in Turkey (EMIT) workshop S04-10 "Proficiency testing and statistical evaluation", TÜBİTAK BUTAL, Bursa, 2012

Vocational Training, Europe & Metrology in Turkey (EMIT) workshop S04-16 "Auditing of integrated management systems" and PAC06", Dokuz Eylül Üniversitesi, İzmir, 2012

Vocational Training, Europe & Metrology in Turkey (EMIT) workshop S03-03 "Advanced Gamma-ray Spectrometry", Türkiye Atom Enerjisi Kurumu Sarayköy Nükleer Araştırma ve Eğitim Merkezi, Ankara, 2012

Vocational Training, Europe & Metrology in Turkey (EMIT) workshop S01-01 "Use of Reference Materials and the estimation of measurement uncertainty", TUBİTAK UME, Gebze, 2010

Vocational Training, International Symposium on Current Topics in Diagnostic Medical Physics, American Association of Physicists in Medicine (AAPM)-International Scientific Exchange Programs (ISEP) & Ankara University Institute of Nuclear Sciences, Ankara Üniversitesi Nükleer Bilimler Enstitüsü, Ankara, 2009

Vocational Training, TAEK ile Üniversiteler arasında, "Çevresel Radyoaktivitenin Belirlenmesi ve İzlenmesine Yönelik İşbirliği Projesi 1. Çalıştay", Türkiye Atom Enerjisi Kurumu, Ankara, 2009

Vocational Training, 1st Advanced Training Course on Illicit Trafficking and Consequence Management with Nucleonica, Institute for Transuranium Elements, Karlsruhe, Almanya, 2009

Vocational Training, Radyoloji Uygulamalarında Fizikçinin Rolü ve Mamografide Kalite Kontrol, Pediatrik Uygulamalarda Dozimetri, Girişimsel Radyolojide Doz Uygulamaları, Ankara Üniversitesi Nükleer Bilimler Enstitüsü, Ankara, 2008

## Dissertations

Doctorate, Farklı Tip HPGe Dedektörlerin Deneysel ve Monte Carlo Yöntemleri ile Karakterizasyonu, Gazi University, Fen Bilimleri Enstitüsü, Fizik, 2022

Postgraduate, Gama spektrometrik yöntem ile toryumca zengin malzemelerdeki 226Ra ve 238U aktivite ölçümlerinde kullanılan analitik piklere spektral girişim yapan gama-ışınlarının incelenmesi, Ankara University, Nükleer Bilimler Enstitüsü, Medikal Fizik Bölümü, 2010

## Research Areas

Physics, Experimental Methods of Particle and Nuclear Physics

## Academic Titles / Tasks

Assistant Professor, Gazi University, Fen Fakültesi, Fizik, 2023 - Continues

Lecturer, Gazi University, Fen Fakültesi, Fizik, 2017 - 2023

Research Assistant, Ankara University, Nükleer Bilimler Enstitüsü, 2011 - 2016

## Courses

### Postgraduate

Nükleer Teknoloji ve Uygulamaları, Postgraduate, 2024 - 2025

Radon Ölçüm Teknikleri ve Çevresel Uygulamaları, Postgraduate, 2024 - 2025

### Undergraduate

Fizik, Undergraduate, 2024 - 2025

FİZİK LAB., Undergraduate, 2023 - 2024

Fizik II, Undergraduate, 2023 - 2024

Fizik I, Undergraduate, 2024 - 2025

Fizik, Undergraduate, 2022 - 2023

Nükleer Analiz Yöntemleri, Undergraduate, 2022 - 2023

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

- I. **Emerging of high entropy alloy reinforced composites radiation shielding materials: Configurational structure and radiation shielding properties**  
UYAR E., Pul M., AKAY D., Şimşek T.  
Journal of Alloys and Compounds, vol.1010, 2025 (SCI-Expanded)
- II. **Beta Irradiation Effects on Electrical Characteristics of Graphene-Doped PVA/n-type Si Nanostructures**  
Abay Ö., Ulusoy M., Uyar E., Gökmen U., Bilge Ocak S.  
ACS Omega, vol.9, no.22, pp.23193-23201, 2024 (SCI-Expanded)
- III. **True coincidence summing correction factor for point source geometry with PHITS**  
UYAR E.  
Nuclear Engineering and Technology, vol.55, no.12, pp.4472-4476, 2023 (SCI-Expanded)
- IV. **The effect of front edge on efficiency for point and volume source geometries in p-type HPGe detectors**  
Uyar E., Bölükdemir M. H.  
Nuclear Engineering and Technology, vol.54, no.11, pp.4220-4225, 2022 (SCI-Expanded)

- V. **Characterisation of two p-type HPGe detectors by measurements and Monte Carlo simulations**  
Uyar E., Bölükdemir M. H.  
Measurement, vol.204, pp.1-7, 2022 (SCI-Expanded)
- VI. **Investigation of shape effects and dead layer thicknesses of a coaxial HPGe crystal on detector efficiency by using PHITS Monte Carlo simulation**  
Bölükdemir M. H., Uyar E., Aksoy G., Ünlü H., Dikmen H., Özgür M.  
Radiation Physics and Chemistry, vol.189, 2021 (SCI-Expanded)
- VII. **Investigation of the effect of copper contact pin on efficiency in HPGe detectors using Monte Carlo method**  
Uyar E., Aksoy G., Ünlü H., Bölükdemir M. H.  
Journal of Instrumentation, vol.16, no.11, 2021 (SCI-Expanded)
- VIII. **A novel approach in voltage transient technique for the measurement of electron mobility and mobility-lifetime product in CdZnTe detectors**  
Yucel H., Birgul O., Uyar E., Cubukcu S.  
NUCLEAR ENGINEERING AND TECHNOLOGY, vol.51, no.3, pp.731-737, 2019 (SCI-Expanded)
- IX. **Methodology for determination of correction factors in direct gamma spectrometric measurement of radionuclides in sediments**  
Uyar E., Yuksel A. O., Guven R., Yucel H.  
INTERNATIONAL JOURNAL OF SEDIMENT RESEARCH, vol.32, no.3, pp.324-330, 2017 (SCI-Expanded)
- X. **Determination of the energy dependence of the BC-408 plastic scintillation detector in medium energy x-ray beams**  
Yucel H., Cubukcu S., Uyar E., Engin Y.  
PHYSICS IN MEDICINE AND BIOLOGY, vol.59, no.22, pp.6749-6758, 2014 (SCI-Expanded)
- XI. **Measurements on the spectroscopic performance of CdZnTe coplanar grid detectors**  
Yucel H., Uyar E., Esen A. N.  
APPLIED RADIATION AND ISOTOPES, vol.70, no.8, pp.1608-1615, 2012 (SCI-Expanded)
- XII. **Correction methodology for the spectral interfering gamma-rays overlapping to the analytical peaks used in the analysis of Th-232**  
Yucel H., Kose E., Esen A. N., Bor D.  
APPLIED RADIATION AND ISOTOPES, vol.69, no.6, pp.890-897, 2011 (SCI-Expanded)
- XIII. **True coincidence-summing corrections for the coincident gamma-rays measured with coplanar grid CdZnTe detectors**  
Yucel H., Solmaz A. N., Kose E., Bor D.  
APPLIED RADIATION AND ISOTOPES, vol.68, no.6, pp.1040-1048, 2010 (SCI-Expanded)
- XIV. **Methods for spectral interference corrections for direct measurements of U-234 and Th-230 in materials by gamma-ray spectrometry**  
Yucel H., Solmaz A. N., Kose E., Bor D.  
RADIATION PROTECTION DOSIMETRY, vol.138, no.3, pp.264-277, 2010 (SCI-Expanded)
- XV. **A semi-empirical method for calculation of true coincidence corrections for the case of a close-in detection in gamma-ray spectrometry**  
Yucel H., Solmaz A. N., Kose E., Bor D.  
JOURNAL OF RADIOANALYTICAL AND NUCLEAR CHEMISTRY, vol.283, no.2, pp.305-312, 2010 (SCI-Expanded)
- XVI. **Spectral interference corrections for the measurement of U-238 in materials rich in thorium by a high resolution gamma-ray spectrometry**  
Yucel H., Solmaz A. N., Kose E., Bor D.  
APPLIED RADIATION AND ISOTOPES, vol.67, no.11, pp.2049-2056, 2009 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Evaluation of the Central Copper Contact Pin Effect in High-Energy Region in Gamma-ray**

## **Spectrometry**

Uyar E.

CUMHURİYET SCIENCE JOURNAL, vol.45, no.1, pp.153-159, 2024 (Peer-Reviewed Journal)

### **II. Effect of sample position on efficiency in gamma-ray spectroscopy**

Uyar E., Özgür M., Dikmen H.

Turkish Journal of Nuclear Sciences, vol.36, no.2, pp.14-20, 2023 (Peer-Reviewed Journal)

### **III. Comparison of the Number of Particle History for Monte Carlo Codes in Gamma-Ray Spectroscopy**

Uyar E., Günekbay Z. A.

Gazi University Journal of Science Part A: Engineering and Innovation, vol.10, no.2, pp.176-183, 2023 (Peer-Reviewed Journal)

### **IV. Attenuation Effect of Sample Container in Radioactivity Measurement by Gamma-ray Spectroscopy**

Uyar E.

Gazi University Journal of Science Part A: Engineering and Innovation, vol.9, no.4, pp.482-489, 2022 (Peer-Reviewed Journal)

### **V. Nükleer Adli Bilim ve İnceleme Konuları**

Yücel H., Çakal G. Ö., Yüksel A. Ö., Kurt R., Uyar E., Hancı İ. H.

Adli Bilimler Dergisi, vol.12, no.1, pp.37-48, 2013 (Peer-Reviewed Journal)

## **Books**

### **I. Farklı Kimyasal Kompozisyondaki Numunelerin 210Pb Radyoaktivite Analizlerinde Öz-Soğurma Etkisinin İncelenmesi**

Uyar E., Yücel S. E.

in: Fen, Mühendislik ve Matematikte Güncel Yaklaşımlar, Yasemin Öztekin Çiftçi, İlknur Kars Durukan, Editor, Pegem A Yayıncılık, Ankara, pp.153-164, 2024

### **II. Determination of the Optimum Sample Geometry in Gamma-ray Spectrometry: Experimental and Monte Carlo Simulation Method**

Uyar E., Yücel S. E., Aslan Aydemir G.

in: Fizik, Dr. Öğr. Üyesi Esra Uyar, Editor, Yaz Yayınları, Afyonkarahisar, pp.131-148, 2024

## **Papers Published in Refereed Scientific Meetings**

### **I. Modeling of germanium crystal in determination of 40K efficiency by Monte Carlo method**

Uyar E.

Eleventh International Conference on Radiation, Natural Sciences, Medicine, Engineering, Technology and Ecology (RAD 2023), Herceg Novi, Montenegro, 19 - 23 June 2023, pp.210

### **II. ORGANİK ARAYÜZEY TABAKALI METAL-YARIİLETKEN YAPILARIN ELEKTRİKSEL ÖZELLİKLERİNİN BETA RADYASYONUNA BAĞLI İNCELENMESİ**

Abay Ö., Ulusoy M., Uyar E., Altındal Ş., Bilge Ocak S.

8. ULUSLARARASI MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ KONGRESİ, İstanbul, Turkey, 08 December 2022, pp.134-138

### **III. Benchmark of Monte Carlo simulation programs for HPGe detector response**

Uyar E.

2nd International Conference on Engineering and Applied Natural Sciences, Konya, Turkey, 15 - 18 October 2022, pp.219

### **IV. Comparison of the Monte Carlo simulations for modeling a well-type HPGe detector**

Bölükdemir M. H., Uyar E.

10th Jubilee International Conference on Radiation in Various Fields of Research (RAD 2022 Summer Edition Conference), Herceg Novi, Montenegro, 25 - 29 July 2022, pp.80

- V. **Study on the efficiency of p-type HPGe detector using PHITS MC for samples with volumetric geometry**  
Uyar E., Bölükdemir M. H.  
10th Jubilee International Conference on Radiation in Various Fields of Research (RAD 2022 Spring Edition Conference), Herceg Novi, Montenegro, 13 - 17 June 2022, pp.130
- VI. **Evaluating the Performance of n-type HPGe Detector Modeled as Sharp and Rounded Edge Using PHITS MC**  
UYAR E., BÖLÜKDEMİR M. H.  
TURKISH PHYSICAL SOCIETY 37TH INTERNATIONAL PHYSICS CONGRESS, Bodrum, Turkey, 01 September 2021
- VII. **INVESTIGATION OF THE EFFECT OF COPPER COOLING ROD ON DETECTOR EFFICIENCY WITH MONTE CARLO METHOD IN HPGe DETECTORS**  
UYAR E., BÖLÜKDEMİR M. H.  
XIV. International Conference on Nuclear Structure Properties, NSP2021, Konya, Turkey, 02 June 2021
- VIII. **MODELING OF A HPGe DETECTOR USING PHITS FOR THE CALCULATION OF FULL ENERGY PEAK EFFICIENCIES**  
UYAR E., BÖLÜKDEMİR M. H.  
5th International Conference on Theoretical and Experimental Studies in Nuclear Applications and Technology (TESNAT2019), Amasya, Turkey, 02 May 2019
- IX. **Determination of the full energy peak efficiency of HPGe detector using Monte Carlo simulation**  
UYAR E., BÖLÜKDEMİR M. H., ESER E.  
TESNAT-2018, 20 - 22 April 2018
- X. **Radyonüklit Analizi Yeterlik Deneyleri İçin Çeşitli Çevresel Örneklerde Uygulanan Gama Spektrometrik Yöntemler**  
Zümrüt S., Narttürk R. B., Gedik G., Uyar E., Yücel H.  
XI. Ulusal Nükleer Bilimler ve Teknolojileri Kongresi, Aydın, Turkey, 12 - 14 October 2016
- XI. **Gama Spektrometrik Yöntemle Uranyum ve Toryum Cevher Örneklerinin Karakterizasyonu**  
UYAR E., YÜCEL H.  
XI. Ulusal Nükleer Bilimler ve Teknolojileri Kongresi, Turkey, 12 October - 14 December 2016
- XII. **Determination Of Radioactivity Content In Ceramic Tile And Marble Samples Used For Covering Materials In Buildings Using Gamma Spectrometric Method For Radiation Dose Assessment**  
YÜCEL H., GÖKMEN H., UYAR E.  
3rd International Conference on Po and Radioactive Pb Isotopes (INCO-PoPb-2015), 12 - 14 October 2015
- XIII. **Correction Factors In Direct Gamma Spectrometric Measurement Of Some Radionuclides In Lake And Stream Sediment Samples**  
Yücel H., Yüksel A. Ö., Uyar E., Kurt R.  
19th International Conference on Radionuclide Metrology and its Applications, ICRM 2013, Antwerp, Belgium, 16 - 21 June 2013
- XIV. **Gama Spektrometrik Yöntem İle Kapadokya Bölgesinden Toplanan Toprak Örneklerinde <sup>238</sup>U, <sup>226</sup>Ra, <sup>210</sup>Pb, <sup>232</sup>Th ve <sup>40</sup>K Aktivite Ölçümü**  
Uyar E., Yücel H., Tarımcı Ç., Kadioğlu Y. K., Göksu H. Y.  
Lümidoz-4 Lüminesans Dozimetri Kongresi, Gaziantep, Turkey, 20 - 22 September 2010
- XV. **Türkiye Kaynaklı Doğal Kuvarsın Lüminesans Özellikleri ve Geriye Dönük Dozimetri Çalışmalarında Kullanımı**  
Kaya Keleş Ş., Uyar E., Göksu H. Y.  
Türk Fizik Derneği 27. Uluslararası Fizik Konferansı, İstanbul, Turkey, 14 - 17 September 2010, pp.3-4
- XVI. **Gama Spektrometrik Yöntem İle Aktivite Ölçümünde <sup>238</sup>U ve <sup>226</sup>Ra Analitik Piklerinde Spektral Girişim Düzeltmesi**  
Uyar E., Esen A. N., Yücel H., Bor D.  
Türk Fizik Derneği 27. Uluslararası Fizik Kongresi, İstanbul, Turkey, 14 - 17 September 2010
- XVII. **Ayrışmış Kayaçların Optik ve Termal Uyarımlı Lüminesans Özelliklerinin İncelenmesi**  
Kozanlılar B., Kaya Keleş Ş., Uyar E., Göksu H. Y.

Türk Fizik Derneği 27. Uluslararası Fizik Konferansı, İstanbul, Turkey, 14 - 17 September 2010, pp.1-2

XVIII. **Interference corrections for some spectral peaks used in gamma spectrometric analysis of <sup>238</sup>U and <sup>226</sup>Ra in presence of thorium in samples**

Yücel H., Uyar E., Esen A. N., Bor D.

V. Eurasian Conference on Nuclear Science and Its Applications, Ankara, Turkey, 14 - 17 October 2008, pp.79

XIX. **Comparison of the activity results measured in the well-type HPGe detector by using radionuclide specific and absolute efficiency calibrations**

Solmaz A. N., Yücel H., Uyar E., Bor D.

V. Eurasian Conference on Nuclear Science and Its Applications, Ankara, Turkey, 14 - 17 October 2008, pp.77-78

## Supported Projects

Uyar E., Yücel H., Project Supported by Higher Education Institutions, ANKARA ÜNİVERSİTESİ NÜKLEER BİLİMLER ENSTİTÜSÜ LABORATUVARLARININ ALTYAPISININ GELİŞTİRİLMESİ, 2012 - 2015

Uyar E., Yücel H., Bor M. D., Project Supported by Higher Education Institutions, Nükleer Bilimler Enstitüsü Laboratuvarlarında Sıvı Sintilasyon Ölçüm Sistemi İle Düşük Seviye Radyoaktivite Ölçüm Kapasitesinin Geliştirilmesi, 2012 - 2013

## Memberships / Tasks in Scientific Organizations

Women in Nuclear, Member, 2022 - Continues, Austria

## Peer Reviews in Scientific Publications

Defence Technology, SCI Journal, July 2024

RADIATION PHYSICS AND CHEMISTRY, SCI Journal, July 2024

Turkish Journal of Nuclear Sciences, National Scientific Refreed Journal, June 2024

FRONTIERS IN PHYSICS, Journal Indexed in SCI-E, January 2024

Turkish Journal of Nuclear Sciences, National Scientific Refreed Journal, June 2023

Gümüşhane Üniversitesi Fen Bilimleri Dergisi, National Scientific Refreed Journal, October 2022

APPLIED RADIATION AND ISOTOPES, SCI Journal, July 2022

## Metrics

Publication: 42

Citation (WoS): 95

Citation (Scopus): 123

H-Index (WoS): 6

H-Index (Scopus): 6

## Non Academic Experience

University, Gazi Üniversitesi, Temel ve Mühendislik Bilimleri Merkez Laboratuvarı Uygulama ve Araştırma Merkezi (GÜTMAM), Müdür Yardımcısı