

Prof. GÖKHAN KOÇAK

Personal Information

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International Researcher IDs

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Education Information

Doctorate, Erciyes University, Fen Bilimleri Enstitüsü, Fizik Bölümü, Turkey 2005 - 2009

Postgraduate, Erciyes University, Fen Bilimleri Enstitüsü, Fizik Bölümü, Turkey 2002 - 2005

Undergraduate, Ankara University, Fen Fakültesi, Fizik Bölümü, Turkey 1998 - 2002

Foreign Languages

English, B2 Upper Intermediate

Dissertations

Doctorate, NÜKLEER ASTROFİZİKTE DÜŞÜK ENERJİLİ ÇEKİRDEK SENTEZİ VE ENERJİ ÜRETİMİ REAKSİYONLARI, Erciyes Üniversitesi, Fen Bilimleri Enstitüsü, Fizik Bölümü, 2009

Postgraduate, NÜKLEER KÜMELENME: NÜKLEER REAKSİYON VE YAPI FORMALİZMİNE UYGULANMASI, Erciyes Üniversitesi, Fen Bilimleri Enstitüsü, Fizik Bölümü, 2005

Research Areas

Basic Sciences, Physics, Nuclear physics, General Nuclear Reactions, Properties of Nuclei, Nuclear Structure

Academic Titles / Tasks

Professor, Erciyes University, Fen Fakültesi, Fizik, 2024 - Continues

Associate Professor, Erciyes University, Fen Fakültesi, Fizik, 2013 - 2024

Assistant Professor, Erciyes University, Fen Fakültesi, Fizik, 2010 - 2013

Research Assistant, Erciyes University, Fen Fakültesi, Fizik, 2008 - 2010

Research Assistant, University of Wisconsin-Madison, Physics, Physics, 2007 - 2008

Research Assistant, Erciyes University, Fen Fakültesi, Fizik, 2004 - 2007

Academic and Administrative Experience

Erciyes Üniversitesi, Fen Fakültesi, Fizik, 2010 - Continues

Faculty Management Board Member, Erciyes University, Fen Fakültesi, Fizik, 2020 - 2024

Vice Dean, Erciyes University, Fen Fakültesi, 2017 - 2020

Erciyes Üniversitesi, Fen Fakültesi, Fizik, 2016 - 2017

Erciyes Üniversitesi, Fen Fakültesi, Fizik, 2013 - 2015

Courses

Nükleer Fizik, Undergraduate, 2010 - 2011

Advising Theses

Koçak G., DÜŞÜK ENERJİLİ NÜKLEER REAKSİYON GÖZLENEBİLİRLERİNİN İNCELENMESİNDE NÜKLEER FİZİK MODELLERİ İLE YAPAY SİNİR AĞLARI MODELİNİN KARŞILAŞTIRILMASI, Postgraduate, E.PAŞAYIĞIT(Student), 2023

KOÇAK G., Pozitron Emisyon Tomografisinde Kullanılan ^{68}Ga İle ^{18}F 'un Gama Işın Seviyelerinin Hesaplanması Ve Görüntülemeye Yeni Bir Yaklaşım, Postgraduate, L.YAVUZ(Student), 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Analysis of fusion cross-section and S-factor of $^{13}\text{C}+^{12,13}\text{C}$ reactions for different density distributions at astrophysical energies**
Aygun M., KOÇAK G.
PHYSICA SCRIPTA, vol.99, no.1, 2024 (SCI-Expanded)
- II. **Estimation of the $S_{34}(0)$ S-factor for $3\text{He}(\alpha, \gamma)^7\text{Be}$ reaction by using distorted wave born approximation and artificial neural network**
Koçak G., Pasayigit E., Akkoyun S.
PHYSICA SCRIPTA, vol.98, no.10, pp.1-8, 2023 (SCI-Expanded)
- III. **Alpha decay investigations of Bi isotopes**
Koyuncu F., Soylu A., Alavi S. A., Dehghani V., Kocak G.
INDIAN JOURNAL OF PHYSICS, vol.97, no.4, pp.1209-1216, 2023 (SCI-Expanded)
- IV. **Effect of Li-9 internal structure on Li-9+Zn-70 fusion reaction**
Kocak G., Aygun M.
NUCLEAR PHYSICS A, vol.1027, 2022 (SCI-Expanded)
- V. **Energy transitions and half-life determinations of Sc-47 isotopes from photonuclear reaction on Ti target**
Koçak G., Akkoyun S., Boztosun İ., Dapo H.
INTERNATIONAL JOURNAL OF MODERN PHYSICS E, vol.31, no.03, 2022 (SCI-Expanded)
- VI. **A theoretical analysis of the cross sections of $^{18}\text{O}, ^{19}\text{O}, ^{20}\text{O}+^{12}\text{C}$ fusion reactions by using different density distributions**
Koçak G., Aygun M.
NUCLEAR PHYSICS A, vol.1003, 2020 (SCI-Expanded)
- VII. **Analysis of the fusion cross sections for $^{16}\text{O}, ^{18}\text{O} + ^{12}\text{C}$ systems at low energies**
Koçak G.
CANADIAN JOURNAL OF PHYSICS, vol.97, pp.803-807, 2019 (SCI-Expanded)
- VIII. **Supersymmetric solution of Schrodinger equation by using the asymptotic iteration method**
Koçak G., Bayrak O., Boztosun İ.
ANNALEN DER PHYSIK, vol.524, no.6-7, pp.353-359, 2012 (SCI-Expanded)
- IX. **Influence of long-range effects on low-energy cross sections of He and HeX: The lithium problem**

- Dapo H., Boztosun İ., Koçak G., Balantekin A. B.
PHYSICAL REVIEW C, vol.85, no.4, 2012 (SCI-Expanded)
- X. **Spin symmetric solutions of Dirac equation with Poschl-Teller potential**
Taskin F., Koçak G.
CHINESE PHYSICS B, vol.20, no.7, 2011 (SCI-Expanded)
- XI. **Arbitrary l-state solutions of the Klein-Gordon equation with the Poschl-Teller potential**
Koçak G., Taskin F.
ANNALEN DER PHYSIK, vol.522, no.11, pp.802-806, 2010 (SCI-Expanded)
- XII. **Approximate solutions of Schrodinger equation for Eckart potential with centrifugal term**
Taskin F., Koçak G.
CHINESE PHYSICS B, vol.19, no.9, 2010 (SCI-Expanded)
- XIII. **Effects of alpha-cluster potentials for the O-16+O-16 fusion reaction and S factor**
Koçak G., Karakoç M., Boztosun İ., Balantekin A. B.
PHYSICAL REVIEW C, vol.81, no.2, 2010 (SCI-Expanded)
- XIV. **Arbitrary l-state solution of the Hellmann potential**
Koçak G., Bayrak O., Boztosun İ.
JOURNAL OF THEORETICAL & COMPUTATIONAL CHEMISTRY, vol.6, no.4, pp.893-903, 2007 (SCI-Expanded)
- XV. **Examination of the O-16+Si-28 system with microscopic and phenomenological potentials**
Kocak G., Karakoç M., Boztosun İ.
PHYSICS OF ATOMIC NUCLEI, vol.70, no.2, pp.290-299, 2007 (SCI-Expanded)
- XVI. **Any l-state solutions of the Hulthen potential by the asymptotic iteration method**
Bayrak O., Kocak G., Boztosun İ.
JOURNAL OF PHYSICS A-MATHEMATICAL AND GENERAL, vol.39, no.37, pp.11521-11529, 2006 (SCI-Expanded)

Books & Book Chapters

- I. **Zamana Bağımlı Reaktör Davranışları**
KOÇAK G.
in: Nükleer Enerji, Ahmet Hakan Yılmaz, Abdullah Aydın, Tuncay Bayram, Serkan Akkoyun, Ahmet Alper Billur,
Editor, Nobel Yayınevi, pp.331-350, 2015

Refereed Congress / Symposium Publications in Proceedings

- I. **The Effect of Different Density Distributions and One Dimensional Potential Barrier for Fusion Cross Section Calculations at Low Energies**
Başaran H., Koçak G.
TURKISH PHYSICAL SOCIETY 40th INTERNATIONAL PHYSICS CONGRESS, Muğla, Turkey, 2 - 06 September 2024,
pp.297
- II. **S-Factor Estimations at Low energies by Using Artificial Neural Network**
Paşayığıt E., Akkoyun S., Koçak G.
International Cumhuriyet Artificial Intelligence Applications Conference 2022, Sivas, Turkey, 8 - 09 December
2022, pp.18-20
- III. **Weak Imaginary potential Effect on the 18,19,200 + 12C Fusion Reactions at Low Energies**
Koçak G., Aygün M.
XII. INTERNATIONAL CONFERENCE ON NUCLEAR STRUCTURE PROPERTIES 11-13 September 2019, Bitlis, TURKEY,
Bitlis, Turkey, 11 - 13 September 2019, pp.39
- IV. **Some energy transitions in Ti and its yields after photonuclear reaction**
Akkoyun S., Koçak G.
TESNAT 2019, 5th International Conference on Theoretical and Experimental Studies in Nuclear Applications and

Technology, Amasya, Turkey, 2 - 04 May 2019, pp.13-15

- V. **Fourier Dönüşümlü Kızılötesi Spektroskopisi (FTIR) Yöntemi ile Uzak Mesafe Kimyasal Savaş Ajanı Tespit Sisteminin Dezavantajı: Basınç ve Sıcaklık Eksikliği**
KOÇAK G., Garip İ.
2. Uluslararası Savunma Sanayi Sempozyumu, Kırıkkale, Turkey, 6 - 08 April 2017, pp.55
- VI. **Uzak Mesafe Kimyasal Savaş Ajanı Tespit Sistemlerinin Hesaplama Eksiklikleri**
Garip İ., KOÇAK G.
2. Uluslararası Savunma Sanayi Sempozyumu, Kırıkkale, Turkey, 6 - 08 April 2017, pp.43
- VII. **Titanyum Hedef Üzerine Gerçekleştirilen Fotonükleer Reaksiyon ile Ürün Enerji ve Yarı Ömürlerinin Belirlenmesi**
KOÇAK G.
XI. Nükleer Bilimler Teknolojileri Kongresi, Aydın, Turkey, 12 - 14 October 2016, pp.20
- VIII. **The Effect of Exponential Type Eckart Potential for the Fusion Cross Section Calculations**
KOÇAK G.
IX. Workshop on Nuclear Structure Properties (NSP 2016), Sivas, Turkey, 1 - 03 September 2016, pp.53
- IX. **Half-Lives of Titanium Isotopes from Photonuclear Reactions**
KOÇAK G.
4th International Conference on Radiation and Application in Various Fields of Research, Niş, Serbia And Montenegro, 23 - 27 May 2016, pp.249
- X. **160+160 Sisteminde Alfa Kümelenme Yöntemi ile Füzyon ve S-Faktör Hesaplamaları**
KOÇAK G.
VII. Workshop on Nuclear Structure Properties, Sinop, Turkey, 27 - 29 October 2014, pp.1
- XI. **The Long Range Potential Effect on the O-20+C-12 System for Near and Sub-barrier Fusion Cross Section**
KOÇAK G., KABAK R.
1st NUBA International Conference on Nuclear Physics and Astrophysics, Antalya, Turkey, 14 - 21 September 2014, vol.590
- XII. **Fourier Dönüşümlü Kızılötesi Spektroskopisi (FTIR) ile Uzaktan Kimyasal Harp Ajanlarının Tespiti; Avantajları ve Dezavantajları**
Garip İ., KOÇAK G.
21. İstatistiksel Fizik Günleri, Kayseri, Turkey, 19 - 21 June 2014, pp.2
- XIII. **Approximate solutions of Schrodinger equation for Eckart potential with centrifugal term**
TAŞKIN F., KOÇAK G.
13th Regional Conference on Mathematical Physics, Turkey, 1 - 04 October 2010
- XIV. **A New Calculation for Primordial Li Reaction Rates**
KOÇAK G., Balantekin A. B.
European Nuclear Physics Conference, Germany, 1 - 04 March 2009
- XV. **Sub-Barrier Fusion Calculations for the $^9\text{Li}+^{70}\text{Zn}$ System**
Koçak G., Balantekin A. B.
AIP Conference Proceedings, Nevşehir, Turkey, 25 - 30 June 2008, vol.1072, pp.289-292
- XVI. **Asymptotic Iteration Method solution of the supersymmetric Schrödinger Equation**
KOÇAK G., BOZTOSUN İ.
Sixth International Conference of balkan Physical Union, Turkey, 22 - 26 August 2006, vol.899, pp.369-370
- XVII. **Asymptotic iteration method solution of the supersymmetric Schrodinger equation**
KOÇAK G., Bonosun I.
6th International Conference of the Balkan-Physical-Union, İstanbul, Turkey, 22 - 26 August 2006, vol.899, pp.369-370
- XVIII. **4n Tipindeki Çekirdeklerin Reaksiyon Gözlenebilirlerinin Açıklanmasında İlave Potansiyel Tekniği**
KOÇAK G., Boztosun İ.
II. Nükleer Yapı Özellikleri Çalıştayı, Eskişehir, Turkey, 1 - 04 November 2005
- XIX. **160+28Si Reaksiyonunun Optik Model Yardımıyla Analizi**

KOÇAK G., Boztosun İ.

Türk Fizik Derneği 23. Uluslararası Fizik Kongresi, Turkey, 1 - 04 July 2005

XX. Nükleer Kümelenme: Nükleer Reaksiyon ve Yapı Formalizmine Uygulanması

KOÇAK G., Boztosun İ.

Türk Fizik Derneği 22. Uluslararası Fizik Kongresi, Turkey, 1 - 04 March 2004

Supported Projects

Tıraş E., Dilsiz K., Kandemir M., Bat A., Bilki B., Koçak G., Öztürk S., TUBITAK Project, Development of Neutron Interaction Model with Gadolinium Doped Water Cherenkov Detector, 2022 - 2025

Tıraş E., Bat A., Şahin Tıraş K., Paran N., Koçak G., Yaşuk F., Project Supported by Higher Education Institutions, Research and Development (R&D) Studies for Radiation Resistant, Fast and High Resolution Particle Detectors, 2022 - 2024

Koçak G., Project Supported by Higher Education Institutions, A New Approach to Investigate Low Energy Nuclear Astrophysical Reaction Observables: Artificial Neural Network Model, 2022 - 2023

KOÇAK G., Project Supported by Higher Education Institutions, 46Ti ve 50Ti Çekirdeklerinin Fotonükleer Reaksiyonlar Yardımıyla Deneysel Olarak Enerji Seviyelerinin ve Yarı Ömürlerinin Ölçülmesi ve Analizi, 2014 - 2015

KOÇAK G., TUBITAK Project, Transfer reaksiyonları ve astrofiziksel uygulamaları, 2005 - 2009

KOÇAK G., TUBITAK Project, Nükleer Fizik ve Astrofizikteki Reaksiyon Gözlenebilirlerine Transfer ve Quasi-Elastik Reaksiyonların Etkisi, 2006 - 2008

KOÇAK G., TUBITAK Project, Nükleer Reaksiyon ve Yapı Gözlenebilirlerini Açıklama Yolunda Nükleer Potansiyel için Yeni bir Yaklaşım, 2004 - 2006

Activities in Scientific Journals

Cumhuriyet Science Journal, Advisory Committee Member, 2014 - Continues

Nevşehir Üniversitesi Fen Bilimleri Enstitüsü Dergisi, Advisory Committee Member, 2013 - Continues

Scientific Refereeing

JOURNAL OF PHYSICS G-NUCLEAR AND PARTICLE PHYSICS, SCI Journal, July 2019

Project Supported by Higher Education Institutions, March 2012

Bitlis Eren Üniversitesi Fen Bilimleri Dergisi, National Scientific Refreed Journal, November 2011

Erciyes Üniversitesi Fen Bilimleri Enstitüsü Dergisi, National Scientific Refreed Journal, June 2011

Metrics

Publication: 37

Citation (WoS): 292

Citation (Scopus): 309

H-Index (WoS): 7

H-Index (Scopus): 7

Congress and Symposium Activities

VII. Workshop on Nuclear Structure Properties, Attendee, Sinop, Turkey, 2014

NUBA Conference Series: Nuclear Physics and Astrophysics, Attendee, Antalya, Turkey, 2014

21. İstatistiksel Fizik Günleri, Attendee, Kayseri, Turkey, 2014

Nükleer Astrofizikte Düşük Enerjili Çekirdek Reaksiyonları ve X Parçacığı, Attendee, Sivas, Turkey, 2013
13th Regional Conference on Mathematical Physics, Attendee, Turkey, 2010
European Nuclear Physics Conference, Attendee, Germany, 2009
Nuclear Physics and Astrophysics: From Stable Beams to Exotic Nuclei, Attendee, Turkey, 2008
Sixth International Conference of balkan Physical Union, Attendee, İstanbul, Turkey, 2006
II. Nükleer Yapı Özellikleri Çalıştayı, Attendee, Eskişehir, Turkey, 2005
Türk Fizik Derneği 23. Uluslararası Fizik Kongresi, Attendee, Turkey, 2005
Türk Fizik Derneği 22. Uluslararası Fizik Kongresi, Attendee, Turkey, 2004