

# MESUT KARAKOÇ

## ASSOC. PROF.

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Address : Akdeniz Üniversitesi Fen Fakültesi Fizik Bölümü Konyaaltı / Antalya

### International Researcher IDs

ScholarID: dORZ704AAAAJ

ORCID: 0000-0002-8549-5633

Publons / Web Of Science ResearcherID: D-6478-2015

ScopusID: 8846166500

Yoksis Researcher ID: 145421

### Learning Knowledge

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Post Doctorate  
2011 - 2013

Texas A&M University, Science, Physics And Astronomy, United States Of America

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Doctorate  
2010 - 2010

Michigan State University, Nscl, Nükleer Fizik, United States Of America

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Doctorate  
2005 - 2010

Erciyes University, Fen Bilimleri Enstitüsü, Nükleer Fizik, Turkey

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Postgraduate  
2002 - 2005

Erciyes University, Fen Bilimleri Enstitüsü, Fizik, Turkey

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Undergraduate  
1997 - 2002

Karadeniz Technical University, Fen Edebiyata Fakültesi, Fizik, Turkey

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, 40Ar->40K ve 40Ti->40Sc Gamow-Teller Geçişlerinin Karşılaştırmalı Analizi, Erciyes Üniversitesi, (2010)., Erciyes University, Fen Bilimleri Enstitüsü, Nükleer Fizik, 2010

Postgraduate, Folding Potansiyelin Elde Edilmesi 12C+24Mg Reaksiyonuna Uygulanması, Erciyes Üniversitesi, (2005)., Erciyes University, Fen Bilimleri Enstitüsü, Nükleer Fizik, 2005

### Academic Titles / Tasks

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Associate Professor  
2018 - Continues

Akdeniz University, Faculty of Science, Department of Physics

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Assistant Professor  
2010 - 2018

Akdeniz University, Faculty of Science, Department of Physics

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Assistant Professor  
2011 - 2013

Texas A&M University, Science (Post Doc), Physics And Astronomy

## Supported Projects

1. Karakoç M., TÜBİTAK International Bilateral Joint Cooperation Program Project, rp-süreci çekirdeklerinin yarı-ömürlerinin eş zamanlı ölçüm tekniğiyle belirlenmesi ve pn-QRPA modeli ile teorik tahminlerinin gerçekleştirilmesi, 2017 - 2019
2. KARAKOÇ M., Project Supported by Higher Education Institutions, Fotoaktivasyon analizinin element derişimlerinin tespitinde kullanılabilirliğinin araştırılması, 2015 - 2016
3. KARAKOÇ M., Project Supported by Higher Education Institutions, GamowTeller Transitions In The A40 Isoquintet Of Relevance For Neutrino Captures In Ar40, 2014 - 2016
4. KARAKOÇ M., Other International Funding Programs, Breakup of loosely bound nuclei at intermediate energies for nuclear astrophysics and the development of a position sensitive microstrip detector system and its readout electronics using ASICs Tech., 2010 - 2013
5. TUBITAK Project, (3He,t) ve (p,n) Yük Alış-Verişli Çekirdek Tepkimelerinin Gamow-Teller Geçişlerinin Hesaplanmasında Kullanılması, 2009 - 2011
6. TUBITAK Project, Nükleer Fizik ve Astrofizikteki Reaksiyon Gözlenebilirlerine Transfer ve Quasi-Elastik Reaksiyonların Etkisi, 2006 - 2008
7. KÜÇÜK Y., KARAKOÇ M., TUBITAK Project, Nükleer Reaksiyon ve Yap Gözlenebilirlerini Açıklama Yolunda Nükleer Potansiyel için Yeni bir Yakla<sup>3</sup>m, 2003 - 2004

## Jury Memberships

Post Graduate, Yüksek Lisans , Akdeniz Ünversitesi, July, 2019

Post Graduate, Yüksek Lisans Tez Savunması, Süleyman Demirel Üniversitesi, January, 2013

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

1. **Interaction of an electron and a uniformly charged spherical donor impurity**  
Mandal S., Karakoç M., Bayrak O.  
PHYSICA SCRIPTA, vol.99, no.5, pp.1-12, 2024 (SCI-Expanded)
2. **Comparative study of alpha scattering from various nuclei at 130 MeV: Microscopic potentials and coupled channel calculations**  
Ibraheem A., Alasmay F., Alshahrani B., Karakoç M., Hamada S., El-Hammamy M. N.  
REVISTA MEXICANA DE FISICA, vol.70, no.3 May-Jun, pp.1-15, 2024 (SCI-Expanded)
3. **BiFold: A Python code for the calculation of double-folded (bifold) potentials with density-in/dependent nucleon-nucleon interactions**  
Karakoç M.

- COMPUTER PHYSICS COMMUNICATIONS, vol.284, pp.1-10, 2023 (SCI-Expanded)
4. **AIMpy: A Python code to solve Schrodinger-like equations with the asymptotic iteration method**  
KARAKOÇ M.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS C, vol.32, no.2, 2021 (SCI-Expanded)
  5. **The macroscopic analysis of alpha-alpha scattering for the population of the monopole "breathing" mode**  
KÜÇÜK Y., KARAKOÇ M., VITTURI A.  
EUROPEAN PHYSICAL JOURNAL A, vol.57, no.1, 2021 (SCI-Expanded)
  6. **New measurements and reanalysis of(14)N elastic scattering on(10)B target\***  
NASSURLLA M., BURTEBAYEV N., SADYKOV T. K., BOZTOSUN İ., AMANGELDI N., ALIMOV D., KERİMKULOV Z., BURTEBAYEVA J., NASSURLLA M., KURAKHMEDOV A., et al.  
CHINESE PHYSICS C, vol.44, no.10, 2020 (SCI-Expanded)
  7. **Physical, mechanical and neutron shielding properties of h-BN/Gd2O3/HDPE ternary nanocomposites**  
Irim S. G., Wis A. A., Keskin M. A., Baykara O., ÖZKOÇ G., Avci A., Dogru M., KARAKOÇ M.  
RADIATION PHYSICS AND CHEMISTRY, vol.144, pp.434-443, 2018 (SCI-Expanded)
  8. **SCATTERING OF 15N IONS BY 10,11B NUCLEI AT THE ENERGY OF 43 MeV**  
KARAKOÇ M., ALIMOV D., BOZTOSUN İ., BURTEBAYEV N.  
ACTA PHYSICA POLONICA B, vol.11, pp.99-107, 2017 (SCI-Expanded)
  9. **Measuring decay of praseodymium isotopes activated by a clinical LINAC**  
Boztosun I., dapo H., Karakoc M.  
MODERN PHYSICS LETTERS A, vol.31, no.36, 2016 (SCI-Expanded)
  10. **Photonuclear reactions with zinc: A case for clinical linacs**  
Boztosun I., Dapo H., Karakoç M., Özmen S. F., Cecen Y., Çoban A. Y., Caner T., Bayram E., Saito T. R., Akdogan T., et al.  
EUROPEAN PHYSICAL JOURNAL PLUS, vol.130, no.9, 2015 (SCI-Expanded)
  11. **Gamow-Teller transitions in the A=40 isoquintet of relevance for neutrino captures in Ar-40**  
KARAKOÇ M., Zegers R. G. T., Brown B. A., Fujita Y., Adachi T., BOZTOSUN İ., Fujita H., Csatlos M., Deaven J. M., Guess C. J., et al.  
PHYSICAL REVIEW C, vol.89, no.6, 2014 (SCI-Expanded)
  12. **STUDY OF THE O-15(2p,gamma)Ne-17 CROSS SECTION BY COULOMB DISSOCIATION OF Ne-17 FOR THE rp PROCESS OF NUCLEOSYNTHESIS**  
Marganec J., Wamers F., Aksouh F., Aksyutina Y., Pol H. A., Aumann T., Beceiro S., Bertulani C., Boretzky K., Borge M. J. G., et al.  
ACTA PHYSICA POLONICA B, vol.45, no.2, pp.229-234, 2014 (SCI-Expanded)
  13. **Coulomb distortion and medium corrections in nucleon-removal reactions**  
Karakoc M., Banu A., Bertulani C. A., Trache L.  
PHYSICAL REVIEW C, vol.87, no.2, 2013 (SCI-Expanded)
  14. **Effects of alpha-cluster potentials for the O-16+O-16 fusion reaction and S factor**  
KOÇAK G., Karakoc M., BOZTOSUN İ., Balantekin A. B.  
PHYSICAL REVIEW C, vol.81, no.2, 2010 (SCI-Expanded)
  15. **Analytical solution of the Schrodinger equation for Makarov potential with any l angular momentum**  
Bayrak O., Karakoc M., Boztosun I., Sever R.  
INTERNATIONAL JOURNAL OF THEORETICAL PHYSICS, vol.47, no.11, pp.3005-3014, 2008 (SCI-Expanded)
  16. **The relativistic Duffin-Kemmer-Petiau sextic oscillator**  
YAŞUK F., Karakoc M., Boztosun I.  
PHYSICA SCRIPTA, vol.78, no.4, 2008 (SCI-Expanded)
  17. **An improvement of the asymptotic iteration method for exactly solvable eigenvalue problems**  
Boztosun I., Karakoc M.  
CHINESE PHYSICS LETTERS, vol.24, no.11, pp.3028-3031, 2007 (SCI-Expanded)
  18. **Examination of the O-16+Si-28 system with microscopic and phenomenological potentials**  
Kocak G., Karakoc M., Boztosun I.

- PHYSICS OF ATOMIC NUCLEI, vol.70, no.2, pp.290-299, 2007 (SCI-Expanded)
19. **Accurate iterative and perturbative solutions of the Yukawa potential**  
Karakoc M., Boztosun I.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS E, vol.15, no.6, pp.1253-1262, 2006 (SCI-Expanded)
  20. **Microscopic potential description of the elastic scattering and fusion cross-section data of the C-12+Mg-24 system**  
Karakoc M., Boztosun I.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS E-NUCLEAR PHYSICS, vol.15, no.6, pp.1317-1332, 2006 (SCI-Expanded)
  21. **Asymptotic iteration method solutions to the relativistic Duffin-Kemmer-Petiau equation**  
Boztosun I., Karakoc M., Yasuk F., DURMUŞ A.  
JOURNAL OF MATHEMATICAL PHYSICS, vol.47, no.6, 2006 (SCI-Expanded)
  22. **alpha-alpha double folding cluster potential description of the C-12+Mg-24 system**  
Karakoc M., Boztosun I.  
PHYSICAL REVIEW C, vol.73, no.4, 2006 (SCI-Expanded)

### Articles Published in Other Journals

1. **BOZTOSUN İ., Dapo H., Özmen S.F., Çeçen Y., Karakoç M., Çoban A., Cesur A., Caner T., Bayram E., Keller G.B., Küçük B., Güvendi A., Derman M., Kaya D., 2014. "The results of the first photonuclear reaction performed in Turkey: The zinc example"**  
BOZTOSUN İ., KARAKOÇ M.  
Turkish Journal of Physics, vol.38, pp.1-9, 2014 (Scopus)

### Books & Book Chapters

1. **Parçacık Hızlandırıcıları**  
KARAKOÇ M.  
in: Nükleer Enerji (Nükleer Süreç Kavramlarına, Sistemlerine ve Uygulamalarına Giriş), Yılmaz A.H., Aydın A., Bayram T., Akkoyun S., Billur A.A., Editor, Elsevier Science, Oxford/Amsterdam , İstanbul, pp.123-137, 2014

### Refereed Congress / Symposium Publications in Proceedings

1. **Revisiting the 4He(4He,4He)4He\* inelastic scattering at the MAGNEX facility**  
Soukeras V., Cappuzzello F., Agodi C., Becker H., Brischetto G., Calabrese S., Carbone D., Cavallaro M., Chamon L., Ciampi C., et al.  
28th International Nuclear Physics Conference, INPC 2022, Cape-Town, South Africa, 11 - 16 September 2022, vol.2586
2. **ENERGY EIGENVALUES OF SPIKED HARMONIC OSCILLATOR POTENTIALS USING AIMpy CODE**  
KARAKOÇ M.  
TECHNO-SCIENCE 2020 DECEMBER 18-20, 2020, 18 - 20 December 2020
3. **Investigation of interaction processes of light nuclei with N-14**  
Alimov D., Burtebayev N., Bortosun I., Kerimkulov Z., Burtebayeva J., KARAKOÇ M., Mukhamejanov Y., Janseitov D., Bahtibayev A., Pattayev A., et al.  
7th Conference on Nuclear Physics in Astrophysics (NPA), York, Sierra Leone, 18 - 22 May 2015, vol.940
4. **SCATTERING OF N-15 IONS BY B-10,B-11 NUCLEI AT THE ENERGY OF 43 MeV**  
Burtebayev N., Amangeldi N., Alimov D., Kerimkulov Z., Mauvey B., Nassurlla M., Kok Y., Sakuta S. B., Artemov S. V., Karakhodjaev A. A., et al.

24th Nuclear Physics Workshop on Marie and Pierre Curie Spontaneous Symmetry Breaking in Nuclear Physics, Kazimierz Dolny, Poland, 20 - 24 September 2017, vol.11, pp.99-107

5. **Production of Boron Carbide Nanoparticles by Arc-Discharge in Deionized Water**  
KESKİN M. A., KAYBAL H. B., ULUS H., ŞERİFE G. İ., BAYKARA O., AVCI A., KARAKOÇ M.  
VII. International Conference Industrial Engineering and Environmental Protection 2017, 12 - 13 October 2017
6. **Determination of Energy Transitions and Half Life of  $^{57}\text{Ni}$**   
ERTUGAY C., Cesur A., ALBAYRAK İ., KARAKOÇ M., dapo H., BOZTOSUN İ.  
IX. INTERNATIONAL WORKSHOP ON NUCLEAR STRUCTURE PROPERTIES, 1 - 03 September 2016
7. **Experimental study of the  $^{20}\text{F}$  ( $2p, \gamma$ )  $^{18}\text{O}$  cross section by Coulomb Dissociation for the rp process**  
Marganec J., Wamers F., AKSOUH F. A., AKSYUTINA Y. A., Pol H. A., AUMANN T. A., BECEIRO S. B., BERTULANI C. B., BORETZKY K. B., Borge M. J., et al.  
6th Nuclear Physics in Astrophysics Conference (NPA), Lisbon, Portugal, 19 - 24 May 2013, vol.665
8. **Photonuclear reactions induced by a clinical linac**  
BOZTOSUN İ., DAPO H., KARAKOÇ M., ÖZMEN S. F., CECEN Y., ÇOBAN A. Y., CESUR A., CANER T., BAYRAM E., Saito T. R., et al.  
1st NUBA International Conference on Nuclear Physics and Astrophysics, Antalya, Turkey, 14 - 21 September 2014, vol.590
9. **Investigation of the Photo-activation Analysis on Concentrations of Various Materials**  
Cesur A., KARAKOÇ M., Boztosun I., Dapo H.  
1st NUBA International Conference on Nuclear Physics and Astrophysics, Antalya, Turkey, 14 - 21 September 2014, vol.590
10. **Photofission of  $^{238}\text{U}$  Nuclei**  
Selek S., Coban A., Boztosun I., Dapo H., KARAKOÇ M.  
1st NUBA International Conference on Nuclear Physics and Astrophysics, Antalya, Turkey, 14 - 21 September 2014, vol.590
11. **FOTOAKTİVASYON ANALİZİNİN ELEMENT DERİŞİMLERİNİN TESPİTİNDE KULLANILABİLİRLİĞİNİN ARAŞTIRILMASI**  
CESUR A., BOZTOSUN İ., KARAKOÇ M., HARİS D., ÖZMEN S. F.  
ADIM FİZİK GÜNLERİ III, Turkey, 17 - 18 April 2014
12. **Exclusive measurements of nuclear breakup reactions of  $^{17}\text{Ne}$**   
Wamers F., Marganec J., Aksouh F., Aksyutina Y., Alvarez-Pol H., Aumann T., Beceiro-Novo S., Bertulani C. A., Boretzky K., Borge M. J. G., et al.  
International Nuclear Physics Conference (INPC), Firenze, Italy, 2 - 07 June 2013, vol.66
13. **Klinik Lineer Hızlandırıcıda Fotonükleer Reaksiyonlar**  
BOZTOSUN İ., dapo h., ÖZMEN S. F., ÇEÇEN Y., KARAKOÇ M., Çoban A., Cesur A., CANER T., BAYRAM E., Keller G. B., et al.  
14. Medikal fizik Kongresi, Antalya, Turkey, 21 - 24 November 2013, pp.190-192
14. **Medium effects in direct reactions**  
KARAKOÇ M., Bertuani C.  
11th International Conference on Nucleus-Nucleus Collisions (NN), San-Antonio, Northern Mariana Islands, 27 May - 01 June 2012, vol.420
15. **Medium Effects in Reactions with Rare Isotopes**  
Bertulani C. A., KARAKOÇ M.  
5th Biannual Conference on Nuclear Physics in Astrophysics (NPA)/24th Nuclear Physics Divisional Conference of the European-Physical-Society (EPS), Eilat, Israel, 3 - 08 April 2011, vol.337

## Other Publications

1. **Medium and Coulomb Effects in Breakup Reactions**

- KARAKOÇ M.  
Presentation, pp.1, 2012
2. **Medium effects in knockout reactions**  
KARAKOÇ M.  
Presentation, pp.1, 2012
3. **Coulomb distortion and medium corrections in nucleon-removal reactions**  
KARAKOÇ M.  
Presentation, pp.1, 2012
4. **Coulomb distortion and medium corrections in breakup reactions**  
KARAKOÇ M.  
Presentation, pp.1, 2012
5. **Coulomb and medium effects in knockout reactions**  
KARAKOÇ M.  
Presentation, pp.1, 2011
6. **The role of isospin-symmetry breaking on the Gamow-Teller transition**  
KARAKOÇ M.  
Presentation, pp.1, 2011
7. **The Simultaneous Investigation of the  $(6)\text{He}+(12)\text{C}$  Reaction Observables Using Folding Potential**  
BOZTOSUN İ., KARAKOÇ M., KÜÇÜK Y.  
Other, pp.281-284, 2008
8. **Microscopic Description of the  $12\text{C}+24\text{Mg}$  System**  
KARAKOÇ M.  
Presentation, pp.123, 2006
9. **Transfer Reaksiyonlarının Reaksiyon Gözlenebilirlerini Açıklamadaki Önemi**  
KARAKOÇ M.  
Presentation, pp.331, 2005
10.  **$12\text{C}+24\text{Mg}$  Reaksiyonunun Double Folding ve Alfa Kümelenme Nükleer Potansiyelleri ile İncelenmesi**  
KARAKOÇ M.  
Presentation, pp.279, 2004

## Academic and Administrative Experience

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2017 - 2020	<b>Deputy Head of Department</b>	Akdeniz University
2013 - 2016	<b>Board Member</b>	Akdeniz University, Akdeniz Üniversitesi Nükleer Bilimler Uygulama Ve Araştırma Merkezi

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## Courses

Titreşim ve Dalgalar Laboratuvarı, Undergraduate, 2018 - 2019  
Bilgisayar Programlama, Undergraduate, 2018 - 2019, 2015 - 2016  
Fizikte Bilgisayar Uygulamaları, Undergraduate, 2018 - 2019  
Bilgisayar Programlama, Undergraduate, 2017 - 2018, 2016 - 2017  
Fizik II, Undergraduate, 2017 - 2018, 2016 - 2017  
Titreşim ve Dalgalar, Undergraduate, 2017 - 2018  
Titreşim ve Dalgalar Laboratuvarı, Undergraduate, 2017 - 2018  
FİZİKTE BİLGİSAYAR UYGULAMALARI, Postgraduate, 2016 - 2017  
Fizik I, Undergraduate, 2017 - 2018

Fizik I, Undergraduate, 2016 - 2017  
Nükleer Fizikte Deneysel Ölçüm Teknikleri I, Postgraduate, 2015 - 2016  
Fizikte Sayısal Metotlar, Postgraduate, 2015 - 2016, 2014 - 2015  
Bitirme Çalışması, Undergraduate, 2014 - 2015  
Fizik II, Undergraduate, 2015 - 2016, 2014 - 2015, 2013 - 2014  
Nükleer Reaksiyon Yazılımları Ve Uygulamaları, Doctorate, 2015 - 2016  
Hesaplamalı Fizik, Undergraduate, 2015 - 2016, 2014 - 2015, 2013 - 2014  
Sayısal Analiz II, Doctorate, 2013 - 2014  
Temel Nükleer Yapı, Associate Degree, 2013 - 2014  
Nükleer Fizik I, Undergraduate, 2013 - 2014  
Mesleki İngilizce II, Undergraduate, 2013 - 2014  
Mesleki İngilizce I, Undergraduate, 2013 - 2014  
Sayısal Elektronik Lab., Undergraduate, 2010 - 2011  
Temel Elektronik Lab., Undergraduate, 2010 - 2011

### Advising Theses

Karakoç M., Bağımsız sınırlayıcılar ve vektörel çekim alanı etkisindeki parçacığın kaotik dinamiği, Postgraduate, B.EMRE(Student), 2022  
KARAKOÇ M., Fotoaktivasyon analizi yöntemi ile dış numunelerindeki element çeşitliliğın tespit edilmesi, Postgraduate, A.Ünlü(Student), 2018  
Karakoç M., Nano-bor katkılı kompozitlerin nötron ve gama radyasyon soğurma özelliklerinin belirlenmesi, Doctorate, Ş.GÖZDE(Student), 2018  
KARAKOÇ M., Fotonükleer reaksiyon yöntemi ile Tungsten izotoplarının enerji seviyeleri ve yarı ömürlerinin belirlenmesi, Postgraduate, F.Dülger(Student), 2016  
Karakoç M., Galyum ürün çekirdeklerinin enerji seviyelerinin ve kalay numunelerinin derisimlerinin fotonükleer reaksiyonlarla belirlenmesi, Postgraduate, A.Cesur(Student), 2015

### Memberships / Tasks in Scientific Organizations

Akdeniz Üniversitesi Nükleer Bilimler Uygulama ve Araştırma Merkezi [NUBA], Board Member, 2013 - 2016

### Scientific Refereeing

TURKISH JOURNAL OF PHYSICS, National Scientific Refreed Journal, February 2024  
CUMHURİYET SCIENCE JOURNAL, National Scientific Refreed Journal, February 2024  
Bilim Armonisi, National Scientific Refreed Journal, March 2018  
Cumhuriyet Science Journal, National Scientific Refreed Journal, January 2018  
Journal of Nuclear Sciences, National Scientific Refreed Journal, November 2017  
Süleyman Demirel Üniversitesi, Fen Edebiyat Fakültesi Fen Dergisi (E-Dergi), National Scientific Refreed Journal, May 2015

### Scientific Consultations

TÜBİTAK, Project Consultancy, Akdeniz University, Faculty Of Science, Department of Physics, Turkey, 2018 - Continues

## Congress and Symposium Activities

<https://www.giki.edu.pk/News/View/763/GIK-to-organize-First-International-Pak-Turk-Workshop-on-Emerging-Technologies-in-Science-Engineering-on-9th-May-2018>, Invited Speaker, Swabi, Pakistan, 2018

First International Pak-Turk Workshop on Emerging Technologies in the Field of Sciences & Engineering, Attendee, Turkey, 2018

2-4 Eylül 2015 Lumidoz-9, Attendee, Antalya, Turkey, 2015

23-30 Ağustos 2015 NUBA Uluslararası Yaz Kursu, Attendee, Turkey, 2015

Nükleer Bilimler ve Uygulamaları Yaz Okulu, Attendee, Antalya, Turkey, 2015

II. Yüklü Parçacık Optiği Kış Okulu, Afyon Kocatepe Üniversitesi, Attendee, Afyon, Turkey, 2015

15-19 Eylül 2014 NUBA Konferans Serileri-1 Nükleer Fizik ve Astrofizik, Attendee, Turkey, 2014

19-25 Haziran 2014 NUBA Uluslararası Nükleer Fizik Yaz Okulu, Attendee, Antalya, Turkey, 2014

## Research Areas

Physics, Nuclear physics, General Nuclear Reactions, Nuclear Structure, Experimental Methods of Particle and Nuclear Physics, Natural Sciences