

## Assoc. Prof. Halil Mutuk

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: HCI-7113-2022

Yoksis Researcher ID: 102793

### Education Information

Doctorate, Ondokuz Mayıs University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 2012 - 2018

Undergraduate, Ondokuz Mayıs University, Fen-Edebiyat Fakültesi, Matematik Bölümü, Turkey 2012 - 2016

Postgraduate, Ondokuz Mayıs University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), Turkey 2009 - 2012

Undergraduate, Ondokuz Mayıs University, Eğitim Fakültesi, Ortaöğretim Fen Ve Matematik Alanlar Eğitimi Bölümü, Turkey 2003 - 2009

### Dissertations

Doctorate, X(3872) mezonunun pertürbatif olmayan yöntemlerle incelenmesi, Ondokuz Mayıs University, Fen Bilimleri Enstitüsü, Fizik (Dr), 2018

Postgraduate, Bafra Kızılırmak deltası toprak örneklerinde doğal gama radyoaktivite ölçümleri, Ondokuz Mayıs University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 2012

### Research Areas

Differential Equations, Physics, Basic Particles and Areas, Natural Sciences, Physics, High Energy Physics

### Academic Titles / Tasks

Associate Professor, Ondokuz Mayıs University, Fen Fakültesi, Fizik Bölümü, 2020 - Continues

Research Assistant, Ondokuz Mayıs University, Fen Fakültesi, Fizik Bölümü, 2009 - 2018

### Academic and Administrative Experience

Ondokuz Mayıs University, 2020 - Continues

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

- I. **Unveiling the structure of hidden-bottom strange pentaquarks via magnetic moments**  
Mutuk H., Kang X.  
PHYSICS LETTERS B, vol.855, 2024 (SCI-Expanded)
- II. **Magnetic moments of hidden-bottom pentaquark states**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL C, vol.84, no.8, 2024 (SCI-Expanded)
- III. **Masses and magnetic moments of doubly heavy tetraquarks via diffusion Monte Carlo method**  
Mutuk H.  
European Physical Journal C, vol.84, no.4, 2024 (SCI-Expanded)
- IV. **Flavor exotic triply-heavy tetraquark states in AdS/QCD potential**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL C, vol.83, no.5, 2023 (SCI-Expanded)
- V. **Molecular interpretation of  $X(3960)$  as  $D_s(+)$   $D_s(-)$  state**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL C, vol.82, no.12, 2022 (SCI-Expanded)
- VI. **Spectrum of  $cc(\bar{b})\bar{b}$ ,  $bc(\bar{c})\bar{c}$ , and  $bc(\bar{b})\bar{b}$  tetraquark states in the dynamical diquark model**  
Mutuk H.  
PHYSICS LETTERS B, vol.834, 2022 (SCI-Expanded)
- VII. **Investigation of  $\Lambda_{cc}$  dibaryon in QCD**  
Mutuk H., Azizi K.  
PHYSICAL REVIEW D, vol.105, no.9, 2022 (SCI-Expanded)
- VIII. **Magnetic moments of spin-1/2 triply heavy baryons: a study of light-cone QCD and quark-diquark model**  
Mutuk H., Ozdem U.  
EUROPEAN PHYSICAL JOURNAL PLUS, vol.137, no.4, 2022 (SCI-Expanded)
- IX. **The status of  $\Xi_{cc}$  baryon: investigating quark-diquark model**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL PLUS, vol.137, no.1, 2022 (SCI-Expanded)
- X. **Quasinormal modes of dS and AdS black holes: Feedforward neural network method**  
Ovgun A., Sakalli I., Mutuk H.  
INTERNATIONAL JOURNAL OF GEOMETRIC METHODS IN MODERN PHYSICS, vol.18, no.10, 2021 (SCI-Expanded)
- XI. **Monte-Carlo based QCD sum rules analysis of  $X(2900)$  and  $X(2900)$**   
Mutuk H.  
JOURNAL OF PHYSICS G-NUCLEAR AND PARTICLE PHYSICS, vol.48, no.5, 2021 (SCI-Expanded)
- XII. **Nonrelativistic treatment of fully-heavy tetraquarks as diquark-antidiquark states**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL C, vol.81, no.4, 2021 (SCI-Expanded)
- XIII. **Prediction of wear properties of graphene-Si<sub>3</sub>N<sub>4</sub> reinforced titanium hybrid composites by artificial neural network**  
Mutuk T., Gürbüz M., Mutuk H.  
MATERIALS RESEARCH EXPRESS, vol.7, no.8, 2020 (SCI-Expanded)
- XIV. **A Neural Network Study of Blasius Equation**  
Mutuk H.  
NEURAL PROCESSING LETTERS, vol.51, no.3, pp.2179-2194, 2020 (SCI-Expanded)
- XV. **A study of excited  $\Omega_c^-$  states in hypercentral constituent quark model via artificial neural network**  
Mutuk H.  
EUROPEAN PHYSICAL JOURNAL A, vol.56, no.5, 2020 (SCI-Expanded)
- XVI. **Spin averaged mass spectrum of heavy quarkonium via asymptotic iteration method**  
Mutuk H.

- CANADIAN JOURNAL OF PHYSICS, vol.97, no.12, pp.1342-1348, 2019 (SCI-Expanded)
- XVII. **Mass spectrum of exotic X(5568) state via artificial neural network**  
Mutuk H.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS A, vol.34, no.28, 2019 (SCI-Expanded)
- XVIII. **Neural network study of hidden-charm pentaquark resonances**  
Mutuk H.  
CHINESE PHYSICS C, vol.43, no.9, 2019 (SCI-Expanded)
- XIX. **Asymptotic iteration and variational methods for Gaussian potential**  
Mutuk H.  
PRAMANA-JOURNAL OF PHYSICS, vol.92, no.4, 2019 (SCI-Expanded)
- XX. **Energy levels of one-dimensional anharmonic oscillator via neural networks**  
Mutuk H.  
MODERN PHYSICS LETTERS A, vol.34, no.12, 2019 (SCI-Expanded)
- XXI. **Cornell Potential: A Neural Network Approach**  
Mutuk H.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2019, 2019 (SCI-Expanded)
- XXII. **X(3872) and its heavy quark spin symmetry partners in QCD sum rules**  
Mutuk H., SARAÇ OYMAK Y., GUMUS H., ÖZPİNECİ A.  
EUROPEAN PHYSICAL JOURNAL C, vol.78, no.11, 2018 (SCI-Expanded)
- XXIII. **S-Wave Heavy Quarkonium Spectra: Mass, Decays, and Transitions**  
Mutuk H.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2018, 2018 (SCI-Expanded)
- XXIV. **Mass Spectra and Decay Constants of Heavy-Light Mesons: A Case Study of QCD Sum Rules and Quark Model**  
Mutuk H.  
ADVANCES IN HIGH ENERGY PHYSICS, vol.2018, 2018 (SCI-Expanded)
- XXV. **A Physical Proof for Cauchy's Inequality**  
Mutuk H.  
AMERICAN MATHEMATICAL MONTHLY, vol.123, no.8, pp.843, 2016 (SCI-Expanded)
- XXVI. **Measurement of the terrestrial and anthropogenic radionuclide concentrations in Bafra Kizilirmak delta (bird sanctuary) in Turkey**  
Mutuk H., Gumus H., Turhan S.  
RADIATION PROTECTION DOSIMETRY, vol.158, no.3, pp.350-354, 2014 (SCI-Expanded)

### Articles Published in Other Journals

- I. **Solutions of Second Order Linear Differential Equations via Runge-Kutta, Power Series and Laplace Transformation in Mathematica**  
MUTUK H.  
İğdir Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.9, pp.2048-2061, 2019 (Peer-Reviewed Journal)
- II. **NEGATION OF BETA FUNCTION**  
Mutuk H.  
JOURNAL OF SCIENCE AND ARTS, no.3, pp.617-620, 2018 (ESCI)

### Refereed Congress / Symposium Publications in Proceedings

- I. **Artificial Neural Network Applications in Quantum Mechanics**  
MUTUK H.  
2nd EMU Physics Days, Cyprus (Kktc), 22 - 23 March 2019

- II. **TR 83 Bölgesinde İnovasyona Dayalı Rekabet**  
MUTUK H., Çakır S.  
International Symposium on Multidisciplinary Studies and Innovative Technologies, 2 - 04 November 2017
- III. **Comparison of Some Inventive Problem Solving Methods**  
MUTUK H., YAVUZ M.  
International Symposium on Multidisciplinary Studies and Innovative Technologies, 2 - 04 November 2017
- IV. **Runge-Kutta Approach to Quantum Harmonic Oscillator**  
MUTUK H.  
International Workshop on Mathematical Methods in Engineering, Turkey, 27 - 29 April 2017
- V. **Runge-Kutta Method for Coulomb Potential in Schrödinger Equation**  
MUTUK H., GÜMÜŞ H., ERTÜRK V. S.  
INTERNATIONAL WORKSHOP ON MATHEMATICAL METHODS IN ENGINEERING, 27 - 29 April 2017
- VI. **Corrections to the Elements of Inverse of a Matrix**  
MUTUK H.  
Turkish Physical Society 32nd International Physics Congress, Turkey, 6 - 09 September 2016
- VII. **Revisiting Propagators in Quantum Mechanics**  
MUTUK H.  
International Conference on Quantum Science and Applications, 25 - 27 May 2016
- VIII. **SVZ Sum Rules in Quantum Mechanics**  
Mutuk H., Gumus H.  
International Conference on Quantum Science and Applications (ICQSA), Eskişehir, Turkey, 25 - 27 May 2016, vol.766
- IX. **Introduction to High Energy Physics For Materials Scientists**  
MUTUK H.  
Advances in Materials and Processing Technologies, 14 - 17 December 2015
- X. **To be or not to be in physics**  
MUTUK H.  
2nd International Conference on Computational and Experimental Science and Engineering (ICCESEN 2015), Turkey, 14 - 19 October 2015
- XI. **Shielding Behaviors and Analysis of Mechanical Treatment of Cements Containing Nano sized Powders**  
MUTUK H., MUTUK T., GÜMÜŞ H., MESCİ B.  
ICCESEN 2015, 14 - 19 September 2015
- XII. **Experimental and theoretical HF and DFT investigation of 2 Ethyl N 5 nitrothiophen 2 yl methyldene aniline**  
MUTUK H., CEYLAN Ü., ÖZDEMİR TARI G., AĞAR E.  
9th International Physics Conference of the Balkan Physical Union–BPU9, İstanbul, Turkey, 24 - 27 August 2015

## Supported Projects

Mutuk H., TUBITAK Project, Investigation of Isovector States of Charm Sector XYZ Particles, 2022 - 2023  
TUBITAK Project, X 3872 ve Diğer Hadronik Moleküllerin İncelenmesi, 2014 - 2017  
Mutuk H., Project Supported by Higher Education Institutions, Advances in Materials and Processing Technologies Conference, 2015 - 2016

## Scholarships

2219 Yurtdışı Doktora Sonrası Araştırma Bursu, TUBITAK, 2022 - 2023