

Prof. MUHARREM KIRAK

Personal Information

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International Researcher IDs

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Education Information

Doctorate, Erciyes University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 2007 - 2011

Postgraduate, Erciyes University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), Turkey 2005 - 2007

Undergraduate, Erciyes University, Fen-Edebiyat Fakültesi, Fizik Pr., Turkey 2000 - 2005

Dissertations

Doctorate, Küresel kuantum noktalarında dış elektrik ve manyetik alanda hidrojenik safsızlık problemi, Erciyes University, Fen Bilimleri Enstitüsü, Fizik (Dr), 2011

Postgraduate, Kinetik spin-3/2 Ising modelinde dinamik dipol ve kuadropol faz geçişleri, Erciyes University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 2007

Research Areas

Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties

Academic Titles / Tasks

Professor, Yozgat Bozok University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, 2023 - Continues

Associate Professor, Yozgat Bozok University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, 2018 - 2023

Assistant Professor, Yozgat Bozok University, Eğitim Fakültesi, Temel Eğitim, 2013 - 2018

Assistant Professor, Yozgat Bozok University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, 2012 - 2013

Research Assistant, Yozgat Bozok University, Fen-Edebiyat Fakültesi, Fizik, 2007 - 2012

Academic and Administrative Experience

Head of Department, Yozgat Bozok University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, 2020 - Continues

Head of Department, Yozgat Bozok University, Eğitim Fakültesi, Temel Eğitim, 2018 - 2020

Deputy Head of Department, Yozgat Bozok University, Eğitim Fakültesi, Matematik ve Fen Bilimleri Eğitimi, 2013 - 2014

Courses

FİZİK II, Undergraduate, 2018 - 2019, 2017 - 2018
ÇEVREMİZDEKİ FİZİK, Undergraduate, 2018 - 2019
GENEL FİZİK, Undergraduate, 2018 - 2019, 2014 - 2015
GENEL FİZİK LAB. III, Undergraduate, 2018 - 2019, 2017 - 2018, 2014 - 2015
OKUL DENEYİMİ, Undergraduate, 2018 - 2019
TOPLUMA HİZMET UYGULAMALARI, Undergraduate, 2018 - 2019, 2017 - 2018
ÖĞRETMENLİK UYGULAMASI, Undergraduate, 2018 - 2019, 2017 - 2018
FİZİK I, Undergraduate, 2018 - 2019, 2017 - 2018
GENEL FİZİK III, Undergraduate, 2018 - 2019, 2017 - 2018, 2014 - 2015
ARAŞTIRMA PROJESİ, Undergraduate, 2018 - 2019
TEKNİK ELEKTRİK, Undergraduate, 2017 - 2018
BİLGİSAYAR I, Undergraduate, 2017 - 2018, 2014 - 2015, 2013 - 2014
MODERN FİZİĞE GİRİŞ, Undergraduate, 2017 - 2018, 2014 - 2015
FİZİKTE YAYGIN KAVRAM YANILGILARI VE GİDERME YÖNTEMLERİ, Postgraduate, 2014 - 2015, 2013 - 2014
BİLGİSAYAR II, Undergraduate, 2014 - 2015, 2013 - 2014
GENEL FİZİK LAB. II, Undergraduate, 2014 - 2015, 2013 - 2014
MESLEKİ İNGİLİZCE I, Postgraduate, 2013 - 2014
FEN EĞİTİMİNDE FİZİK KONULARI VE KAVRAMLARI, Postgraduate, 2013 - 2014
SEMİNER, Postgraduate, 2013 - 2014
GENEL FİZİK LAB. I, Undergraduate, 2013 - 2014

Advising Theses

KIRAK M., Asimetrik yarı parabolik kuantum kuyuların elektronik ve optik özellikleri, Postgraduate, A.SIRLI(Student), 2015

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **The nonlinear optical rectification and second harmonic generation of a single electron confined in a multilayer spherical quantum dot**
Fakkahi A., Kirak M., Jaouane M., Sali A., Ed-Dahmouny A., El-Bakkari K., Arraoui R.
Optical and Quantum Electronics, vol.55, no.5, 2023 (SCI-Expanded)
- II. **Effect of number of well and core radius on the binding energy and optical properties of multishell spherical quantum dot with parabolic potential**
Kirak M.
PHYSICA SCRIPTA, vol.98, no.6, pp.65804-65818, 2023 (SCI-Expanded)
- III. **The impact of the electric field on the photoionization cross section, polarizability, and donor impurity binding energy in multilayered spherical quantum dot**
Kirak M.
APPLIED PHYSICS A: MATERIALS SCIENCE AND PROCESSING, vol.129, no.3, pp.188-196, 2023 (SCI-Expanded)
- IV. **Effect of impurity position and electric field on the optical absorption coefficients and oscillator strength in spherical multilayer quantum dot**
Fakkahi A., KIRAK M., Sali A.
EUROPEAN PHYSICAL JOURNAL PLUS, vol.137, no.9, 2022 (SCI-Expanded)
- V. **Third harmonic generation of spherical multilayered quantum dot: effects of quantum confinement, impurity, electric and magnetic fields**
KIRAK M., YILMAZ S.
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.128, no.5, 2022 (SCI-Expanded)
- VI. **Magnetic and thermodynamic properties of GaAs quantum dot confined by parabolic-inverse square**

plus gaussian potential

Kirak M.

JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.536, 2021 (SCI-Expanded)

- VII. **Effects of electric and magnetic fields on the binding energy and second harmonic generation for on- and off-center donor impurities in spherical multilayer quantum dot**
Kirak M.
EUROPEAN PHYSICAL JOURNAL PLUS, vol.136, no.6, 2021 (SCI-Expanded)
- VIII. **Electronic and optical properties of double ring-shaped quantum dot**
KIRAK M., YILMAZ S.
JOURNAL OF NANOPHOTONICS, vol.14, no.1, 2020 (SCI-Expanded)
- IX. **An investigation on the effect of impurity position on the binding energy of quantum box under electric field with pressure and temperature**
Yilmaz S., Kirak M.
INTERNATIONAL JOURNAL OF MODERN PHYSICS B, vol.32, no.13, 2018 (SCI-Expanded)
- X. **Size-dependent electronic and optical properties in zinc-blende InGaN/GaN multilayer spherical quantum dot**
Ortakaya S., Kirak M., GÜLDESTE A.
JOURNAL OF NONLINEAR OPTICAL PHYSICS & MATERIALS, vol.26, no.3, 2017 (SCI-Expanded)
- XI. **Hydrostatic pressure and temperature effects on the binding energy and optical absorption of a multilayered quantum dot with a parabolic confinement**
Ortakaya S., KIRAK M.
CHINESE PHYSICS B, vol.25, no.12, 2016 (SCI-Expanded)
- XII. **Impurity position effects on the linear and nonlinear optical properties of the cubic quantum dot under an external electric field**
KIRAK M., YILMAZ S.
JOURNAL OF PHYSICS D-APPLIED PHYSICS, vol.48, no.32, 2015 (SCI-Expanded)
- XIII. **Binding Energies and Linear and Nonlinear Optical Properties of a Donor Impurity in a Three-Dimensional Quantum Pseudodot**
KIRAK M., YILMAZ S.
ZEITSCHRIFT FÜR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.68, no.12, pp.744-750, 2013 (SCI-Expanded)
- XIV. **The effects of the hydrostatic pressure and temperature on binding energy and optical properties of a donor impurity in a spherical quantum dot under external electric field**
Kirak M., Altinok Y., Yilmaz S.
JOURNAL OF LUMINESCENCE, vol.136, pp.415-421, 2013 (SCI-Expanded)
- XV. **Nonlinear Optical Rectification and Oscillator Strength in a Spherical Quantum Dot with Parabolic Confinement in the Presence of the Electric Field**
KIRAK M., YILMAZ S., TEMİZER Ü.
JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS, vol.8, no.2, pp.165-169, 2013 (SCI-Expanded)
- XVI. **The electric field effects on the third-harmonic generation in spherical quantum dots with parabolic confinement**
Kirak M., Altinok Y.
EUROPEAN PHYSICAL JOURNAL B, vol.85, no.10, 2012 (SCI-Expanded)
- XVII. **The electric field effects on the binding energies and the nonlinear optical properties of a donor impurity in a spherical quantum dot**
Kirak M., Yilmaz S., ŞAHİN M., Gencaslan M.
JOURNAL OF APPLIED PHYSICS, vol.109, no.9, 2011 (SCI-Expanded)
- XVIII. **Effects of the Magnetic Field on the Linear and Nonlinear Optical Absorption Coefficients and the Refractive Index Changes in a Spherical Quantum Dot**
KIRAK M., YILMAZ S., GENÇASLAN M.
JOURNAL OF NANOELECTRONICS AND OPTOELECTRONICS, vol.5, no.3, pp.391-396, 2010 (SCI-Expanded)

- XIX. **Dynamic Dipole and Quadrupole Phase Transitions in the Kinetic Metamagnetic Spin-3/2 Blume-Emery-Griffiths Model**
Kirak M., Canko O., KESKİN M.
ZEITSCHRIFT FÜR NATURFORSCHUNG SECTION A-A JOURNAL OF PHYSICAL SCIENCES, vol.64, pp.185-199, 2009 (SCI-Expanded)
- XX. **Phase diagrams of the kinetic metamagnetic spin-3/2 Blume-Capel model in an oscillating external field**
Keskin M., Canko O., Kirak M.
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.244, no.10, pp.3775-3788, 2007 (SCI-Expanded)
- XXI. **Dynamic phase transition in the kinetic spin-3/2 blume-emery-griffiths model: Phase diagram in the temperature and interaction parameters planes**
Keskin M., Deviren B., Canko O., Kirak M.
ACTA PHYSICA POLONICA B, vol.38, no.8, pp.2445-2457, 2007 (SCI-Expanded)
- XXII. **Dynamic dipole and quadrupole phase transitions in the kinetic spin-3/2 model**
Keskin M., Canko O., Kirak M.
JOURNAL OF STATISTICAL PHYSICS, vol.127, no.2, pp.359-380, 2007 (SCI-Expanded)

Articles Published in Other Journals

- I. **Binding Energy of Cylindrical Quantum Dots: Effects of External Electric Field and Impurity Position**
Kirak M., Yılmaz S.
Bozok Journal of Science, vol.2, no.2, pp.81-87, 2024 (Peer-Reviewed Journal)
- II. **Optical absorption coefficients of a single electron in a multilayer spherical quantum dot with a Kratzer-like confinement potential**
Fakkahi A., Jaouane M., KIRAK M., Khordad R., Sali A., Arraoui R., El-bakkari K., Ed-Dahmouny A., Azmi H.
Results in Optics, vol.13, 2023 (Scopus)
- III. **Theoretical Study on Binding Energy and Optical Properties of GaAs Cubic Quantum Dot under Pressure and Temperature**
Kirak M., Yılmaz S.
Bozok Journal of Science, vol.1, no.2, pp.87-96, 2023 (Peer-Reviewed Journal)
- IV. **Basıncın ve Sıcaklığın Dış Elektrik Alan Altındaki Kübik Kuantum Noktasının Üçüncü Harmonik Üretimi Üzerine Etkisi**
KIRAK M.
Gümüşhane Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.9, no.1, pp.80-87, 2019 (Peer-Reviewed Journal)

Refereed Congress / Symposium Publications in Proceedings

- I. **The Effects Of Electric And Magnetic Field On The Binding Energy And Optical Absorption On The Double Ring-Shaped Quantum Dot**
Yılmaz S., Kirak M.
2.Uluslararası Erciyes Bilimsel Araştırmalar Kongresi, Kayseri, Kayseri, Turkey, 27 - 29 September 2019, pp.170-172
- II. **The Electronic And Optical Properties For Gaas Double Ring-Shaped Quantum Dot**
Kirak M., Yılmaz S.
2.Uluslararası Erciyes Bilimsel Araştırmalar Kongresi, Kayseri, Kayseri, Turkey, 27 - 29 September 2019, pp.168-169
- III. **Linear And Nonlinear Optical Properties of a Cubic Quantum Dot: Effects of the Impurity Position and Electric Field Effects**
Kirak M., Yılmaz S., Şahin M.

9th International Physics Conference of the Balkan Physical Union –BPU 9, İstanbul, Turkey, 24 - 27 August 2015, pp.435

- IV. **Photoionization Cross.Section and Oscillator Strength of Hydrogenic Impurities in GaAs Quantum Box**
Kırak M., Yılmaz S., Şahin M.
9th International Physics Conference of the Balkan Physical Union –BPU 9, İstanbul, İstanbul, Turkey, 24 - 27 August 2015, pp.433
- V. **“Effects of Electric Field, Temperature And Pressure on the Linear and Nonlinear Optical Properties of Quantum Box**
Kırak M., Yılmaz S., Şahin M.
9th International Physics Conference of the Balkan Physical Union –BPU 9, İstanbul, İstanbul, Turkey, 24 - 27 August 2015, pp.436
- VI. **Quantum Features of the Multilayered Spherical Quantum Dots**
Temizer Ü., Yılmaz S., Kırak M.
Türk Fizik Derneği 28. Uluslararası Fizik Kongresi, Muğla, Turkey, 06 September 2011, pp.22-23
- VII. **Second-Order Nonlinear absorbtion spectra an impurity in a CdS/SiO2 Spherical Parabolic Quantum Dot with different electric field**
Temizer Ü., Yılmaz S., Kırak M.
Advances in Applied Physics & Materials Sciences APMAS 2011, Antalya, Turkey, 12 May 2011, pp.15-16
- VIII. **Series Solutions of the Schrödinger Equation with Position-Dependent Mass for the Kratzer Potential**
Temizer Ü., Yılmaz S., Kırak M.
Advances in Applied Physics & Materials Sciences APMAS 2011, Antalya, Turkey, 12 May 2011, pp.18-19

Scientific Refereeing

INDIAN JOURNAL OF PHYSICS, National Scientific Refreed Journal, January 2022

The European Physical Journal Plus , National Scientific Refreed Journal, January 2022

Scientific Consultations

Teknofest 2024, Project Consultancy, Yozgat Bozok University, Eğitim Fakültesi, Matematik Ve Fen Bilimleri Eğitimi, Turkey, 2024 - 2024

Metrics

Publication: 34

Citation (WoS): 405

Citation (Scopus): 445

H-Index (WoS): 10

H-Index (Scopus): 11