

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 kuadrupol 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 FUR 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 NANO ELECTRONICS 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 NANO ELECTRONICS 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 FUR 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. **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)
- II. **Theoretical Study on Binding Energy and Optical Properties of GaAs Cubic Quantum Dot under Pressure and Temperature**
 Kirak M., Yilmaz S.
Bozok Journal of Science, vol.1, no.2, pp.87-96, 2023 (Peer-Reviewed Journal)
- III. **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**
 Yilmaz 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., Yilmaz S.
 2.Uluslararası Erciyes Bilimsel Araştırmalar Kongresi, Kayseri, Kayseri, Turkey, 27 - 29 September 2019, pp.168-169
- III. **Photoionization Cross.Section and Oscillator Strength of Hydrogenic Impurities in GaAs Quantum Box**
 Kirak M., Yilmaz S., Şahin M.
 9th International Physics Conference of the Balkan Physical Union -BPU 9, İstanbul, İstanbul, Turkey, 24 - 27 August 2015, pp.433
- IV. **Linear And Nonlinear Optical Properties of a Cubic Quantum Dot: Effects of the Impurity Position**

and Electric Field Effects

Kırak M., Yılmaz S., Şahin M.

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

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

Supported Projects

YILMAZ S., KIRAK M., Project Supported by Higher Education Institutions, Dış Elektrik Alan ve Manyetik Alanın İkili Halka Şekilli Kuantum Noktanın Elektronik ve Optik Özellikleri Üzerine Etkisi, 2019 - 2019

Metrics

Publication: 33

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