



# EMRE BAHADIR AL

## ASST. PROF.



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### Learning Knowledge

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Doctorate 2014 - 2020	Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü, Turkey
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Postgraduate 2011 - 2014	Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü, Turkey
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Undergraduate 2005 - 2009	Firat University, Faculty Of Science, Department Of Physics, Turkey
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### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, Electronic and Optical Properties of the Spherical Quantum Dots Under the Magnetic Field, Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü, 2020

Postgraduate, INFRARED TRANSITIONS BETWEEN HYDROGENIC STATES IN GaInNAs/GaAs QUANTUM WELLS, Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü, 2014

### Academic Titles / Tasks

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Assistant Professor 2022 - Continues	Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü
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Research Assistant PhD 2020 - Continues	Sivas Cumhuriyet University, Fen Fakültesi, Fizik Bölümü
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## Supported Projects

1. Al E. B., Project Supported by Higher Education Institutions, Effect of magnetic field and size modulation on linear and nonlinear intersubband optical properties of a single donor dopant in a spherical core/shell/shell semiconductor quantum dot, 2021 - 2022
2. Kasapoğlu E., Al E. B., Project Supported by Higher Education Institutions, Manyetik Alan Altında Küresel Kuantum Noktalarının Elektronik Ve Optik Özellikleri, 2017 - 2020
3. Kasapoğlu E., Öztürk E., Al E. B., Project Supported by Higher Education Institutions, Binding Energies and Optical Transitions of Impurity Atoms in the Double Quantum Well with Lennard Jones Potential, 2017 - 2018
4. Kasapoğlu E., Öztürk E., Al E. B., Project Supported by Higher Education Institutions, The effect of external fields on linear and nonlinear optical properties of Tietz-Hua quantum well, 2017 - 2017
5. Kasapoğlu E., Öztürk E., Al E. B., Project Supported by Higher Education Institutions, The effect of external fields on the optical properties of the asymmetric parabolic quantum well, 2016 - 2016
6. Urgan F., Al E. B., Project Supported by Higher Education Institutions, Yoğun lazer alanı altındaki asimetric çift kare kuantum kuyusunun ikinci ve üçüncü dereceden doğrusal olmayan optiksel özellikleri, 2016 - 2016

## Awards

1. Al E. B., Akademik Teşvik, Yök, February 2022
2. Al E. B., APED, Sivas Cumhuriyet Üniversitesi, November 2021
3. Ayazlı İ. E., Al E. B., AKADEMİK TEŞVİK, Yök, February 2017
4. Ayazlı İ. E., AYAZLI Ö., Al E. B., AKADEMİK TEŞVİK, Yök, February 2016

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

1. **Shallow-donor impurity effects on the far infrared electron–electron optical absorption coefficient in single and core/shell spherical quantum dots with Konwent-like confinement potential**  
Al E. B., Kasapoglu E., Sari H., Sökmen I., Duque C. A.  
Optical and Quantum Electronics, vol.54, no.6, 2022 (Journal Indexed in SCI)
2. **Dynamics of nonlinear optical rectification, second, and third harmonic generation in asymmetric triangular double quantum wells due to static electric and magnetic fields**  
Al E. B., Kasapoglu E., Urgan F.  
EUROPEAN PHYSICAL JOURNAL PLUS, vol.137, no.4, 2022 (Journal Indexed in SCI)
3. **Electronic and optical properties of a D-2(+) complex in two-dimensional quantum dots with Gaussian confinement potential**  
Sari H., Al E. B., Kasapoglu E., Sakiroglu S., Sökmen I., Toro-Escobar M., Duque C. A.  
EUROPEAN PHYSICAL JOURNAL PLUS, vol.137, no.4, 2022 (Journal Indexed in SCI)
4. **Effect of magnetic field, size and donor position on the absorption coefficients related a donor within the core/shell/shell quantum dot**  
Al E. B.  
OPTICAL AND QUANTUM ELECTRONICS, vol.53, no.12, 2021 (Journal Indexed in SCI)
5. **Influence of position dependent effective mass on impurity binding energy and absorption in quantum wells with the Konwent potential**

Al E. B., Kasapoğlu E., Şakiroğlu S., Sari H., Sökmen İ.

Materials Science in Semiconductor Processing, vol.135, 2021 (Journal Indexed in SCI)

6. **Optical properties of spherical quantum dot in the presence of donor impurity under the magnetic field**  
Al E. B., Kasapoğlu E., Sari H., Sökmen İ.  
Physica B: Condensed Matter, vol.613, 2021 (Journal Indexed in SCI)
7. **Zeeman splitting, Zeeman transitions and optical absorption of an electron confined in spherical quantum dots under the magnetic field**  
Al E. B., Kasapoğlu E., Sari H., Sökmen İ.  
PHILOSOPHICAL MAGAZINE, vol.101, no.1, pp.117-128, 2021 (Journal Indexed in SCI)
8. **Binding energies and optical absorption of donor impurities in spherical quantum dot under applied magnetic field**  
Al E. B., Kasapoğlu E., Sakiroğlu S., Sari H., Sökmen İ., Duque C.  
Physica E: Low-Dimensional Systems and Nanostructures, vol.119, 2020 (Journal Indexed in SCI)
9. **Binding energy of donor impurity states and optical absorption in the Tietz-Hua quantum well under an applied electric field**  
Al E. B., Kasapoglu E., Sakiroglu S., Duque C. A., Sokmen İ.  
JOURNAL OF MOLECULAR STRUCTURE, vol.1157, pp.288-291, 2018 (Journal Indexed in SCI)
10. **Effects of magnetic field, hydrostatic pressure and temperature on the nonlinear optical properties in symmetric double semi-V-shaped quantum well**  
Yesilgul U., Ugan F., Al E. B., Kasapoglu E., Sari H., Sokmen İ.  
OPTICAL AND QUANTUM ELECTRONICS, vol.48, no.12, 2016 (Journal Indexed in SCI)
11. **Infrared transitions between hydrogenic states in GaInNAs/GaAs quantum wells**  
Al E. B., Ugan F., Yesilgul U., Kasapoglu E., Sari H., Sokmen İ.  
INTERNATIONAL JOURNAL OF MODERN PHYSICS B, vol.30, no.22, 2016 (Journal Indexed in SCI)
12. **Linear and nonlinear optical properties in an asymmetric double quantum well under intense laser field: Effects of applied electric and magnetic fields**  
Yesilgul U., Al E. B., Martinez-Orozco J. C., Restrepo R. L., Mora-Ramos M. E., Duque C. A., Ugan F., Kasapoglu E.  
OPTICAL MATERIALS, vol.58, pp.107-112, 2016 (Journal Indexed in SCI)
13. **Effects of applied electric and magnetic fields on the nonlinear optical properties of asymmetric GaAs/Ga<sub>1-x</sub>Al<sub>x</sub>As double inverse parabolic quantum well**  
Al E. B., Ugan F., Yesilgul U., Kasapoglu E., Sari H., Sokmen İ.  
OPTICAL MATERIALS, vol.47, pp.1-6, 2015 (Journal Indexed in SCI)

## Articles Published in Other Journals

1. **Effect of size modulation and donor position on intersubbands refractive index changes of a donor within a spherical core/shell/shell semiconductor quantum dot**  
Al E. B.  
Cumhuriyet Science Journal, vol.42, no.3, pp.694-701, 2021 (International Refereed University Journal)
2. **Nonlinear optical rectification the second and third harmonic generation in asymmetric double quantum well under the intense laser field**  
Yeşilgül Ü., Al E. B., Ugan F., Kasapoğlu E.  
Cumhuriyet Science Journal, vol.37, no.4, 2016 (Refereed Journals of Other Institutions)
3. **SAFSIZLIK DÜZEYLERİ ARASINDAKİ KIZILÖTESİ GEÇİŞLER ÜZERİNE ELEKTRİK ALAN ETKİSİ**  
Al E. B., Yıldız Y. E., Ugan F.  
Cumhuriyet Science Journal, vol.36, no.7, pp.153-173, 2015 (Other Refereed National Journals)

## Books & Book Chapters

## 1. Mekanik Laboratuvarı

Al E. B. , Kasapoğlu E.

Cumhuriyet Üniversitesi Yayınları, Sivas, 2016

## Refereed Congress / Symposium Publications in Proceedings

1. **EFFECT OF MAGNETIC FIELD ON LINEAR AND NONLINEAR REFRACTIVE INDEX CHANGES OF A SINGLE DONOR IN A SPHERICAL CORE/SHELL/SHELL SEMICONDUCTOR QUANTUM DOT**  
Al E. B.  
3. INTERNATIONAL BAKU SCIENTIFIC RESEARCH CONGRESS, Baku, Azerbaijan, 15 - 16 October 2021, pp.904-916
2. **EFFECT OF SIZE MODULATION ON THE OPTICAL PROPERTIES OF THE ELECTRON IN A SPHERICAL CORE/SHELL/SHELL SEMICONDUCTOR QUANTUM DOT**  
Al E. B.  
2.INTERNATIONAL SCIENTIFIC RESEARCH AND INNOVATION CONGRESS, İstanbul, Turkey, 11 - 12 September 2021, pp.621-632
3. **OPTICAL PROPERTIES OF INFINITE SPHERICAL QUANTUM DOT UNDER MAGNETIC FIELD**  
Al E. B. , Kasapoğlu E., Sari H.  
VIII. UMTEB INTERNATIONAL CONGRESS ON VOCATIONAL TECHNICAL SCIENCES, Sivas, Turkey, 11 - 13 October 2019, pp.234-244
4. **OPTICAL PROPERTIES OF FINITE SPHERICAL QUANTUM DOT UNDER MAGNETIC FIELD**  
Al E. B. , Kasapoğlu E., Sari H.  
VIII. UMTEB INTERNATIONAL CONGRESS ON VOCATIONAL TECHNICAL SCIENCES, Sivas, Turkey, 11 - 13 October 2019, pp.223-233
5. **Binding Energy Of Donor Impurity States And Optical Absorption In Tietz-Hua Quantum Well Under The Electric Field**  
Kasapoğlu E., Al E. B.  
4th International conference on materials science and nanotechnology for next generation (MSNG2017), Sarajevo, Bosnia And Herzegovina, 28 - 30 June 2017, pp.288-291
6. **NONLINEAR OPTICAL RECTIFICATION THE SECOND AND THIRD HARMONIC GENERATION IN AN ASYMMETRIC DOUBLE QUANTUM WELL UNDER THE INTENSE LASER FIELD**  
Al E. B. , Yeşilgül Ü., Ugan F., Kasapoğlu E.  
16th International Balkan Workshop on Applied Physics and Materials Science, Constanta, Romania, 7 - 09 July 2016, pp.86-87
7. **The effect of electric field on the nonlinear optical properties in asymmetric parabolic quantum well under intense laser field**  
Yeşilgül Ü., Ugan F., Al E. B. , Kasapoğlu E.  
The 16 th International Balkan Workshop on Applied Physics, Constanta, Romania, 7 - 09 July 2016

## Courses

General Physics II, Undergraduate, 2020 - 2021

General Physics Laboratory II, Undergraduate, 2020 - 2021

Vocational English I, Undergraduate, 2021 - 2022

General Physics Laboratory I, Undergraduate, 2020 - 2021

General Physics I, Undergraduate, 2020 - 2021

## Scientific Refereeing

PHYSICA SCRIPTA, Journal Indexed in SCI-E, July 2022

Journal Of Low Temperature Physics, Journal Indexed in SCI-E, June 2022

INDIAN JOURNAL OF PHYSICS, Journal Indexed in SCI-E, June 2022

PHYSICA SCRIPTA, Journal Indexed in SCI-E, April 2022

Physica Scripta, Journal Indexed in SCI-E, March 2022

Cumhuriyet Science Journal, Other Indexed Journal, January 2022

PHYSICA SCRIPTA, Journal Indexed in SCI-E, November 2020

## **Edit Congress and Symposium Activities**

5th International Conference on Physical Chemistry & Functional Materials, Working Group, Sivas, Turkey, 2022

9th International Workshop on Nuclear Structure Properties, Working Group, Sivas, Turkey, 2016

## **Citations**

Total Citations (WOS):142

h-index (WOS):7

## **Research Areas**

Electrical properties of electronic structures, interfaces, thin films and low-dimensional structures, Magnetic Properties and Materials, Optical Properties, Spectroscopy of Matter

## **Non Academic Experience**

Club, Ülküspor, Futbol