

## Prof. Bahattin ABAY

### Personal Information

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### International Researcher IDs

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Publons / Web Of Science ResearcherID: A-3822-2016

Yoksis Researcher ID: 37821

### Education Information

Doctorate, Ataturk University, Fen Bilimleri Enstitüsü, Katıhal Fiziği, Turkey 1988 - 1996

Postgraduate, Ataturk University, Fen Bilimleri Enstitüsü, Atom Molekül Fiziği, Turkey 1986 - 1988

Undergraduate, Ataturk University, Fen-Edebiyat, Fizik, Turkey 1981 - 1985

### Foreign Languages

English, B2 Upper Intermediate

### Dissertations

Doctorate, TlInSe<sub>2</sub> ve TlGaSe<sub>2</sub> (Ternary) yarıiletken bileşiklerinin büyütülmesi ve bazı elektrik ve optik özelliklerinin incelenmesi, Atatürk Üniversitesi, Fen Bilimleri Enstitüsü, Katıhal Fiziği, 1994

Postgraduate, Radyoizotop uyarımlı EDXRF Tekniği ile Tortum-Suyatağı örneğinin elemental analizi, Atatürk Üniversitesi, Fen Bilimleri Enstitüsü, Atom Molekül Fiziği, 1988

### Research Areas

Physics, Condensed Matter 1: Structural, Mechanical and Thermal Properties, Surfaces, Interfaces, Thin Films and Nanosystems, Intensive Article 2: Electronic Structure, Electric, Magnetic and Optical Properties, Electrical properties of electronic structures, interfaces, thin films and low-dimensional structures, Optical Properties, Spectroscopy of Matter, Electronic transport in condensed matter, Natural Sciences

### Academic Titles / Tasks

Professor, Ataturk University, Fen Fakültesi, Fizik, 1986 - Continues

### Courses

Titreşim ve Dalgalar Laboratuvarı, Undergraduate, 2023 - 2024  
Lazerler ve Uygulamaları, Undergraduate, 2023 - 2024  
Electric and Magnetism Laboratory, Undergraduate, 2022 - 2023  
PHYSICS-II (ENGINEERING FACULTY), Undergraduate, 2022 - 2023  
PHYSICS I (ENGINEERING FACULTY), Undergraduate, 2023 - 2024  
OPTICAL PROPERTIES OF SOLIDS AND INVESTIGATION TECHNIQUES, Postgraduate, 2023 - 2024, 2022 - 2023  
PHYSICS-II (ENGINEERING FACULTY), Undergraduate, 2021 - 2022  
SEMİNAR, Postgraduate, 2022 - 2023  
FUNDAMENTAL PHYSICS LABORATORY, Undergraduate, 2022 - 2023  
PHYSICS I (ENGINEERING FACULTY), Undergraduate, 2022 - 2023  
Fizik I, Undergraduate, 2022 - 2023  
ELECTRICITY AND MAGNETISM, Undergraduate, 2021 - 2022  
FUNDAMENTAL PHYSICS (DEPARTMENT OF MBG), Undergraduate, 2019 - 2020  
CLASSICAL MECHANICS, Undergraduate, 2020 - 2021, 2019 - 2020  
SOLID STATE PHYSICS I, Undergraduate, 2020 - 2021, 2019 - 2020

## Advising Theses

ABAY B., Au/p-TlInS<sub>2</sub>/n-InP Pseudo Schottky yapıların tavlama ve numune sıcaklığına bağlı elektriksel karakterizasyonu, Doctorate, S.YAZICI(Student), 2015  
ABAY B., Magnetron saçırma yöntemiyle hazırlanan metal/P-InP Schottky diyotların karakteristik parametrelerinin tavlama ve numune sıcaklığına bağlı değişimlerinin incelenmesi, Doctorate, K.EJDERHA(Student), 2012  
ABAY B., Homojen olmayan FeCrNiC/p-Si Schottky yapısının sıcaklığa bağlı elektriksel karakterizasyonu, Postgraduate, A.NIDA(Student), 2011  
ABAY B., n-GaAs üzerinde oluşturulan fecrnic schottky kapı metalli diyotların elektriksel karakterizasyonu, Postgraduate, P.AKSU(Student), 2010  
ABAY B., Au/n-InP ve Au/Pyronine-B/n-InP Schottky yapıların sıcaklığa bağlı elektriksel karakterizasyonu, Doctorate, M.SOYLU(Student), 2007  
ABAY B., InSe ve InSe:N yarıiletken kristallerinin büyütülmesi ve optik karakterizasyonu, Postgraduate, M.SOYLU(Student), 2002  
ABAY B., InSe ve InSe:Bi yarıiletkenlerinin büyütülmesi ve elektriksel karakterizasyonu, Postgraduate, U.MUSTAFA(Student), 2001

## Jury Memberships

PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Atatürk Üniversitesi, December, 2022  
PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Atatürk Üniversitesi, June, 2022  
PhD Thesis Monitoring Committee Member, PhD Thesis Monitoring Committee Member, Atatürk Üniversitesi, June, 2021  
Associate Professor Exam, Associate Professor Exam, Ankara Üniversitesi, August, 2020  
Associate Professor Exam, Associate Professor Exam, Gazi Üniversitesi, February, 2020

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

- Exploring the potential of anthracene derivatives as fluorescence emitters for biomedical applications**  
Aydemir M., Haykir G., Selvitopi H., Yildirim O. C., Arslan M. E., Abay B., Turksoy F.  
JOURNAL OF MATERIALS CHEMISTRY B, vol.11, no.19, pp.4287-4295, 2023 (SCI-Expanded)

- II. **Analysis of I-V-T Characteristics of Au/n-InP Schottky Barrier Diodes with Modeling of Nanometer-Sized Patches at Low Temperature**  
Fritah A., Dehimi L., Pezzimenti F., Saadoune A., ABAY B.  
JOURNAL OF ELECTRONIC MATERIALS, vol.48, no.6, pp.3692-3698, 2019 (SCI-Expanded)
- III. **THE CHARACTERISTIC DIODE PARAMETERS IN Ti/p-InP CONTACTS PREPARED BY DC SPUTTERING AND EVAPORATION PROCESSES OVER A WIDE MEASUREMENT TEMPERATURE**  
Ejderha K., Asubay S., Yildirim N., Gullu O., TÜRÜT A., ABAY B.  
SURFACE REVIEW AND LETTERS, vol.24, no.4, 2017 (SCI-Expanded)
- IV. **Investigation on the non-ideal behaviour of Au/n-InP Schottky diodes by the simulation of I-V-T and C-V-T characteristics**  
Fritah A., Saadoune A., Dehimi L., ABAY B.  
Philosophical Magazine, vol.96, no.19, pp.2009-2026, 2016 (SCI-Expanded)
- V. **Synthesis, thermal and optical properties of a novel bis(2-(4-dicyanovinylphenyl) pyridinato-N, C2) iridium(acetylacetonate)**  
Altinolcek N., Tavasli M., Aydemir M., Abay B., Monkman A. P.  
INORGANICA CHIMICA ACTA, vol.440, pp.102-106, 2016 (SCI-Expanded)
- VI. **Barrier characteristics of biopolymer-based organic/inorganic Au/CTS/n-InP hybrid junctions**  
Abay B.  
PHILOSOPHICAL MAGAZINE, vol.95, no.31, pp.3413-3428, 2015 (SCI-Expanded)
- VII. **Double Gaussian distribution of barrier height for FeCrNiC alloy Schottky contacts on p-Si substrates**  
Bestas A. N., YAZICI S., AKTAŞ F., ABAY B.  
APPLIED SURFACE SCIENCE, vol.318, pp.280-284, 2014 (SCI-Expanded)
- VIII. **Temperature-dependent I-V characteristics in thermally annealed Co/p-InP contacts**  
Ejderha K., Yildirim N., Turut A., ABAY B.  
EUROPEAN PHYSICAL JOURNAL-APPLIED PHYSICS, vol.57, no.1, 2012 (SCI-Expanded)
- IX. **Nanostructured CdSe Films in Low Size-Quantization Regime: Temperature Dependence of the Band Gap Energy and Sub-Band Gap Absorption Tails**  
Pejova B., ABAY B.  
JOURNAL OF PHYSICAL CHEMISTRY C, vol.115, no.47, pp.23241-23255, 2011 (SCI-Expanded)
- X. **Electrical characteristics of Au/Pyronine-B/moderately doped n-type InP Schottky structures in a wide temperature range**  
Soylu M., ABAY B., ONGANER Y.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.509, no.16, pp.5105-5111, 2011 (SCI-Expanded)
- XI. **Analysing space charge-limited conduction in Au/n-InP Schottky diodes**  
Soylu M., ABAY B.  
PHYSICA E-LOW-DIMENSIONAL SYSTEMS & NANOSTRUCTURES, vol.43, no.1, pp.534-538, 2010 (SCI-Expanded)
- XII. **Temperature Dependence of the Band-Gap Energy and Sub-Band-Gap Absorption Tails in Strongly Quantized ZnSe Nanocrystals Deposited as Thin Films**  
Pejova B., ABAY B., Bineva I.  
JOURNAL OF PHYSICAL CHEMISTRY C, vol.114, no.36, pp.15280-15291, 2010 (SCI-Expanded)
- XIII. **Measurement and modelling of the characteristic parameters for silver Schottky contacts on layered p-GaSe compound in a wide temperature range**  
Abay B.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.506, no.1, pp.51-56, 2010 (SCI-Expanded)
- XIV. **The effects of annealing on Au/pyronine-B/MD n-InP Schottky structure**  
Soylu M., ABAY B., ONGANER Y.  
JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS, vol.71, no.9, pp.1398-1403, 2010 (SCI-Expanded)
- XV. **Influence of interface states on the temperature dependence and current-voltage characteristics of Ni/p-InP Schottky diodes**  
Ejderha K., Yildirim N., Turut A., ABAY B.

- SUPERLATTICES AND MICROSTRUCTURES, vol.47, no.2, pp.241-252, 2010 (SCI-Expanded)
- XVI. **Examination by interfacial layer and inhomogeneous barrier height model of temperature-dependent I-V characteristics in Co/p-InP contacts**  
Ejderha K, Yildirim N., ABAY B., Turut A.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.484, pp.870-876, 2009 (SCI-Expanded)
- XVII. **Barrier characteristics of gold Schottky contacts on moderately doped n-InP based on temperature dependent I-V and C-V measurements**  
SOYLU M., ABAY B.  
MICROELECTRONIC ENGINEERING, vol.86, no.1, pp.88-95, 2009 (SCI-Expanded)
- XVIII. **Temperature-dependent behavior of Ti/p-InP/ZnAu schottky barrier diodes**  
Asubay S., GÜLLÜ O., ABAY B., Turut A., Yilmaz A.  
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.23, no.3, 2008 (SCI-Expanded)
- XIX. **Effect of substrate temperature and post-deposition annealing on the properties of evaporated CdSe thin films**  
BACAŞIZ E., Basol B. M., ALTUNBAŞ M., YILMAZ S., TOMAKİN M., Abay B.  
PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, vol.244, no.2, pp.497-504, 2007 (SCI-Expanded)
- XX. **Structural,, electrical and optical properties of Cd<sub>1-x</sub>Zn<sub>x</sub>O thin films and alloying effects on K beta/K alpha intensity ratios**  
BACAŞIZ E., BOLAT S., CEVIK U., DOĞAN O., Abay B.  
X-RAY SPECTROMETRY, vol.35, no.3, pp.165-168, 2006 (SCI-Expanded)
- XXI. **Current- and capacitance-voltage characteristics of Cd/p-GaTe Schottky barrier diodes under hydrostatic pressure**  
ÇANKAYA G., Abay B.  
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.21, no.2, pp.124-130, 2006 (SCI-Expanded)
- XXII. **Copper diffusion in ZnS thin films**  
BACAŞIZ E., DZHAFAROV T., NOVUZOV V., ÖZTÜRK K., TOMAKİN M., KÜÇÜKÖMEROĞLU T., ALTUNBAŞ M., YANMAZ E., Abay B.  
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.201, no.13, pp.2948-2952, 2004 (SCI-Expanded)
- XXIII. **Electrical transport properties of p-GaTe grown by directional freezing method**  
EFEOĞLU H., KARACALI T., ABAY B., YOGURTÇU Y.  
Semiconductor Science and Technology, vol.19, no.3, pp.523-530, 2004 (SCI-Expanded)
- XXIV. **Barrier characteristics of Cd/p-GaTe Schottky diodes based on I-V-T measurements**  
Abay B., ÇANKAYA G., GÜDER H. S., Efeoglu H., YOĞURTÇU Y. K.  
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.18, no.2, pp.75-81, 2003 (SCI-Expanded)
- XXV. **Low-temperature visible photoluminescence spectra of Tl<sub>2</sub>GaInSe<sub>4</sub> layered crystals**  
ABAY B., EFEOĞLU H., YOĞURTÇU Y. K., ALİEVA M.  
SEMICONDUCTOR SCIENCE AND TECHNOLOGY, vol.16, no.9, pp.745-749, 2001 (SCI-Expanded)
- XXVI. **Photoluminescence characterization of GaTe single crystals**  
Güder H., ABAY B., EFEOĞLU H., Yoğurtçu Y.  
Journal of Luminescence, vol.93, no.3, pp.243-248, 2001 (SCI-Expanded)
- XXVII. **Temperature dependence of the optical energy gap and Urbach-Martienssen's tail in the absorption spectra of the layered semiconductor Tl<sub>2</sub>GaInSe<sub>4</sub>**  
ABAY B., Güder H., EFEOĞLU H., Yogurtçu Y.  
Journal of Physics and Chemistry of Solids, vol.62, no.4, pp.747-752, 2001 (SCI-Expanded)
- XXVIII. **Urbach Martienssen Tails in the Absorption Spectra of Layered Ternary Semiconductor TlGaS<sub>2</sub>**  
ABAY B., GÜDER H. S., EFEOĞLU H., YOĞURTÇU Y. K.  
Physica Status Solidi B-Basic Solid State Physics, vol.227, pp.469-476, 2001 (SCI-Expanded)
- XXIX. **Current-voltage and capacitance-voltage characteristics of metallic polymer/InSe(:Er) Schottky contacts**  
ABAY B., ONGANER Y., SAĞLAM M., EFEOĞLU H., Türüt A., Yoğurtçu Y.

- Microelectronic Engineering, vol.51, pp.689-693, 2000 (SCI-Expanded)
- XXX. **Excitonic Absorption and Urbach Martienssen's Tails in Gd Doped and Undoped p type GaSe**  
ABAY B., GÜDER H. S., EFEOĞLU H., YOĞURTÇU Y. K.  
Semiconductor Science And Technology, vol.15, pp.535-541, 2000 (SCI-Expanded)
- XXXI. **Urbach-Martienssen's tails in layered semiconductor GaSe**  
ABAY B., Güder H., Yogurtçu Y.  
Solid State Communications, vol.112, no.9, pp.489-494, 1999 (SCI-Expanded)
- XXXII. **Urbach-Martienssen tails in Er-doped and undoped n-type InSe**  
ABAY B., Güder H., EFEOĞLU H., Yoğurtçu Y.  
Physica B: Condensed Matter, vol.254, pp.148-155, 1998 (SCI-Expanded)
- XXXIII. **Influence of temperature and phase transitions on the Urbach's tails of absorption spectra for TlInS<sub>2</sub> single crystals**  
Abay B., GÜDER H. S., Efeoglu H., YOĞURTÇU Y. K.  
JOURNAL OF APPLIED PHYSICS, vol.84, no.7, pp.3872-3879, 1998 (SCI-Expanded)
- XXXIV. **Growth and optical properties of Ho doped n-type indium selenide**  
Gurbulak B., Yildirim M., Abay B., TÜZEMEN S., Alieva M., Yogurtcu Y.  
PHYSICA STATUS SOLIDI A-APPLIED RESEARCH, vol.168, no.2, pp.495-500, 1998 (SCI-Expanded)
- XXXV. **Growth and optical properties of Ho doped n type indium selenide**  
ABAY B., GÜRBULAK B., YILDIRIM M., TÜZEMEN S., YOĞURTÇU Y. K.  
PHYSICA STATUS SOLIDI A-APPLICATIONS AND MATERIALS SCIENCE, vol.168, pp.495-500, 1998 (SCI-Expanded)
- XXXVI. **Low-temperature photoluminescence of n-InSe layer semiconductor crystals**  
ABAY B., EFEOĞLU H., Yoğurtçu Y.  
Materials Research Bulletin, vol.33, no.9, pp.1401-1410, 1998 (SCI-Expanded)
- XXXVII. **Growth and Optical Properties of Ho Doped n type InSe**  
GÜRBULAK B., YILDIRIM M., ABAY B., TÜZEMEN S., ALİEVA M., YOĞURTÇU Y. K.  
Physica Status Solidi A-Applications And Materials Science, vol.168, pp.495-500, 1998 (SCI-Expanded)
- XXXVIII. **Characteristics of metallic polymer and Au Schottky contacts on cleaved surfaces of InSe(:Er).**  
ABAY B., ONGANER Y., SAĞLAM M., EFEOĞLU H., TURUT A., YOĞURTÇU Y. K.  
SOLID-STATE ELECTRONICS, vol.41, no.6, pp.924-926, 1997 (SCI-Expanded)
- XXXIX. **Characteristics of metallic polymer and Au Schottky contacts on cleaved surfaces of InSe(:Er)**  
ABAY B., ONGANER Y., SAĞLAM M., EFEOĞLU H., TURUT A., YOĞURTÇU Y. K.  
SOLID-STATE ELECTRONICS, vol.41, no.6, pp.924-926, 1997 (SCI-Expanded)
- XL. **Temperature dependence of galvanomagnetic properties for Er-doped and undoped n-type InSe**  
YILDIRIM M., GÜRBULAK B., ABAY B., EFEOĞLU H., TÜZEMEN S., YOĞURTÇU Y. K.  
JOURNAL OF APPLIED PHYSICS, vol.80, no.8, pp.4437-4441, 1996 (SCI-Expanded)
- XLI. **Electrothermal investigation of the switching effect in p-type TlInSe<sub>2</sub>, TlInTe<sub>2</sub>, and TlGaTe<sub>2</sub>, chain chalcogenide semiconductors**  
Abay B., Gurbulak B., Yildirim M., Efeoglu H., Tuzemen S., YOĞURTÇU Y. K.  
JOURNAL OF ELECTRONIC MATERIALS, vol.25, no.7, pp.1054-1059, 1996 (SCI-Expanded)
- XLII. **Temperature dependence of magnetoresistance in neutron-irradiated and unirradiated high resistivity p-type silicon**  
YILDIRIM M., EFEOĞLU H., ABAY B., YOĞURTÇU Y. K.  
PHYSICA STATUS SOLIDI A-APPLIED RESEARCH, vol.153, no.2, pp.473-480, 1996 (SCI-Expanded)
- XLIII. **Electrothermal investigation of the switching phenomena in p-type TlInSe<sub>2</sub> single crystals**  
Abay B., Gurbulak B., Yildirim M., Efeoglu H., YOĞURTÇU Y. K.  
PHYSICA STATUS SOLIDI A-APPLIED RESEARCH, vol.153, no.1, pp.145-151, 1996 (SCI-Expanded)
- XLIV. **Interpreting the nonideal reverse bias C-V characteristics and importance of the dependence of Schottky barrier height on applied voltage**  
TURUT A., SAĞLAM M., EFEOĞLU H., Yalçın N., YILDIRIM M., ABAY B.  
PHYSICA B-CONDENSED MATTER, vol.205, pp.41-50, 1995 (SCI-Expanded)
- XLV. **INTERPRETING THE NONIDEAL REVERSE BIAS C-V CHARACTERISTICS AND IMPORTANCE OF THE**

## DEPENDENCE OF SCHOTTKY-BARRIER HEIGHT ON APPLIED VOLTAGE

TURUT A., SAĞLAM M., EFEOĞLU H., Yalçın N., YILDIRIM M., ABAY B.

PHYSICA B, vol.205, no.1, pp.41-50, 1995 (SCI-Expanded)

### XLVI. Barrier height enhancement by annealing CrNiCo alloy Schottky contacts on LEC GaAs

Türüt A., Tüzemen S., YILDIRIM M., ABAY B., SAĞLAM M.

Solid State Electronics, vol.35, no.10, pp.1423-1426, 1992 (SCI-Expanded)

## Articles Published in Other Journals

- I. **Characteristic diode parameters in thermally annealed Ni/p-InP contacts**  
TÜRÜT A., Ejderha K., Yildirim N., ABAY B.  
JOURNAL OF SEMICONDUCTORS, vol.37, no.4, 2016 (ESCI)
- II. **GaTe Tabakalı Yarıiletkeni İçin Omik Kontak Optimizasyonu ve Yapısal Karakterizasyon**  
CEVDET C., EFEOĞLU H., ABAY B., GÜDER H. S., SAKIR A., KARACALI T., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.159, 2001 (Peer-Reviewed Journal)
- III. **Low Temperature Near Band Edge Photoluminescence Characterisation of GaTe**  
EFEOĞLU H., Gülnahar M., ABAY B., CEVDET C., GÜDER H. S., SAKIR A., KARACALI T., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.173, 2001 (Peer-Reviewed Journal)
- IV. **Effect of Hydrostatic Pressure on the Current-Voltage Characteristics of Au/p-GaSe Schottky-Barrier Diodes**  
ÇANKAYA G., ABAY B., Uçar N., EFEOĞLU H., YOĞURTCU Y. K.  
Balkan Physics Letters, vol.2001-1, pp.64-69, 2001 (Peer-Reviewed Journal)
- V. **Effect of Hydrostatic Pressure on the Current-Voltage Characteristics of Au/p-GaSe Schottky-Barrier Diodes**  
ÇANKAYA G., ABAY B., Uçar N., EFEOĞLU H., YOĞURTCU Y. K.  
Balkan Physics Letters, vol.2001-1, pp.64-69, 2001 (Peer-Reviewed Journal)
- VI. **GaTe Tabakalı Yarıiletkeni İçin Omik Kontak Optimizasyonu ve Yapısal Karakterizasyon**  
CEVDET C., EFEOĞLU H., ABAY B., GÜDER H. S., SAKIR A., KARACALI T., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.159, 2001 (Peer-Reviewed Journal)
- VII. **Low Temperature Photoluminescence of GaTe ve GaTe:Er**  
GÜDER H. S., ABAY B., EFEOĞLU H., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.179, 2001 (Peer-Reviewed Journal)
- VIII. **Electrical Characterization of Bi Doped and Undoped InSe**  
ABAY B., Aydemir U. M., GÜDER H. S., EFEOĞLU H., YOĞURTCU Y. K.  
Balkan Physics Letters, vol.2001-1, pp.1-7, 2001 (Peer-Reviewed Journal)
- IX. **Electrical Characterization of Bi Doped and Undoped InSe**  
ABAY B., Aydemir U. M., GÜDER H. S., EFEOĞLU H., YOĞURTCU Y. K.  
Balkan Physics Letters, vol.2001-1, pp.1-7, 2001 (Peer-Reviewed Journal)
- X. **Low Temperature Near Band Edge Photoluminescence Characterisation of GaTe**  
EFEOĞLU H., Gülnahar M., ABAY B., CEVDET C., GÜDER H. S., SAKIR A., KARACALI T., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.173, 2001 (Peer-Reviewed Journal)
- XI. **Low Temperature Photoluminescence of GaTe ve GaTe:Er**  
GÜDER H. S., ABAY B., EFEOĞLU H., YOĞURTCU Y. K.  
Fırat Üniv. Fen ve Müh. Bilimleri Dergisi, vol.13, pp.179, 2001 (Peer-Reviewed Journal)
- XII. **Electrical characterization of GaTe and GaTe:Cu Semiconductor Compounds**  
GÜDER H. S., ABAY B., SAKIR A., CEVDET C., EFEOĞLU H., YOĞURTCU Y. K.  
Turkish J. of Physics, vol.25, no.6, pp.281, 2001 (Peer-Reviewed Journal)
- XIII. **Electrical characterization of GaTe and GaTe:Cu Semiconductor Compounds**  
GÜDER H. S., ABAY B., SAKIR A., CEVDET C., EFEOĞLU H., YOĞURTCU Y. K.  
Turkish J. of Physics, vol.25, no.6, pp.281, 2001 (Peer-Reviewed Journal)

- XIV. **Urbach–Martienssen’s Tail in Layered Semiconductor TlGaS<sub>2</sub>**  
 ABAY B., GÜDER H. S., EFEOĞLU H., YOĞURTÇU Y. K.  
 Turkish J. of Physics, vol.25, no.6, pp.543-549, 2001 (Peer-Reviewed Journal)
- XV. **Urbach–Martienssen’s Tail in Layered Semiconductor TlGaS<sub>2</sub>**  
 ABAY B., GÜDER H. S., EFEOĞLU H., YOĞURTÇU Y. K.  
 Turkish J. of Physics, vol.25, no.6, pp.543-549, 2001 (Peer-Reviewed Journal)
- XVI. **Radiative Recombination Centers in GaTe**  
 GÜDER H. S., ABAY B., EFEOĞLU H., YOĞURTÇU Y. K.  
 Bulgarian Journal of Physics, vol.27, no.2, pp.72-75, 2000 (Peer-Reviewed Journal)
- XVII. **Radiative Recombination Centers in GaTe**  
 GÜDER H. S., ABAY B., EFEOĞLU H., YOĞURTÇU Y. K.  
 Bulgarian Journal of Physics, vol.27, no.2, pp.72-75, 2000 (Peer-Reviewed Journal)
- XVIII. **Specific Contact Resistance Measurements on Metal-GaTe Contacts and Its Optimisation**  
 CEVDET C., EFEOĞLU H., GÜDER H. S., ABAY B., SAKIR A., KARACALI T., YOĞURTÇU Y. K.  
 Bulgarian Journal of Physics, vol.27, no.2, pp.80-83, 2000 (Peer-Reviewed Journal)
- XIX. **Specific Contact Resistance Measurements on Metal-GaTe Contacts and Its Optimisation**  
 CEVDET C., EFEOĞLU H., GÜDER H. S., ABAY B., SAKIR A., KARACALI T., YOĞURTÇU Y. K.  
 Bulgarian Journal of Physics, vol.27, no.2, pp.80-83, 2000 (Peer-Reviewed Journal)
- XX. **Specific Contact Resistance Measurement on Metal/GaTe Contacts and Its Optimisation**  
 COŞKUN C., EFEOĞLU H., ABAY B., güder h. s., AYDOĞAN Ş., YOĞURTÇU Y. K.  
 Proceeding Supplements of Bulgarian Journal of Physics, 2000 (Peer-Reviewed Journal)
- XXI. **Temperature Dependence of Electrical and Optic Properties for Gd Doped and Undoped p type GaSe**  
 GÜRBULAK B., DOĞAN S., ATEŞ A., ABAY B., COŞKUN C., YILDIRIM M., TÜZEMEN S., YOĞURTÇU Y. K.  
 Balkan Physics Letters, 1997 (Peer-Reviewed Journal)
- XXII. **Temperature Dependence of Electrical and Optic Properties for Er Doped and Undoped n type InSe**  
 GÜRBULAK B., DOĞAN S., ATEŞ A., ABAY B., COŞKUN C., YILDIRIM M., TÜZEMEN S., YOĞURTÇU Y. K.  
 Balkan Physics Letters, 1997 (Peer-Reviewed Journal)
- XXIII. **Temperature Dependence of Electrical and Optical Properties for Er Doped and Undoped n-type InSe**  
 GÜRBULAK B., Doğan S., Aytunç A., ABAY B., CEVDET C., YILDIRIM M., TÜZEMEN S., YOĞURTÇU Y. K.  
 Balkan Physics Letters, vol.5, no.4, pp.2585-2588, 1997 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Laterally inhomogeneous barrier height analysis for thermally annealed CuNiTi/p-InP contacts**  
 ABAY B.  
 5th International Conference on Material Science and Engineering Technology, ICMSET 2016, Tokyo, Japan, 29 - 31 October 2016, pp.127-130
- II. **Statistical Investigation of Characteristic Parameters for FeCrNiC p Si Junctions**  
 ABAY B.  
 IPCAP2016, Erzurum, Turkey, 25 - 27 February 2016
- III. **Analysis of the Characteristics Parameters for FeCrNiC n GaAs Structure by Current Voltage Temperature I V T Measurements**  
 ABAY B.  
 IPCAP2016, Erzurum, Turkey, 25 - 27 February 2016
- IV. **Temperature Dependent Barrier Parameters for Vapour Transport Deposition Growth Au C14H10 n InP Heterojunctions**  
 AKTAS F., YAZICI S., ABAY B.  
 BPU-9 9th International Physics Conference of the Balkan Physical Union, Erzurum, Turkey, 24 - 27 August 2015
- V. **Barrier Characteristics of Au p TlInS<sub>2</sub> n InP Pseudo Schottky Junctions as a function of Temperature**  
 YAZICI S., ABAY B.

BPU-9 9th International Physics Conference of the Balkan Physical Union, Erzurum, Turkey, 24 - 27 August 2015

- VI. **Doğrudan Katılaştırma Yöntemi ile Büyütülmüş GaTe 'in Elektriksel Özellikleri ve Isıl İşlemin Etkisi**  
EFEOĞLU H., ABAY B., KARACALI T., AYDINLI A., YOĞURTCU Y. K.  
TFD 21. Fizik Kongresi, Turkey, 11 - 14 September 2002
- VII. **Temperature Dependence of Electrical and Optic Properties for Er Doped and Undoped p-type InSe, ROMANIA.**  
GÜRBULAK B., DOĞAN S., ATEŞ A., ABAY B., YILDIRIM M., TÜZEMEN S., YOĞURTCU Y. K., COŞKUN C.  
3th General Conferences of the Balkan Physical Union 2-5 September 1997 Cnuj- Napoca, 2 - 05 September 1997
- VIII. **Temperature Dependence of Electrical and Optic Properties for Gd Doped and Undoped p-type GaSe,**  
GÜRBULAK B., DOĞAN S., ATEŞ A., ABAY B., YILDIRIM M., YOĞURTCU Y. K., COŞKUN C.  
3th General Conferences of the Balkan Physical Union 2-5 September 1997 Cnuj- Napoca, ROMANIA., 2 - 05 September 1997
- IX. **Optical Assesment of Bulk and Epitaxial Structures, Optical Spectroscopy of Low Dimensional Semiconductor Structures, NATO-ASI (Advanced Study Institute), September 9-20, 1996, Bilkent University, Ankara-Antalya, (Poster Presentation).**  
TÜZEMEN S., EFEOĞLU H., ABAY B., YILDIRIM M., GÜRBULAK B., YOĞURTCU Y. K.  
NATO-ASI (Advanced Study Institute), September 9-20, 1996, Bilkent University, Ankara-Antalya, ., 9 - 22 September 1996
- X. **InSe ve InSe:Er Kristallerinin Büyütülmesi ve Eksiton Enerjilerinin Sıcaklığa Bağlılığı**  
GÜRBULAK B., ABAY B., COŞKUN C., ATEŞ A., ALİEVA M., YOĞURTCU Y. K.  
Türk Fizik Derneği 16.Ulusal Fizik Kongresi 26-29 Ağustos 1996 Ayvalık Balıkesir (Sözlü Bildiri), Turkey, 26 - 29 August 1996
- XI. **TlGaSe<sub>2</sub> ve TlGaSe<sub>2</sub>:Gd Kristallerinde Sıcaklığın Soğurmaya Etkisi**  
GÜRBULAK B., ABAY B., DOĞAN S., YOĞURTCU Y. K., YILDIRIM M.  
Türk Fizik Derneği 16.Ulusal Fizik Kongresi 26-29 Ağustos 1996 Ayvalık Balıkesir (Sözlü bildiri), Turkey, 26 - 29 August 1996
- XII. **LEC Tekniğiyle Büyütülmüş GaAs ın Kuantum Veriminin Laser Yardımlı Anodik Oksidasyon ile Artırılması**  
EFEOĞLU H., TÜZEMEN S., TURUT A., ABAY B., YILDIRIM M., GÜRBULAK B., COŞKUN C., YOĞURTCU Y. K.  
Türk Fizik Derneği 15. Fizik Kongresi 26-29, Eylül Kaş-Antalya (Sözlü bildiri), Turkey, 26 - 29 September 1995
- XIII. **Tam Otomatik Fotoluminesans Sisteminin Dizaynı ve Yarıiletken Karakterizasyonunda Uygulaması.**  
EFEOĞLU H., TÜZEMEN S., YILDIRIM M., ABAY B., TURUT A., SAĞLAM M., GÜRBULAK B., YOĞURTCU Y. K.  
Türk Fizik Derneği 15. Fizik Kongresi 26-29 Eylül 1995 Kaş-Antalya (Sözlü bildiri), Turkey, 26 - 29 September 1995
- XIV. **LEC Tekniğiyle Büyütülmüş n-Tipi GaAs'xxde Galvanomagnetik Etkilerin Sıcaklığa Bağlı İncelenmesi.**  
GÜRBULAK B., YILDIRIM M., ABAY B., TÜZEMEN S., EFEOĞLU H., DOĞAN S., YOĞURTCU Y. K.  
Türk Fizik Derneği 15.Ulusal Fizik Kongresi 26-29 Eylül 1995 Kaş Antalya (Poster bildiri), Turkey, 26 - 27 September 1995
- XV. **AIIBVI ve AIIBIII Ternary Yarıiletkenlerini Büyütme Sistemi ve TlInSe<sub>2</sub> ile TlGaSe<sub>2</sub> Tek Kristallerinin Büyütülmesi.**  
GÜRBULAK B., ABAY B., YILDIRIM M., TÜZEMEN S., EFEOĞLU H., SAĞLAM M., YOĞURTCU Y. K.  
Türk Fizik Derneği 15.Ulusal Fizik Kongresi 26-29 Eylül 1995 Kaş Antalya (Poster bildiri), Turkey, 26 - 29 September 1995
- XVI. **Investigation of Optic and Photoelectrical Properties of TlIn<sub>1-x</sub>GaxSe<sub>2</sub> (0 ≤ x ≤ 0.3, 0.55 ≤ x ≤ 1) Solid Solution, 10th International Conference on Ternary and Multiternary Compounds, 19-22 September, 1995, Stuttgart - Germany. (Poster Presentation).**  
ABAY B., EFEOĞLU H., GÜRBULAK B., YOĞURTCU Y. K., AGAEVA M. S., ALİEVA M., DARVİSHOV N. G., PASHAEVD A. M.  
10th International Conference on Ternary and Multiternary Compounds, 19-22 September, 1995, Stuttgart - Germany., 19 - 22 September 1995
- XVII. **Mapping of Infra-red Absorption Centres in Layered TlGaSe<sub>2</sub>, TlGaS<sub>2</sub> and TlInS<sub>2</sub> 7-19 October, 1994**



### **Barcelona- Spain, (Oral Presentation).**

TÜZEMEN S., GÜRBULAK B., EFEOĞLU H., YILDIRIM M., YOĞURTÇU Y. K., ABAY B.

The First International Conference on Materials for Microelectronics, 7 - 09 November 1994

### **XVIII. AIBIII ve AIBIV Ternary Yarıiletkenlerini Büyütme Sistemi ve CuInSe<sub>2</sub> Tek Kristallerinin Büyütülmesi,**

GÜRBULAK B., ABAY B., EFEOĞLU H., YOĞURTÇU Y. K., SAĞLAM M.

TFD 14. Ulusal Fizik Kongresi, 25-27 Ekim 1993, Yakın Doğu Üniversitesi, Lefkoşa, K.K.T.C., (Poster Bildiri), Turkey, 25 - 27 October 1993

### **XIX. TlFeS<sub>2</sub>(Se<sub>2</sub>-Te<sub>2</sub>) Magnetik Yarıiletkenlerin Büyütülmesi, Kimyasal ve Yapısal Özelliklerinin İncelenmesi,**

HÜSEYİNOV H. C., GÜRBULAK B., ABAY B., YOĞURTÇU Y. K.

Türk Fizik Derneği 14.Ulusal Fizik Kongresi 25-27 Ekim 1993 Yakın Doğu Üni. Lefkoşa K.K.T.C. (Sözlü bildiri), Turkey, 25 - 27 October 1993

### **XX. AIBIBIII Tabakalı Yarıiletken Kristallerin Büyütülmesi ve Bazı Elektriksel Özelliklerinin İncelenmesi.**

ABAY B., GÜRBULAK B., YILDIRIM M., TURUT A., YOĞURTÇU Y. K.

Türk Fizik Derneği 14. Ulusal Fizik Kongresi 25-27 Ekim 1993 Yakın Doğu Üni. Lefkoşa K.K.T.C. (Sözlü bildiri), Turkey, 25 - 27 October 1993

## **Supported Projects**

ABAY B., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Polimer tabanlı yarıiletken-organik/inorganik Schottky diyot ve LED'lerin üretimi, optik ve elektronik özelliklerinin incelenmesi, 1999 - 2002

EFEOĞLU İ., ABAY B., EFEOĞLU H., TUBITAK Project, GaTe ikili yarıiletken bileşiğinin büyüütme parametrelerinin kristal yapı üzerindeki etkilerinin yapı analizi optik ve elektriksel karakterizasyonla araştırılması, 1999 - 2002

ABAY B., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, II-V (GaAs ve InP) ve Ternary Yarıiletkenlerdeki Nokta Kusurların Elektrik ve Optik Karakterizasyonu ve Bu kusurların MESFET ve MOSFET Devrelerine Etkisinin Araştırılması, 1995 - 1998

ABAY B., CB Strateji ve Bütçe Başkanlığı (Kalkınma Bakanlığı) Projesi, Ternary, Quaternary ve Diluted magnetic Yarıiletkenlerin Büyütülmesi, Elektriksel ve Photoquenching Özelliklerinin İncelenmesi, 1993 - 1998

## **Activities in Scientific Journals**

Journal of Anatolian Physics and Astronomy, Advisory Committee Member, 2020 - Continues

SCIREA Journal of Physics, Committee Member, 2019 - Continues

## **Memberships / Tasks in Scientific Organizations**

Türk Fizik Derneği, Principal Member, 1990 - Continues, Turkey

Türk Fizik Derneği, Member, 1990 - Continues, Turkey

Türk Fizik Derneği, Member, 1990 - Continues, Turkey

## **Scientific Refereeing**

INTERNATIONAL JOURNAL OF ELECTRONICS++, SCI Journal, October 2022

Project Supported by Higher Education Institutions, BAP PhD, Bursa Uludağ University, Turkey, October 2022

MATERIALS SCIENCE & ENGINEERING B: SOLID-STATE MATERIALS FOR ADVANCED TECHNOLOGY, SCI Journal, June 2022

INTERNATIONAL JOURNAL OF ELECTRONICS++, Journal Indexed in SSCI, March 2022

Research on Engineering Structures and Materials, National Scientific Refreed Journal, July 2021

MODERN PHYSICS LETTERS B, Journal Indexed in SSCI, October 2020

TÜBA Project, Ankara University, Turkey, September 2020

PHYSICA B-CONDENSED MATTER, SCI Journal, July 2020

PHYSICA STATUS SOLIDI B-BASIC SOLID STATE PHYSICS, SCI Journal, July 2020

## **Metrics**

Publication: 89

Citation (WoS): 1007

Citation (Scopus): 1029

H-Index (WoS): 19

H-Index (Scopus): 19

## **Awards**

Abay B., Yayın Teşvik, Tübitak, May 2023

## **Non Academic Experience**

Durham University