

Prof. ŞEVKET ŞİMŞEK

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Education Information

Doctorate, Cukurova University, Fen Bilimleri Enstitüsü, Fizik (Dr), Turkey 2008 - 2011

Postgraduate, Cukurova University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), Turkey 2004 - 2008

Undergraduate, Erciyes University, Yozgat Fen-Edebiyat Fakültesi, Fizik Pr., Turkey 2000 - 2004

Dissertations

Doctorate, ABO₃ (A=Ag, Na B=Nb, Ta) tipi kristallerin dinamik özelliklerinin Ab initio yöntemiyle incelenmesi, Cukurova University, Fen Bilimleri Enstitüsü, Fizik (Dr), 2011

Postgraduate, AgNbO₃ ve AgTaO₃ kristallerinin elektronik band yapısı ve optik özelliklerinin incelenmesi, Cukurova University, Fen Bilimleri Enstitüsü, Fizik (YI) (Tezli), 2008

Academic Titles / Tasks

Professor, Hakkari University, Mühendislik Fakültesi, Malzeme Bilimi Ve Mühendisliği Bölümü, 2022 - Continues
Associate Professor, Hakkari University, Mühendislik Fakültesi, Malzeme Bilimi Ve Mühendisliği Bölümü, 2018 - Continues

Hakkari University, Mühendislik Fakültesi, Malzeme Bilimi Ve Mühendisliği Bölümü, 2013 - 2018

Academic and Administrative Experience

Hakkari University, 2022 - Continues

Hakkari University, 2021 - Continues

Hakkari University, 2019 - Continues

Hakkari University, 2019 - Continues

Hakkari University, 2018 - Continues

Hakkari University, 2021 - 2022

Hakkari University, 2013 - 2019

Hakkari University, 2016 - 2018

Hakkari University, 2013 - 2017

Courses

Postgraduate

Fizikte Matematik Metodları II, Postgraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020

Fotonik, Postgraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020

Yoğunluk Fonksiyoneli Teorisi, Postgraduate, 2021 - 2022, 2020 - 2021, 2018 - 2019

Lineer ve Lineer Olmayan Optik, Postgraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Malzeme Modelleme Teknikleri, Postgraduate, 2021 - 2022

Elektromanyetik Teori II, Postgraduate, 2021 - 2022

Malzeme Modelleri Teknikleri, Postgraduate, 2020 - 2021, 2018 - 2019

Elektromanyetik Teori I, Postgraduate, 2020 - 2021, 2018 - 2019

Fizikte Matematik Metotları II, Postgraduate, 2018 - 2019

Katı Hal Fiziği I, Postgraduate, 2018 - 2019

Undergraduate

Genel Fizik II, Undergraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Genel Fizik I, Undergraduate, 2021 - 2022, 2020 - 2021, 2019 - 2020, 2018 - 2019

Matematik I, Undergraduate, 2021 - 2022

Supervised Theses

ŞEVKET Ş., Katkılı titanyum dioksitin yapısal, mekanik ve optik özelliklerinin incelenmesi: Ab initio hesabı, Doctorate, A.AKYOL(Student), 2023

ŞEVKET Ş., Re₂O₃ (Re: Gd, Tb ve Dy) BİLEŞİKLERİNİN ELEKTRONİK, OPTİK VE MEKANİK ÖZELLİKLERİNİN İNCELENMESİ: AB İNİTİO HESABI, Postgraduate, S.DURMAN(Student), 2023

ŞEVKET Ş., Ta katkılı LiNbO₃'ün elektronik, optik ve mekanik özelliklerinin incelenmesi: Ab initio hesabı, Postgraduate, F.ACAR(Student), 2022

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **The structural, mechanical, electronic, and optical properties of multiferroic LiCu₂O₂ under different pressures**
Koc H., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Bulletin of Materials Science, vol.48, no.1, 2025 (SCI-Expanded)
- II. **Structural, elastic, electronic and optical properties of some Ruddlesden–Popper compounds**
ŞİMŞEK Ş.
Bulletin of Materials Science, vol.48, no.1, 2025 (SCI-Expanded)
- III. **The Mechanical, Electronic and Optical Properties of Sn₂P₂S₆ Compound in Different Phases**
Koc H., Palaz S., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Integrated Ferroelectrics, vol.220, no.1, pp.56-70, 2021 (SCI-Expanded)
- IV. **Complete photonic band gaps in Sn₂P₂X₆ (X = S, Se) supercell photonic crystals**
ŞİMŞEK Ş., Palaz S., Koc H., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.557, no.1, pp.92-97, 2020 (SCI-Expanded)
- V. **Elastic and optical properties of sillenites: First principle calculations**
Koc H., Palaz S., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.557, no.1, pp.98-104, 2020 (SCI-Expanded)
- VI. **Photonic band gap of multiferroic-dielectric materials in the IR region: FDTD method**
Palaz S., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.539, no.1, pp.50-54, 2019 (SCI-Expanded)
- VII. **Structural, Electronic, and Mechanical Properties of A₃Mn₂O₇ (A = Sr, Ca): Ab Initio Calculation**
ŞİMŞEK Ş., Koc H., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.538, no.1, pp.135-145, 2019 (SCI-Expanded)

- VIII. **Strain effects and electronic structures of narrow band P-R ferroelectrics: First principles calculation**
Bozdog N., Koc H., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.544, no.1, pp.1-10, 2019 (SCI-Expanded)
- IX. **Electronic band structure of Rare-Earth Ferroelastics: Theoretical investigations**
ŞİMŞEK Ş., UĞUR G., UĞUR Ş., Mamedov A. M., Ozbay E.
Journal of Optoelectronics and Advanced Materials, vol.20, no.1-2, pp.69-73, 2018 (SCI-Expanded)
- X. **Spectral scalability and optical spectra of fractal multilayer structures: FDTD analysis**
ŞİMŞEK Ş., Palaz S., Mamedov A. M., Ozbay E.
Applied Physics A: Materials Science and Processing, vol.123, no.1, 2017 (SCI-Expanded)
- XI. **Optical and electronic properties of orthorhombic and trigonal AX₃ (A=Cd, Zn; X=Sn, Ge): First principle calculation**
Ozisik H., ŞİMŞEK Ş., Deligoz E., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.498, no.1, pp.73-79, 2016 (SCI-Expanded)
- XII. **Topological insulator based locally resonant phononic crystals: Wave propagation and acoustic band gaps**
Oltulu O., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.499, no.1, pp.123-129, 2016 (SCI-Expanded)
- XIII. **Optical properties of the narrow-band ferroelectrics: First principle calculations**
Koc H., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.483, no.1, pp.43-52, 2015 (SCI-Expanded)
- XIV. **Ferroelectric based photonic crystal cavity by liquid crystal infiltration**
Karaomerlioglu F., ŞİMŞEK Ş., Mamedov A. M., Ozbay E.
Integrated Ferroelectrics, vol.158, no.1, pp.1-12, 2014 (SCI-Expanded)
- XV. **Electron spectroscopy and the electronic structure of KNbO₃: First principle calculations**
ŞİMŞEK Ş., Koc H., Trepakov V., Mamedov A., Ozbay E.
Ferroelectrics, vol.461, no.1, pp.99-105, 2014 (SCI-Expanded)
- XVI. **Two-dimensional ferroelectric photonic crystals: Optics and band structure**
Simsek Ş., Mamedov A. M., Ozbay E.
Ferroelectrics, vol.448, no.1, pp.23-28, 2013 (SCI-Expanded)
- XVII. **First-principles calculation of the linear and nonlinear optical properties of LiTaO₃**
ÇABUK S., Simsek Ş.
Physica Scripta, vol.81, no.5, 2010 (SCI-Expanded)

Articles Published in Other Journals

- I. **Electronic, Optical and Mechanical Properties of Ta Doped LiNbO₃: Ab Initio Calculation**
ACAR F., ŞİMŞEK Ş.
CUMHURİYET SCIENCE JOURNAL, vol.46, 2025 (Peer-Reviewed Journal)
- II. **Investigation of Electronic, Elastic and Dynamic Properties of AgNbO₃ and AgTaO₃ under Pressure: Ab Initio Calculation**
ŞİMŞEK Ş.
Scientific Research Publishing, Inc., vol.13, pp.57-77, 2023 (Peer-Reviewed Journal)
- III. **Fibonacci sequences quasiperiodic A₅B₆C₇ ferroelectric based photonic crystal: FDTD analysis**
ŞİMŞEK Ş., Palaz S., Mamedov A. M., Ozbay E.
Advanced Electromagnetics, vol.6, no.4, pp.6-10, 2017 (Scopus)
- IV. **A₁B₁HC₂VI₂ (A = Cu, Ag; B = Ga, In; C = S, Se, Te) based photonic crystal superlattices: Optical properties**
ŞİMŞEK Ş., Palaz S., Akhundov C., Mamedov A. M., Ozbay E.
Physica Status Solidi (C) Current Topics in Solid State Physics, vol.14, no.6, 2017 (Scopus)

- V. **Phononic band gap and wave propagation on polyvinylidene fluoride-based acoustic metamaterials**
OLTULU O., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
Cogent Physics, vol.3, no.1, 2016 (Peer-Reviewed Journal)
- VI. **Mechanical, electronic, and optical properties of the A4B6 layered ferroelectrics: Ab initio calculation**
Koc H., ŞİMŞEK Ş., Palaz S., Oltulu O., Mamedov A. M., Ozbay E.
Physica Status Solidi (C) Current Topics in Solid State Physics, vol.12, no.6, pp.651-658, 2015 (Scopus)
- VII. **Band gap and optical transmission in the Fibonacci type one-dimensional A5B6C7 based photonic crystals**
ŞİMŞEK Ş., Koc H., Palaz S., Oltulu O., Mamedov A. M., Ozbay E.
Physica Status Solidi (C) Current Topics in Solid State Physics, vol.12, no.6, pp.540-544, 2015 (Scopus)
- VIII. **Electronic and Optical Properties of Dy2O3 ab initio calculation**
HOROZ S., ŞİMŞEK Ş., PALAZ S., MAMEDOV A. M., ÖZBAY E.
International Journal of Scientific and Technological Research, vol.1, no.4, pp.36-43, 2015 (Peer-Reviewed Journal)
- IX. **Electronic and Optical Properties of Rare Earth Oxides: Ab Initio Calculation**
HOROZ S., ŞİMŞEK Ş., PALAZ S., MAMEDOV A. M.
World Journal of Condensed Matter Physics, vol.5, no.02, pp.78-85, 2015 (Peer-Reviewed Journal)
- X. **2D Anisotropic Photonic Crystals of Hollow Semiconductor Nanorod with Liquid Crystals**
KARAÖMERLİOĞLU F., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
APPLIED MECHANICS AND MATERIALS, vol.394, pp.38-44, 2013 (Scopus)
- XI. **Electron Energy Loss Spectroscopy and the Electronic Structure of Some Ternary Oxides First Principle Calculations**
ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
Azerbaijan Journal of Physics (FIZIKA), vol.19, no.2, pp.61-66, 2013 (Peer-Reviewed Journal)

Books

- I. **ABO₃ (A=Ag, Na; B=Nb, Ta) TİPİ KRİSTALLERİN DİNAMİK ÖZELLİKLERİNİN Ab İNİTİO YÖNTEMİYLE İNCELENMESİ**
ŞİMŞEK Ş.
Livre de Lyon, Lyon, 2022

Papers Published in Refereed Scientific Meetings

- I. **Incommensurate Phase Transition and Electronic Properties of BaMnF₄**
Palaz S., ŞİMŞEK Ş., Koc H., Babayeva R., Mamedov A. M., Ozbay E.
5th International Conference on Competitive Materials and Technology Processes, IC-CMTP 2018, Miskolc-Lillafured, Hungary, 8 - 12 October 2018, vol.613
- II. **Elastic and Optical Properties of Sillenites: First Principle Calculations**
KOÇ H., PALAZ S., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
EMF 2019, 14th European Meeting of Ferroelectricity, Lausanne, Switzerland, 14 - 19 July 2019
- III. **Tin Thiohypodiphosphate (Sn₂P₂S₆): Linear and Nonlinear Properties Under High Pressure**
KOÇ H., PALAZ S., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
EMF 2019, 14th European Meeting of Ferroelectricity, Lausanne, Switzerland, 14 - 19 July 2019
- IV. **Complete Photonic Band Gaps in Sn₂P₂X₆ (X=S, Se) Supercell Photonic Crystals**
ŞİMŞEK Ş., PALAZ S., KOÇ H., MAMEDOV A. M., ÖZBAY E.
EMF 2019, 14th European Meeting of Ferroelectricity, Lausanne, Switzerland, 14 - 19 July 2019
- V. **Sn₂P₂X₂ (X=S, Se) as novel materials for phononic crystals**
Palaz S., Ozer Z., ŞİMŞEK Ş., Koc H., Mamedov A. M., Ozbay E.

10th International Conference on Metamaterials, Photonic Crystals and Plasmonics, META 2019, Lisbon, Portugal, 23 - 26 July 2019, pp.1596

- VI. **Complex Band Structure and Dispersion Relation of Acoustic Waves in Piezoelectric Based Topological Phononic Crystals**
Palaz S., Ozer Z., ŞİMŞEK Ş., Koc H., Mamedov A. M., Ozbay E.
10th International Conference on Metamaterials, Photonic Crystals and Plasmonics, META 2019, Lisbon, Portugal, 23 - 26 July 2019, pp.1647
- VII. **Photonic Band Gap of Multiferroic-Dielectric Materials in IR region:FDTD method**
PALAZ S., ŞİMŞEK Ş., ÖZER Z., Mamedov A. M., ÖZBAY E.
14th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity, St. Petersburg, Russia, 14 - 18 May 2018
- VIII. **Structural, Elektronic and Mechanical Properties of A₃Mn₂O₇ (A=Sr, Ca): ab initio calculation**
ŞİMŞEK Ş., KOÇ H., MAMEDOV A. M., ÖZBAY E.
14 th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity, St. Petersburg, Russia, 14 - 18 May 2018
- IX. **Optical Properties of Ferroelectric Nanorods**
KARAÖMERLİOĞLU F., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
2nd Internati onal Mediterranean Science and Engineering Congress (IMSEC 2017), 25 - 27 October 2017
- X. **Investigation of Electronic, Elastic and Dynamic Properties of AgBO₃ (B: Nb, Ta) Under Pressure: First Principle Calculation**
ŞİMŞEK Ş.
IV.INTERNATIONAL MULTIDISCIPLINARY CONGRESS OF EURASIA, 23 - 25 August 2017
- XI. **Electronic band structure and optical properties of Gd₂(MoO₄)₃: First Principle calculations**
Mamedov A. M., ŞİMŞEK Ş., UĞUR G., UĞUR Ş., ÖZBAY E.
The Fourteenth International Meeting on Ferroelectricity-2017, 4 - 08 September 2017
- XII. **Ab initio calculation of AgXO₃ X Nb Ta under pressure**
ŞİMŞEK Ş.
2nd International Congress on The World of Technology and Advanced Materials 28 September-02 October 2016
Kırşehir/Turkey, 28 September - 02 October 2016
- XIII. **A₁B₁ICV₁₂ A Cu Ag B Ga In C S Se Te Based Photonic Crystal Superlattices Optical Properties**
ŞİMŞEK Ş., PALAZ S., Akhundov C., M Mamedov A., ÖZBAY E.
ICTMC20 - 20th International Conference on Ternary and Multinary Compounds, 5 - 09 September 2016
- XIV. **Spectral Scalability and Optical Spectra of Fractal Multilayer Structures FDTD analysis**
ŞİMŞEK Ş., PALAZ S., M Mamedov A., ÖZBAY E.
The 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics - META'16 Malaga - Spain, 25 - 28 July 2016
- XV. **A₅B₆C₇ FERROELECTRIC**
PALAZ S., ŞİMŞEK Ş., M Mamedov A., ÖZBAY E.
Joint RCBJSF-IWRF Conference, Matsue, 2016
13th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity International Workshop on Relaxor Ferroelectrics 2016, 19 - 23 June 2016
- XVI. **Fibonacci Sequences Quasiperiodic Nonlinear Photonic Crystals FDTD Analysis**
ŞİMŞEK Ş., OLTULU O., MAMEDOV A. M., ÖZBAY E.
13th European Meeting on Ferroelectricity (EMF 2015), Porto, Portugal, 28 June - 03 July 2015
- XVII. **Topological Insulator Based Locally Resonant Phononic Crystals Wave Propagation and Acoustic Band Gaps**
OLTULU O., ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
13th European Meeting on Ferroelectricity (EMF 2015), Porto, Portugal, 28 June - 03 July 2015
- XVIII. **Electronic Band Structure of Rare Earth Ferroelastics Theoretical Investigations**
ŞİMŞEK Ş., UĞUR G., UĞUR Ş., AMİRULLAH M M., ÖZBAY E.
13th European Meeting on Ferroelectricity (EMF 2015), Porto, Portugal, 28 June - 03 July 2015
- XIX. **Born Effective Charge Parameters of Some Narrow Band Ferroelectrics**
ŞİMŞEK Ş., KOÇ H., UĞUR Ş., MAMEDOV A. M., ÖZBAY E.
13th European Meeting on Ferroelectricity (EMF 2015), Porto, Portugal, 28 June - 03 July 2015

- XX. **Investigation of Transmission Properties of Double Grating Structures Made of Different Metallic Materials FDTD Study**
KARAÇORA NANE F., ŞİMŞEK Ş.
9th International Conference on Magnetic and Superconducting Materials (MSM15), 30 April - 03 May 2015
- XXI. **Band Structure and Optical Properties of anisotropic SbSI Photonic Crystal**
KARAÇORA NANE F., ŞİMŞEK Ş.
9th International Conference on Magnetic and Superconducting Materials (MSM15), Antalya, Turkey, 30 April - 03 May 2015
- XXII. **SbSI based photonic crystal superlattices: Band structure and optics**
ŞİMŞEK Ş., KOC H., PALAZ S., OLTULU O., MAMEDOV A. M., OZBAY E.
12th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity, RCBJSF 2014 and 9th International Conference on Functional Materials and Nanotechnologies, FM and NT 2014, Riga, Latvia, 29 September - 02 October 2014, vol.77
- XXIII. **Dynamic Nonlinear Optical Processes in Some Oxygen Octahedra Ferroelectrics First Principle Calculations**
ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
Joint 12th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity and 9th International Conference Functional Materials and Nanotechnologies, Riga, Latvia, 29 September - 02 October 2014
- XXIV. **Band Gap and Optical Transmission in the Fibonacci Type One Dimensional A₅B₆C₇ Based Photonic Crystals**
ŞİMŞEK Ş., KOÇ H., PALAZ S., OLTULU O., MAMEDOV A. M., ÖZBAY E.
19th International Conference on Ternary and Multinary Compounds (ICTMC-19), Niigata, Japan, 1 - 05 September 2014
- XXV. **Band Structure and Optical Properties of the A₄B₆ Layered Ferroelectrics ab initio calculations**
KOÇ H., ŞİMŞEK Ş., PALAZ S., OLTULU O., MAMEDOV A. M., ÖZBAY E.
19th International Conference on Ternary and Multinary Compounds (ICTMC-19), Niigata, Japan, 1 - 05 September 2014
- XXVI. **Linear and non linear optical properties of Ag₃B₂O₇ B Nb Ta First principle study**
ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
2013 Joint IEEE International Symposium on Applications of Ferroelectric and Workshop on Piezoresponse Force Microscopy (ISAF/PFM), Prague, Czech Republic, 21 - 25 July 2013, pp.45-48
- XXVII. **One and two dimensional LiNbO₃ photonic crystals**
ŞİMŞEK Ş., MAMEDOV A. M., ÖZBAY E.
2013 Joint IEEE International Symposium on Applications of Ferroelectric and Workshop on Piezoresponse Force Microscopy (ISAF/PFM), Prague, Czech Republic, 21 - 25 July 2013, pp.49-52
- XXVIII. **TWO DIMENSIONAL FERROELECTRIC PHOTONIC CRYSTAL OPTICS AND BAND STRUCTURE**
ŞİMŞEK Ş., MAMEDOV A. M.
ISAF-ECAPD-PFM 2012 Conference, Aveiro, Portugal, 9 - 13 July 2012
- XXIX. **İlk ilke yöntemiyle NaTaO₃ kristalinin elektronik ve dinamik özelliklerinin incelenmesi Yoğunluk fonksiyoneli teorisinin uygulaması**
ŞİMŞEK Ş., ÇABUK S.
18. Yoğun Madde Fiziği - Ankara Toplantısı, Ankara, Turkey, 25 November 2011
- XXX. **Oda sıcaklığında AgTaO₃ kristalinin elektronik ve dinamik özelliklerinin incelenmesi Ab initio hesabı**
ŞİMŞEK Ş., ÇABUK S.
18. Yoğun Madde Fiziği - Ankara Toplantısı, Ankara, Turkey, 25 November 2011
- XXXI. **Electronic Linear and Nonlinear Optical Properties of LiTaO₃ First Principles Calculations**
ŞİMŞEK Ş., ÇABUK S.
2 nd International Meeting on Materials for Electronic Applications (IMMEA-2009), Hammamet, Tunisia, 8 - 10 May 2009
- XXXII. **İlk Prensip Yöntemiyle AgNbO₃ Kristalinin Elektronik ve Optik Özelliklerinin İncelenmesi**
ŞİMŞEK Ş., ÇABUK S.
24 th International Physics Congress-Malatya, Malatya, Turkey, 28 - 31 August 2007

Metrics

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H-Index (WoS): 1

H-Index (Scopus): 6