

## Assoc. Prof. TELEM ŞİMŞEK

### Personal Information

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### International Researcher IDs

ScholarID: Telem

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Yoksis Researcher ID: 52730

### Education Information

Post Doctorate, Stanford University, Material Science, United States Of America 2018 - 2019

Doctorate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, Turkey 2009 - 2015

Postgraduate, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, Turkey 2006 - 2009

Undergraduate, Middle East Technical University, Faculty Of Education, Mathematics And Science Education, Turkey 2003 - 2006

### Foreign Languages

English, C1 Advanced

### Dissertations

Doctorate, Değiş-tokuş etkileşimi çiftlenimli nanomiknatsların manyetik özelliklerinin incelenmesi, Hacettepe Üniversitesi, Fen Bilimleri Enstitüsü, Fizik Mühendisliği (Dr), 2015

Postgraduate, FePt nanoparçacıkların kimyasal yöntem ile sentezlenmesi ve magnetik özelliklerinin belirlenmesi, Hacettepe Üniversitesi, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2009

### Research Areas

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

### Academic Titles / Tasks

Assistant Professor, Hacettepe University, Fen Bilimleri Enstitüsü, Nanoteknoloji ve Nanotıp A.B.D., 2020 - Continues

Research Assistant, Hacettepe University, Mühendislik Fakültesi, Fizik Mühendisliği Bölümü, 2007 - 2020

### Courses

Nanokarbon Teknolojileri, Postgraduate, 2020 - 2021

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

- I. **Investigating the effect of coating and synthesis parameters on La<sub>1-x</sub>Sr<sub>x</sub>MnO<sub>3</sub> based core-shell magnetic nanoparticles**  
Sert B., Kaya G., Tataroglu A. A., Harputlu E., ŞİMŞEK T., Tekguel A., ÜNLÜ C. G., YURT ONARAN F., OCAKOĞLU K.  
APPLIED SURFACE SCIENCE, vol.680, 2025 (SCI-Expanded)
- II. **Effect of Boron and its Influence on Mechanically Alloyed FeCo Nanocrystals**  
Simsek T., Ozgur D., ŞİMŞEK T., AVAR B., YILDIZ B., Chattopadhyay A. K.  
TRANSACTIONS OF THE INDIAN INSTITUTE OF METALS, 2024 (SCI-Expanded)
- III. **FeCoNiMnCr high-entropy alloys (HEAs): Synthesis, structural, magnetic and nuclear radiation absorption properties**  
ŞİMŞEK T., KAVAZ E., Güler Ö., Şimşek T., Avar B., Aslan N., Almisned G., Zakaly H. M., Tekin H.  
Ceramics International, vol.49, no.15, pp.25364-25370, 2023 (SCI-Expanded)
- IV. **The effect of Cr and Nb addition on the structural, morphological, and magnetic properties of the mechanically alloyed high entropy FeCoNi alloys**  
Yakin A., ŞİMŞEK T., AVAR B., Chattopadhyay A. K., ÖZCAN Ş., Simsek T.  
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.128, no.8, 2022 (SCI-Expanded)
- V. **Experimental investigation of the effects of different quaternary elements (Ti, V, Nb, Ga, and Hf) on the thermal and magnetic properties of CuAlNi shape memory alloy**  
Ozkul I., Karaduman O., ŞİMŞEK T., Simsek T., AKSU CANBAY C., Ibrahim P. A., Arpa I. A. K.  
JOURNAL OF MATERIALS RESEARCH, vol.37, no.14, pp.2271-2281, 2022 (SCI-Expanded)
- VI. **Synthesis and characterization of amorphous-nanocrystalline Fe<sub>70</sub>Cr<sub>10</sub>Nb<sub>10</sub>B<sub>10</sub> powders by mechanical alloying**  
AVAR B., Chattopadhyay A. K., Simsek T., ŞİMŞEK T., ÖZCAN Ş., Kalkan B.  
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.128, no.6, 2022 (SCI-Expanded)
- VII. **Effect of Cu, Sn and Sb addition on the structural, thermal and magnetic properties of body-centered cubic structured CoNiMnGaSi high entropy alloy**  
ŞİMŞEK T., Ozkul I., AKSU CANBAY C., AVAR B., Simsek T., Guler S. H., ÖZCAN Ş., Guler O., Chattopadhyay A. K.  
APPLIED PHYSICS A-MATERIALS SCIENCE & PROCESSING, vol.128, no.6, 2022 (SCI-Expanded)
- VIII. **A single step synthesis by mechanical alloying and characterization of nanostructured Fe<sub>2</sub>B of high magnetic moment**  
ŞİMŞEK T., Avar B., Şimşek T., YILDIZ B., Chattopadhyay A. K., ÖZCAN Ş.  
Ceramics International, vol.47, pp.26119-26124, 2021 (SCI-Expanded)
- IX. **Solution combustion synthesis of new metal borophosphates (Fe<sub>1-x</sub>Cr<sub>x</sub>)<sub>2</sub>B (PO<sub>4</sub>)<sub>3</sub>: Structural, thermal, surface, and magnetic properties**  
ÖZER D., ŞİMŞEK T., ÖZCAN Ş., Oztas N. A.  
CERAMICS INTERNATIONAL, vol.46, no.8, pp.12238-12242, 2020 (SCI-Expanded)
- X. **Structure and magnetic properties of (La<sub>1-x</sub>Fex)FeO<sub>3</sub> (x=0, 0.25, 0.50) perovskite**  
Unlu C. G., Kaynar M. B., Şimşek T., Tekgul A., Kalkan B., Özcan Ş.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.784, pp.1198-1204, 2019 (SCI-Expanded)
- XI. **Influence of Crystal Size on the Magnetic Properties of Manganese Monoboride Nanoparticles**  
Şimşek T., Özcan Ş.  
IEEE TRANSACTIONS ON MAGNETICS, vol.54, 2018 (SCI-Expanded)
- XII. **High purity synthesis of ZrB<sub>2</sub> by a combined ball milling and carbothermal method: Structural and magnetic properties**  
Baris M., Simsek T., Şimşek T., Özcan Ş., Kalkan B.  
Advanced Powder Technology, vol.29, pp.2440-2446, 2018 (SCI-Expanded)
- XIII. **Phase transition of chemically synthesized FePt nanoparticles under high pressure**

- Şimşek T., Karıcı Ö., Özcan Ş.  
TURKISH JOURNAL OF CHEMISTRY, vol.42, no.5, pp.1217-1223, 2018 (SCI-Expanded)
- XIV. **Magnetocaloric effect in La-0.7 Nd<sub>x</sub>Ba(0.3-x)MnO<sub>3</sub> (x=0, 0.05, 0.1) perovskite manganites**  
Unlu C. G., Tanis Y. E., KAYNAR M. B., ŞİMŞEK T., ÖZCAN Ş.  
JOURNAL OF ALLOYS AND COMPOUNDS, vol.704, pp.58-63, 2017 (SCI-Expanded)
- XV. **Fabrication and Magnetic Properties of Mn (x) B<sub>45</sub>Co<sub>100-x</sub> Alloys**  
PIYAN C., ŞİMŞEK T., KAYNAR M. B., ÖZCAN Ş.  
JOURNAL OF SUPERCONDUCTIVITY AND NOVEL MAGNETISM, vol.29, no.8, pp.2203-2206, 2016 (SCI-Expanded)
- XVI. **Structural and Magnetic Properties of Mn<sub>x</sub>B<sub>100-x</sub> Alloys**  
ŞİMŞEK T., ÖZCAN Ş.  
IEEE TRANSACTIONS ON MAGNETICS, vol.51, no.7, 2015 (SCI-Expanded)
- XVII. **Synthesis of MnFe<sub>2</sub>O<sub>4</sub> nanocrystals by wet-milling under atmospheric conditions**  
ŞİMŞEK T., AKANSEL S., ÖZCAN Ş., CEYLAN A.  
CERAMICS INTERNATIONAL, vol.40, no.6, pp.7953-7956, 2014 (SCI-Expanded)
- XVIII. **Journal of Magnetism and Magnetic Materials Volume 351, February 2014, Pages 47–51 Cover image**  
**Effective magnetic anisotropy enhancement of FePt nanocrystals through shape control**  
ŞİMŞEK T.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.351, pp.47-51, 2014 (SCI-Expanded)
- XIX. **Effective magnetic anisotropy enhancement of FePt nanocrystals through shape control**  
ŞİMŞEK T., ÖZCAN Ş.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.351, pp.47-51, 2014 (SCI-Expanded)
- XX. **Effect of hexane on magnetic blocking behavior of FePt nanoparticles**  
ŞİMŞEK T., AKANSEL S., ÖZCAN Ş.  
JOURNAL OF MAGNETISM AND MAGNETIC MATERIALS, vol.324, no.22, pp.3924-3928, 2012 (SCI-Expanded)
- XXI. **Study of generalized magneto-optical ellipsometry measurement reliability**  
Arregi J. A., Gonzalez-Diaz J. B., Bergaretxe E., Idigoras O., Unsal T., Berger A.  
JOURNAL OF APPLIED PHYSICS, vol.111, 2012 (SCI-Expanded)
- XXII. **Pressure Dependence of Molar Volume near the Melting Point in Benzene**  
YURTSEVEN H. H., Ünsal T.  
Tsinghua Science and Technology, vol.12, no.5, pp.624-628, 2007 (SCI-Expanded)
- XXIII. **Calculation of molar volume as a function of temperature close to the melting point in benzene**  
YURTSEVEN H. H., Uensal T.  
HIGH TEMPERATURE MATERIALS AND PROCESSES, vol.26, pp.365-369, 2007 (SCI-Expanded)

## Articles Published in Other Journals

- I. **A review of soft magnetic properties of mechanically alloyed amorphous and nanocrystalline powders**  
Yakin A., Simsek T., Avar B., ŞİMŞEK T., Chattopadhyay A. K.  
Emergent Materials, vol.6, no.2, pp.453-481, 2023 (Scopus)
- II. **Synthesis and characterization of Mn<sub>2</sub>B nanocrystals by mechanical alloying method**  
ŞİMŞEK T., ŞİMŞEK T., ÖZCAN Ş.  
Journal of Boron, vol.4, no.1, pp.25-30, 2019 (Peer-Reviewed Journal)

## Refereed Congress / Symposium Publications in Proceedings

- I. **Interfacial engineering of SOT-MRAM to modulate atomic diffusion and enable PMA stability > 400 degrees C**  
Bi C., Lin S., Li X., Simsek T., Song M., Tsai W., Wang S. X.

International Symposium on VLSI Technology, Systems and Application (VLSI-TSA), Hsinchu, Taiwan, 22 - 25 April 2019

- II. **Interfacial control of W/CoFeB/MgO multilayers for high-density SOT-MRAM**  
chong b., ShyJay L., ŞİMŞEK T., Li X., Tsai W., wang s. x.  
64th International Electron Devices Conference, 1 - 05 December 2018
- III. **MnCoB nanoparticles for hyperthermia applications**  
ŞİMŞEK T., PIYAN c., ÖZCAN Ş.  
12th European Magnetic Sensors and Actuators Conference EMSA 2018, 1 - 04 July 2018
- IV. **Combustion Synthesis, Characterization and Magnetic Properties of FeCr<sub>2-x</sub>B (PO<sub>4</sub>)<sub>3</sub>**  
Özer D., Şimşek T., Özcan Ş., Altuntaş Öztaş N.  
6th International Conference on Superconductivity and Magnetism, Antalya, Turkey, 6 - 10 June 2018, pp.14-15
- V. **Combustion Synthesis, Characterization and Magnetic Properties of Fe<sub>x</sub>Cr<sub>2-x</sub>B(PO<sub>4</sub>)<sub>3</sub>**  
ÖZER D., ŞİMŞEK T., ÖZCAN Ş., ALTUNTAS OZTAS N.  
6th International Conference on Superconductivity and Magnetism, 1 - 04 May 2018
- VI. **PREPARİNG La<sub>1-x</sub>A<sub>x</sub>BO<sub>3</sub> (A=Fe, Ba B=Fe, Mn) PEROVSKİTENANOPARTİCLES BY SOL- GEL FOR MAGNETOCALORİC ANDHYPERTHERMİA APPLİCATIONS**  
ÜNLÜ C. G., KAYNAR M. B., ŞİMŞEK T., TEKGÜL a.  
International Conference on Applications in Chemistry and Chemical Engineering (ICACCHE), Sarajevo, Bosnia And Herzegovina, 11 - 15 October 2017
- VII. **Structural and Magnetic Properties of Exchange-Coupled MnBi/MnB Nanocomposite Magnets**  
ŞİMŞEK T., ÖZCAN Ş.  
Moscow International Symposium on Magnetism, 1 - 05 July 2017
- VIII. **Effect of Substitution Cobalt Atom in MnB alloy on Curie Temperature and Saturation Magnetization**  
Piyani Ç., Şimşek T., Kaynar M. B., Özcan Ş.  
9th International Conference on Magnetic and Superconducting Materials, Antalya, Turkey, 30 April - 03 May 2015, pp.26-27
- IX. **A Promising Soft Magnet: MnB**  
ŞİMŞEK T., ÖZCAN Ş.  
APMAS 2017 7th International Advances in Applied Physics and Materials Science Congress Exhibition, 22 - 26 April 2017
- X. **Fabrication and Magnetic Properties of Mn<sub>100-x</sub>B<sub>45</sub>C<sub>x</sub> Bulk Alloys**  
Yavuz İ., CEYLAN A., KAYNAR M. B., ŞİMŞEK T., ÖZCAN Ş.  
32th Physics Congress Turkish Physics Society, 6 - 09 September 2016
- XI. **Fabrication and Magnetic Properties of Mn<sub>100-x</sub>B<sub>45</sub>C<sub>x</sub> Bulk Alloys**  
YAVUZ İ., KAYNAR M. B., ÜNSAL T., CEYLAN A., ÖZCAN Ş.  
32th Physics Congress Turkish Physics Society, 6 - 09 September 2016
- XII. **DFT Calculations and Fabrication of MnB Nanoparticles**  
Şimşek T., Özcan Ş.  
Nanotr, Ankara, Turkey, 13 - 17 June 2015, pp.22-23
- XIII. **Investigation of magnetic properties of MnB Nanoparticles**  
Şimşek T., Özcan Ş.  
", 8 th International Conference on Fine Particle Magnetism, Perpignan, France, 1 - 06 June 2013, pp.125-126
- XIV. **Magnetic anomalies on relaxation behavior of superparamagnetic FePt nanoparticles**  
Şimşek T., Akansel S., Özcan Ş.  
XI. International Conference on Nanostructured Materials, Rodos, Greece, 8 - 12 August 2012, pp.22-23
- XV. **Shape dependency of magnetic properties in FePt nanocrystals**  
Şimşek T., Özcan Ş.  
8th Nanoscience - Nanotechnology Congress, Nanotr VIII, Ankara, Turkey, 4 - 08 June 2012, pp.22
- XVI. **Synthesis of manganese ferriite nanocrystals under air atmosphere by high energy ball milling**  
Akansel S., Şimşek T., Özcan Ş.  
Synthesis of manganese ferriite nanocrystals under air atmosphere by high energy ball milling, Ankara, Turkey, 4 -

08 June 2012, pp.22-23

**XVII. Size and shape control on FePt nanoparticles**

Akansel S., Şimşek T., Özcan Ş.

, 28th International Physics Congress, Turkish Physical Society, , Muğla, Turkey, 5 - 09 September 2011, pp.22-34

**XVIII. Synthesis of cubic shaped FePt nanoparticles and investigation of structural phase transitions**

Şimşek T., Özcan Ş., Fırat T.

15. Condensed Matter Physics Ankara Meeting, Ankara, Turkey, 13 - 14 November 2008, pp.25-26

**XIX. Synthesis and characterization of chemically synthesized magnetic FePt nanoparticles,**

Şimşek T.

25th International Physics Congress, Turkish Physical Society, Muğla, Turkey, 4 - 08 August 2008, pp.56-57

## Supported Projects

ÖZCAN Ş., KAYNAR M. B., ŞİMŞEK T., Project Supported by Higher Education Institutions, Manyetik Alanla Sürülebilir Temassız Nanojeneratör Üretimi ve Özelliklerinin Araştırılması (TÜBİTAK 119M066 Nolu Proje Ek Bütçe), 2022 - Continues

Şimşek T., Yıldız B., Bayram C., TUBİTAK Project, Yüksek Isıtma Verimine Sahip Oto-Kontrol Manyetik Hipertermi Özellikli Manyetik Nanomalzemelerin Sentezi Ve Karakterizasyonu, 2023 - 2026

Yıldız B., Şimşek T., Şimşek T., Güler Ö., TUBİTAK Project, Fotokatalizör Olarak Yüksek Defekli Yüksek Entropili Alaşım Oksitlerinin Üretimi Ve CO2 Dönüştürücü Olarak Kullanımında Nadir Toprak Element Katkısının Araştırılması, 2023 - 2025

ŞİMŞEK T., ÖZCAN Ş., Keleş M., Project Supported by Higher Education Institutions, Birinci dereceden faz geçişine sahip LaFeSiH nanoparçacıklarının otokontrol hipertermi uygulamalarının araştırılması, 2021 - 2024

BACIOĞLU A., HÖKELEK T., KAYNAR M. B., ŞİMŞEK T., Project Supported by Higher Education Institutions, Fiziksel Özellikler Ölçüm Sistemi Dış Ünite Değişimi, 2022 - 2023

Özcan Ş., Kaynar M. B., Şimşek T., TUBİTAK Project, Manyetik Alanla Sürülebilir Temassız Nano-Jeneratör Üretimi Ve Özelliklerinin Araştırılması, 2019 - 2023

CEYLAN A., ÖZCAN Ş., ŞİMŞEK T., Project Supported by Higher Education Institutions, Eş-zamanlı sputter tekniği ile CZS ince filmlerin sentezi ve fiziksel özelliklerinin araştırılması, 2018 - 2023

ÖZCAN Ş., ŞİMŞEK T., KAYNAR M. B., CEYLAN A., Project Supported by Higher Education Institutions, FeB Nanoparçacıkların Üretilmesi Olası Kanser Tedavisi Uygulamalarının Araştırılması, 2019 - 2022

ÖZCAN Ş., CEYLAN A., ŞİMŞEK T., KAYNAR M. B., Project Supported by Higher Education Institutions, Magnetron Sputter Tekniği ile MnB İnce Filmlerinin Hazırlanması ve Özelliklerinin Araştırılması, 2018 - 2022

KAYNAR M. B., ÖZCAN Ş., CEYLAN A., ŞİMŞEK T., Project Supported by Higher Education Institutions, Kobalt-Ferrit Tabanlı Kompozit Filmlerde Çinko Katkısının Ferromanyetik Rezonans (FMR) Frekanına Etkisi ve Olası Spintronik Uygulamalarının İrdelenmesi, 2018 - 2020

ŞİMŞEK T., ÖZCAN Ş., KAYNAR M. B., Project Supported by Higher Education Institutions, Islak Öğütme Tekniği ile Mangan Çinko Spinel Ferit Nanoparçacıkların Üretilmesi, 2018 - 2019

ŞİMŞEK T., ÖZCAN Ş., Project Supported by Higher Education Institutions, DEĞİŞTOKUŞ ETKİLEŞİMİ ÇİFTLENİMLİ MnBiMnB NANOKOMPOZİT MİKNOTATISLARIN YAPISAL VE MANYETİK ÖZELLİKLERİ, 2017 - 2017

ŞİMŞEK T., ÖZCAN Ş., Project Supported by Higher Education Institutions, Değiş tokuş etkileşimli MnB/CoPt nanokompozitlerin üretilmesi, 2016 - 2017

Özcan Ş., TUBİTAK Project, MnB Nanoparçacıkların Sentezi ve Manyetik Özelliklerinin Araştırılması , 2013 - 2016

ÖZCAN Ş., ŞİMŞEK T., Project Supported by Higher Education Institutions, Değiş-Tokuş Etkileşimi Çiftlenimli Nanomiktatısların Manyetik Özelliklerinin İncelenmesi, 2015 - 2015

## Metrics

Publication: 46

Citation (WoS): 86

Citation (Scopus): 122

H-Index (WoS): 5

H-Index (Scopus): 8

## **Congress and Symposium Activities**

7th International Advances in Applied Physics and Materials Science Congress & Exhibition, Invited Speaker, Muğla, Turkey, 2017

22. Yoğun Madde Fiziği Ankara Toplantısı, Invited Speaker, Ankara, Turkey, 2016

International Conference on Small Science, Invited Speaker, Florida, United States Of America, 2012

## **Invited Talks**

", 7th International Advances in Applied Physics and Materials Science Congress, Conference, ", 7th International Advances in Applied Physics and Materials Science Congress, Turkey, April 2017

22. Yoğun Madde Fiziği Ankara Toplantısı, Conference, Ankara Üniversitesi, Turkey, December 2016

Nanoscope Analyses on Industrial Materials, Workshop, Hacettepe Üniversitesi, Turkey, November 2015

International Conference on Small Science, Conference, Diğer Kurumlar, United States Of America, December 2012

## **Scholarships**

ERASMUS TRAINING , European Commission, 2010 - 2010

## **Awards**

Şimşek T., Fulbright Postdoctoral Scholar Award, Fulbright, September 2018

## **Non Academic Experience**

Stanford Üniversitesi

CIC Nanogune