



CİHAT BOYRAZ
DEPARTMENT OF
MECHANICAL ENGINEERING
Marmara University (M.U)

PERSONAL INFORMATION

Date of Birth: November, 1977
Nationality: Turkey

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Address: Marmara
University/Technology
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ISTANBUL-TURKEY

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RESEARCH INTERESTS

- Nano-sized magnetic material / thin film preparation and magnetic and structural analysis with different techniques
- FeAs-based Superconductivity
- Alloys/Multilayer Thin Films
- Photolithography

WORK EXPERIENCE

ASSOC. PROF. DR. MARMARA UNIVERSITY, TECHNOLOGY FACULTY, DEPARTMENT OF MECHANICAL ENGINEERING (TURKEY). 21.11.2018-

ASSIST. PROF. DR. MARMARA UNIVERSITY, TECHNOLOGY FACULTY, DEPARTMENT OF MECHANICAL ENGINEERING (TURKEY). 2013-2018.

RESEARCH ASSISTANT / DEPARTMENT OF PHYSICS, FACULTY OF SCIENCE AND LETTERS, MARMARA ÜNİVERSİTESİ, İSTANBUL (TURKEY). 02.01.2003- 15.02. 2013

RESEARCH ASSISTANT / MINT CENTER/ ALABAMA STATE UNIVERSITY TUSCALOOSA (USA)

EDUCATION

Ph. D.
FACULTY OF SCIENCE, DEPARTMENT OF PHYSICS MARMARA UNIVERSITY, İSTANBUL (TURKEY)
2005 October – 2012 April

Ph. D. Thesis
CENTER FOR MATERIALS FOR INFORMATION TECHNOLOGY (MINT) THE UNIVERSITY OF ALABAMA, TUSCALOOSA, USA.

M. Sc.
FACULTY OF SCIENCE, DEPARTMENT OF PHYSICS MARMARA UNIVERSITY, İSTANBUL (TURKEY)
2000 September– 2004 June

B. Sc.
TRAKYA UNIVERSITY, DEPARTMENT OF PHYSICS, Edirne (Turkey)
1996 September– 2000 June

PROFESSIONAL SKILLS AND ABILITIES

- High vacuum (UHV) thin film amplification systems; Sputtering, Pulse Laser Deposition (PLD),
- Nano-sized magnetic material / thin film preparation,
- Magnetic and structural analysis, Electron Spin Resonance Spectrometer (ESR)[Bruker EMX and JEOL]
- Ultra-High Vacuum System (Specs); X-ray photoelectron spectrometer / Auger Electron Spectrometer (XPS),
- Vibrating-Sample Magnetometer -Quantum Design (VSM),
- X-Ray Diffractometer, Rigaku SmartLab (XRD),
- Tunneling Electron Microscopy (TEM),
- Device fabrication by Photolithography,
- Nanomagnetism/ spintronic,

- Rietveld Analysis,
- Project management

PROJECTS AND TASKS

2016-2017

- Production, characterization and physical properties of tetrahedrite compounds doped with 3d transition ion (07.06.2017) (FEN-D-070617- 0383).
- Superconductivity in BaFe₂As₂ Compounds with Electron and Cavity Additive Prepared by Solid State Reaction. (09.05.2017) (FEN-B -090517- 0279).
- Morphology and photoluminescence properties of Yttrium disilicate added with Yb³, Er³, Ho³ and Tm³ (10.06.2016) (FEN-D-100616- 0285).

2014-2015

- Phase-dependent magnetic properties of neodymium-doped yttrium-disilicate (07.10.2015) (FEN-D-071015- 0489).
- Synthesis and characterization of dilute magnetic semiconductor materials (03.01.2014) (FEN-C-YLP030114-0011).
- Design of boron doped new technology Na-ion batteries and examination of their performance. (TÜBİTAK) (2015).

2013-2014

- Preparation of ferromagnetic semiconductor CdCr₂S₄ thin films by chemical vapor deposition (CVD) method, magnetic properties and characterization (10.07.2013) (FEN-B -100713- 0322).

2019-2011

- Lithium ferrites, Office of Naval Research (ONR) under grant number N00014-09-0119.
- Thermoelectric materials and TMR, GMR device fabrication the U.S. Army Research Office (number W911NF-10-1-0147) Defense Advanced Research Projects Agency (DARPA).

INTERNATIONAL PAPERS

2020

- Domain structure effect on the superconductivity of BaFePtAs₂. Y. Öner, C. Boyraz, A. Güler (2020). Physica C: Superconductivity and its Applications. 574 1353665.

2019

- Thermoelectric properties and EPR analysis of Fe doped $\text{Cu}_{12}\text{Sb}_4\text{S}_{13}$ A Guler, S Ballikaya, C Boyraz, C Okay, D Shulgin, B Rameev. *Journal of Solid State Chemistry* 269, 547-552 2019.
- Critical current density and flux pinning in $\text{BaFe}_{1.9}\text{Pt}_{0.1}\text{As}_2$ and La doped $\text{Ba}_{0.95}\text{La}_{0.05}\text{Fe}_{1.9}\text{Pt}_{0.1}\text{As}_2$ polycrystals. Y Öner, C Boyraz. *Journal of Physics: Condensed Matter* 31 (15), 155801 2019.
- Electronic, transport, and magnetic properties of $(\text{Ca}, \text{Ba})_{0.9}\text{La}_{0.1}\text{Fe}_{1.9}\text{Pt}_{0.1}\text{As}_2$ compounds. A Guler, C Boyraz, S Avci, L Arda, M Özdemir, Y Oner. *International Journal of Modern Physics B*, 1950008 2019.
- The annealing effect on microstructure and ESR properties of (Cu/Ni) co-doped ZnO nanoparticles. A Guler, L Arda, N Dogan, C Boyraz, E Ozugurlu. *Ceramics International* 45 (2), 1737-1745 2019.
- Preparation Structure and Magnetic Properties of Mn-Doped ZnO Nanoparticles Prepared by Hydrothermal Method. SD Senol, A Guler, C Boyraz, L Arda. *Journal of Superconductivity and Novel Magnetism*, 1-6 2019.
- Effect of Annealing Temperature on Structure and Magnetic Properties of $\text{Zn}_{0.94}\text{Mg}_{0.01}\text{Mn}_{0.05}\text{O}$ Nanoparticles. A Guler, M Tosun, A Gungor, C Boyraz, L Arda *Journal of Superconductivity and Novel Magnetism*, 1-8 2019.

2018

- Electronic, Transport, and Magnetic Properties of La-Doped $\text{Ba}_{1-x}\text{Fe}_{1.9}\text{Pt}_{0.1}\text{As}_2$ ($x= 0, 0.4, 0.6, 0.8$) Compounds. C Boyraz, A Guler, Y Oner. *Journal of Superconductivity and Novel Magnetism* 31 (1), 47-53 2018.
- Structural and Magnetic Properties of -Doped CdNb_2O_6 Powders R Topkaya, C Boyraz, M. K Ekmekçi. *Journal of Low Temperature Physics* 190 (5-6), 244-255 2018.

2017

- Structural and Superconductivity Properties of $\text{BaFe}_{2-x}\text{Pt}_x\text{As}_2$ C Boyraz, A Guler, M Ozdemir, Y Oner: *Journal of Superconductivity and Novel Magnetism* 30 (5), 1145-1151. 2017.
- Microstructure and magnetic behavior of (Mg/Ni) co-doped ZnO nanoparticles C Boyraz, N Dogan, L Arda. *Ceramics International* 43 15986-15991 (2017).
- The Pt Dopant Effect on Physical Properties of $\text{Ba}_{0.2}\text{La}_{0.8}\text{Fe}_2\text{As}_2$ A Guler, C Boyraz. *Journal of Superconductivity and Novel Magnetism* 30 (11), 3285-3288. 2017.
- Effects of Annealing Temperature on Microstructure and Magnetic Properties of $\text{Ni}_{0.05}\text{Zn}_{0.95}\text{Fe}_2\text{O}_4$ Nanoparticles. L Arda, N Dogan, C Boyraz. *Journal of Superconductivity and Novel Magnetism* 31 (2), 365-371 2017.
- The Pt Dopant Effect on Physical Properties of BaLaFeAs A Guler, C Boyraz. *Journal of Superconductivity & Novel Magnetism* 30 (11). 2017.

2016

- The Temperature Effect on Structural and Magnetic Properties of $\text{Zn}_{0.95}\text{Fe}_{0.05}\text{O}$ Nanoparticles. C Boyraz, B Yesilbas, L Arda. *Journal of Superconductivity and Novel Magnetism* 30 (2016), 1691-1698.
- Magnetic effect on the phase properties of neodymium-activated yttrium disilicate nanomaterials. Murat Erdem , Cihat Boyraz. *Turkish Journal of Physics.* (2016) 40: 270 – 277

2015

- Effect of solution molarity on microstructural and optical properties of CdCr_2S_4 thin films. C. Boyraz, Y. Urfa. *Materials Science in Semiconductor Processing.* 361–6 (2015).

2012

- Observations of Co^{4+} in a Higher Spin State and the Increase in the Seebeck Coefficient of Thermoelectric $\text{Ca}_3\text{Co}_4\text{O}_9$. R. F. Klie, Q. Qiao, T. Paulauskas, A. Gulec, A. Rebola, and S. Ogut M. P. Prange, J. C. Idrobo, and S. T. Pantelides S. Kolesnik and B. Dabrowski M. Ozdemir, C. Boyraz, D. Mazumdar, and A. Gupta. *Physical Review Letters* 108, 196601 (2012).

2011

- Effect of substrate on the atomic structure and physical properties of thermoelectric $\text{Ca}_3\text{Co}_4\text{O}_9$ thin films. Q. Qiao, A. Gulec, T. Paulauskas, S. Kolesnik, B. Dabrowski, M. Ozdemir, C. Boyraz, D. Mazumdar, A. Gupta and R. F. Klie *Journal of Physics: Condensed Matter*, 23 (30) (2011).
- Structural and magnetic properties of lithium ferrite LiFe_5O_8 thin films Influence of substrate on the octahedral site order. Cihat Boyraz, Dipanjan Mazumdar, Milko Iliev, Vera Marinova, Jianxing Ma, Gopalan Srinivasan, and Arunava Gupta, *Applied Physics Letters*, 98(1), 12507 (2011).

2008

- Sol-Gel Insulation Coatings on Monel/Fe/MgB₂ Wires for Coil Development. L. Arda, C. Boyraz, O. A. Sacli, M. Tomsic, and Y. S. Hascicek. *IEEE Transactions on App. Supercond.* 18, (2), June (2008).
- Electrical Characterizations of MgO-ZrO₂ High Temperature Sol-Gel Insulations Coatings on Different Types of Epoxies. O. Cakiroglu, L. Arda, C. Boyraz, and O. A. Sacli. *IEEE Transactions on App. Supercond.* 18, (2), June (2008).

National

- CdCr_2S_4 İnce Filmlerin Çözelti Molaritesinin Yapısal ve Optiksel Özellikleri Üzerindeki Etkileri. C Boyraz, M Erdem, U Yalçın. Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi 21 (1), 88-92 2016.
- C Okay, C Boyraz, D Shulgin, A G Mozzhukin, B Rameev (2018). Fe ve As Elementleri ile Katkılı Tetrahedritlerin Karakterizasyonu ve Fiziksel Özellikleri. Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 22 (2), 1016.

ORAL PRESENTATIONS/INTERNATIONAL

2019

- C. Boyraz, A. Guler, P. Aksu, L. Arda, E. Aygül, “Structural and ESR properties of Cu-doped ZnO nanoparticles”, International Conference on Condensed Matter and Materials Science (ICCMMS-14-19 October 2019-Adana).
- A. Güler, C. Boyraz, Mete K. Ekmekçi, Investigation of Physical Properties of Eu^{3+} doped Columbite CdNb_2O_6 Powders. Researchworld International Conference Madrid Spain.

2018

- M C Alphan, D Akcan, C Boyraz, L Arda (2018). Preparation Growth and Microstructural Properties of Cr Doped ZnMgO Thin Films, TMT2018, 21, 49-52.
- M C Alphan, D Akcan, C Boyraz, L Arda (2018). Preparation Growth and Microstructural Properties of Cr Doped ZnMgO Thin Films. TMT2018, 21, 49-52.
- M Tosun, Ş Ataoğlu, C İpek, L Arda, C Boyraz (2018). Effect of Temperature and Film Thickness on Residual Stress and Microstructure of ZnO Thin Films. TMT2018, 21(1), 53-56.
- A Güler, C Boyraz, L Arda (2018). Cr/Co çift katkılı ZnO İnce Filmlerin, Hazırlama, Büyütme, Mikroyapı ve Optik Özellikleri. 3RD International Multidisciplinary Studies Congress.

- A Güler, C Boyraz, L Arda, B Rami (2018). Co, Ni, AND Fe Ion Effects of Parent Tetrahedrite Compounds. ICSM (2018).
- L Arda, D Akcan, C Boyraz, N Doğan Bingölbali (2018). Structural and Magnetic Properties of transition metal doped BaTiO₃ nanoparticles by sol-gel process. International Conference on Superconductivity and Magnetism.
- C Boyraz, A Güler, L Arda, B Rami (2018). Characterization of Tetrahedrite compounds doped by 3d transition ions. ICSM.

2017

- A Güler, C Boyraz, C Okay, B Rami (2017). Physical Properties of Fe doped Cu₁₂Sb₄S₃. 1st international Symposium on Multidisciplinary Studies and Innovative Technologies.
- A Güler, C Boyraz, N Doğan Bingölbali, L Arda (2017). Preparation, Growth and Magnetic Properties of NonvacuumMg doped ZnMnO Diluted Magnetic Semiconductors Nanoparticles. Int. Con. on Condens Mat. and Material Science.
- C Boyraz, A Güler, L Arda(2017). Preparation, Growth, Microstructure, and Optical Properties of Nonvacuum Y doped ZnO Thin films. 1 st international Symposium on Multidisciplinary Studies and Innovative Technologies.
- C Boyraz, A Güler, C Okay, D Shulgin G Mozzhukhin, B Rami (2017). ESR properties of 3d transition ion doped-tetrahedrite compounds. Magnetism and Magnetic Materials.
- C Boyraz, M Erdem, U Yalçın, M Özdemir (2017). The Effect of substrate on physical properties of CdCr₂S₄ thin films. 1 st international Symposium on Multidisciplinary Studies and Innovative Technologies.
- C Boyraz, A Güler, R Topkaya, M K Ekmekçi (2017). Physical Properties of Eu³⁺-Doped Columbite CdNb₂O₆ Powders. 10th int. conference on magnetism and superconductivity MSM (2017).
- A. Güler, C Boyraz, Y Öner (2017). Magnetic and Superconductivity Properties of Calcium and Barium doped La_{0.1}Fe_{1.9}Pt_{0.1}As₂ Parent Compounds. NANO StT Annual World Congress of Nano Science and Technology 2017.

2016

- A Güler, C Boyraz (2016). Effect of Platinum on Magnetic and Superconductivity Properties of Ba_{0.2}La_{0.8}Fe_{2-x}Pt_xAs₂ Nanopowders. ICSM 2016.
- A Güler, C Boyraz, D Shulgin, G Mozzhukhin, B Rami (2016). Synthesis Characterization of TetrahedriteCompounds for Thermoelectric Applications. The 9th International Kharkiv Symposium on Physics and engineering of Microwaves, Milimeter and Submilimeter Waves.
- A Güler, C Boyraz, M Özdemir, Y Öner (2016). Coexistence of Magnetism and Superconductivity in Pt doped BaFe₂As₂ Compound. ICSM (2016).
- C. Boyraz, M Erdem, M K Ekmekçi, C Tav, G Yürek (2016). Morphology and Luminescence Characteristics of Yttriumdisilicate doped with Yb³⁺, Er³⁺, Ho³⁺, and Tm³⁺. 2nd world congress on new technologies ICNFA.
- C Boyraz, B Yeşilbaş, L Arda (2016). The Temperature effect on structural and magnetic properties of Zn_{0.95}Fe_{0.05}O nanoparticles. ICSM 2016.

2015

- M Erdem, C Boyraz (2015). Phase Dependent Magnetic Properties of Neodymium Doped Yttrium Disilicate Y₂Si₂O₇. 6th International Conference on Nanotechnology.

2011

- Robert Klie, Qiao Qiao, Ahmet Gulec, Cihat Boyraz, Dipanjan Mazumdar, Arun Gupta. Thermoelectric properties of $\text{Ca}_3\text{Co}_4\text{O}_9$ thin film. APS March Meeting Abstracts 2011.
- Robert Klie, Qiao Qiao, Ahmet Gulec, Cihat Boyraz, Dipanjan Mazumdar, Arun Gupta. Strain Effects in Thermoelectric $\text{Ca}_3\text{Co}_4\text{O}_9$ Thin Films. APS March Meeting Abstracts (2011).
- T Paulauskas, Q Qiao, A Gulec, RF Klie, M Ozdemir, C Boyraz, D Mazumdar, A Gupta. Thermoelectric Properties and Microstructure of $\text{Ca}_3\text{Co}_4\text{O}_9$ thin films on SrTiO_3 and Al_2O_3 Substrates. APS March Meeting Abstracts (2011).

POSTER PRESENTATIONS/INTERNATIONAL

2018

- İpek, Ş. Ataoğlu, T Baytak, C Boyraz, N Bingölbali Doğan, L arda (2018). Preparation, growth and magnetic and mechanical properties of nonvacuum Cu doped ZnMnO diluted magnetic semiconductors nanoparticles. International Conference on Superconductivity and Magnetism.

LECTURES

- Physics I
- Physics II
- Linear Algebra
- Calculus I
- Calculus II
- Advanced Calculus I (Master level)
- Advanced Calculus II (Doctorate level)
- Numerical Methods
- Vehicle Aerodynamics