

Asst. Prof. Dr. Ozan Akdoğan

Istanbul, Turkey, email: ozakdog@gmail.com

Education

University of Delaware, USA 2005 – 2012

Ph.D, Physics

Dissertation: Size Effects in Nano-phase Hard Magnetic Materials

Advisor: Prof. Dr. George C. Hadjipanayis

Marmara University 2001 – 2005

Bachelor of Science, Physics

Research Experience

Bahçeşehir University 2018 – Present

Assistant Professor

Altınbaş University 2016 – 2018

Assistant Professor

SUNUM, Sabancı University 2015 – Present

Visiting Researcher

Projects:

- **Production of Rare-Earth Free Permanent Magnets in thin film, nano and micro particle form, Role in the project: P.I., 2232 Tubitak/BIDEB Fellowship. Successfully Completed**
- **High quality and functional magnetic nanoparticle production system design, Role in the project: P.I., 1003 Tubitak, Passed First Stage.**
- **Cost effective alternative to RE-based magnets in MEMS: MnBi/Fe nanocomposites, Role in the project: P.I., 2545 Tübitak-ANR, in collaboration with University of Lyon 1, In Preperation.**
- **New generation lanthanide-free Fe₁₆N₂ permanent magnet synthesis for use in the energy and automotive industry, Role in the project: P.I., 3501 Tubitak, Accepted**
- **Production of controllable functional nanorobots for the needs of biomedical industry, Role in the project: P.I., 1002 Tubitak, In Preperation.**

Neel Institute, CNRS, France

2012 – 2015

Post Doctoral Researcher with Dr. Nora Dempsey and Prof. Dr. Dominique Givord

Investigation of new materials and methods for the production of next generation hard magnets.

Projects:

- Next generation rare earth less and rare earth free magnets, VALEO France.
- Replacement and Original Magnet Engineering Options, European Commission's 7th Framework Program, France.

University of Delaware

2006 – 2012

Research Assistant

Confinement effect investigations on the magnetic nanostructures with a focus on the Alnico, FeCoCr, FePt and RE-Co systems.

Projects:

- Phase Transformations in Confined Geometries, National Science Foundation.
- Fundamental Studies of High-Anisotropy Nanomagnets, Department of Energy.

Teaching Experience

2018 – present

Bahçeşehir University

Asst. Prof. Dr.

BS level Courses:

- Introductory Physics I
- Introductory Physics II

2016 – 2018

Altınbaş University

Asst. Prof. Dr.

BS level Courses:

- Introductory Physics I
- Introductory Physics II

2017 – Spring Semester

Gebze Technical University

Part time Lecturer

MS, PhD level Courses:

- Industrial Applications of Nanotechnology

2005 - 2007

University of Delaware

Teaching Assistant

BS level Courses:

- Fundamentals of Physics
- Introductory Physics I & II

Skills

- Fabrication of thin/thick films, and nanoparticles by chemical synthesis, magnetron/triode sputtering, E-beam evaporation and cluster beam deposition.
- Experienced in bulk sample preparation by arc-melting, sintering and diffusion couples techniques.
- Experienced in the operation and data characterization of VSM, SQUID, PPMS, XRD, SEM, TEM, DTA, AFM/MFM and XPS.
- Experienced in utilization of excimer laser for thermo magnetic patterning.
- Experienced in building and maintaining lab equipment including high vacuum systems, sputtering guns, deposition rate controllers, ovens etc.
- Experienced in photolithography based MEMS/NEMS, sensors and actuators preparation.
- Microsoft Certified Professional with expert knowledge on programming languages: C, C++, Visual Basics, LabVIEW, Fortran, Mathematica and SQL.

Publications

- 1. *Alnico Thin Films With High Coercivities Up To 6.9 kOe***
J. Phys.: Conf. Ser. 200 072001 · Authors: Ozan Akdoğan and G. C Hadjipanayis 2010.
- 2. *Synthesis of Single-Crystal Sm-Co Nanoparticles By Cluster Beam Deposition***
Journal of Nanoparticle Research, 13 7005 · Authors: Ozan Akdoğan, W. Li, G.C. Hadjipanayis and D. J. Sellmyer 2011.
- 3. *One-Step Fabrication of fct FePt Nanocubes and Rods by Cluster Beam Deposition***
Journal of Applied Physics, 111 07B535 · Authors: Ozan Akdoğan, W. Li, R. Skomski, D. J. Sellmyer and G. C. Hadjipanayis 2012.
- 4. *High Coercivity of Alnico Thin Films: Effect of Si Substrate and the Emergence of a Novel Magnetic Phase***
Journal of Nanoparticle Research, 14 891 · Authors: Ozan Akdoğan, W. Li and G. C. Hadjipanayis 2012.
- 5. *Effect of Exchange Interactions on the Coercivity of SmCo₅ Nanoparticles Made by Cluster Beam Deposition***
Advanced Functional Materials, 23 3262 · Authors: Ozan Akdoğan, W. Li, B. Balamurgan, D. J. Sellmyer and G. C. Hadjipanayis 2013.
- 6. *Rapid production of Highly Coercive Sm-Co Thin Films by Triode Sputtering***
Journal of Applied Physics, 115 17E508 · Authors: Ozan Akdoğan and N. Dempsey 2014.
- 7. *Superferrimagnetism in Hard Nd-Fe-B Thick Films, an Original Concept for Coercivity***
Journal of Applied Physics, 115 17A764 · Authors: Ozan Akdoğan, A. Dobrynin, D. Leroy, N. Dempsey and D. Givord 2014.
- 8. *Grain boundary phase engineering in NdFeB films***

Journal of Applied Physics, 115 17A738 · Authors: D. LeRoy, Ozan Akdogan, G. Cuita, N. Dempsey and D. Givord 2014.

9. Preparation, Characterization, and Modeling of Ultrahigh Coercivity Sm–Co Thin Films
Advanced Electronic Materials, 1 1500009 · Authors: Ozan Akdogan, H. Sepehri-Amin, N. M. Dempsey, T. Ohkubo, K. Hono, O. Gutfleisch, T. Schrefl, D. Givord 2015.

10. Replacement and Original Magnet Engineering Options (ROMEOS): A European Seventh Framework Project to Develop Advanced Permanent Magnets Without, or with Reduced Use of, Critical Raw Materials

The Journal of The Minerals, Metals & Materials Society 67 1306 · P. McGuiness, Ozan Akdogan, A. Asali, S. Bance, F. Bittner, J.M.D. Coey, N.M. Dempsey, J. Fidler, D. Givord, O. Gutfleisch, M. Katter, D. Leroy, S. Sanvito, T. Schrefl, L. Schultz, C. Schwobl, M. Soderznik, S. Sturm, P. Tozman, K. Ustuner, M. Venkatesan, T.G. Woodcock, K. Zagar, S. Kobe 2015.

11. Production of MFM tips with Ultra High Switching Field

Advanced Electronic Materials · Ozan Akdogan, N. M. Dempsey, O. Gutfleisch, D. Givord, in preparation

12. Synthesis of hard magnetic Mn₃Ga micro-islands by e-beam evaporation

AIP Advances 8, 056716 · Ozan Akdogan, 2018.

Patents

- Arc Melter Furnace for producing sputtering target, Ozan Akdogan, patent in preparation.

Conferences

- American Physical Society (APS) March Meeting 2009 – Pittsburg, PA, USA
- International Magnetic Conference (Intermag) 2009 – Sacramento, CA, USA
- International Conference on Magnetism (ICM) 2009 – Karlsruhe, Germany
- Annual Conference on Magnetism and Magnetic Materials (MMM) Conference 2010 – Atlanta, SC, USA
- 11th Joint MMM–Intermag 2010 – Washington D.C, USA
- European Congress and Exhibition on Advanced Materials and Processes (Euromat), 2011 – Montpellier, France
- MMM 2011 – Scottsdale, AZ, USA
- APS March Meeting 2012 – Boston, MA, USA
- ICM 2012 – Buson, Korea
- Intermag 2012 – Vancouver, Canada
- MMM 2013 – Denver, CO, USA
- REPM 2014 – Annapolis, MD, USA
- NANOTR 2016 – TURKEY
- MMM 2017 - Pittsburg, PA, USA

Awards

- **Professional Development Award, 2009**
- **Professional Development Award, 2010**
- **Professional Development Award, 2010 (2nd time)**
- **UDAA Alumni Enrichment Award, 2011**

Journals Refereed

- **Journal of Applied Physics**
- **Journal of Nanoparticle Research**
- **Journal of Magnetism and Magnetic Materials**
- **Nature – Scientific Reports**
- **Journal of Alloys and Compounds**
- **Transactions on Magnetics**