

# Ozhan Ozatay

## Curriculum Vitae

*Professor of Physics*  
*E-mail: ozhan.ozatay@boun.edu.tr*  
*Phone: +90 212 359 7188*  
*Fax: +90 212 287 2466*  
*Address: Bogazici University,*  
*Physics Department, KB 331-O*  
*34342 Bebek/Istanbul, Turkey*



*Personal URL: [http://www.phys.boun.edu.tr/faculty\\_wp/ozhan\\_ozatay3.html](http://www.phys.boun.edu.tr/faculty_wp/ozhan_ozatay3.html)*  
*For full academic record-Research Group URL: <http://www.phys.boun.edu.tr/~ozhan/BUSPIN/>*

## EDUCATION AND EMPLOYMENT

- 2017-2018 Argonne National Laboratory, Materials Science Division, Visiting Scientist  
Fulbright Fellow
- 2017 – Bogazici University, Physics Department, Professor
- 2012 – 2017 Bogazici University, Physics Department, Associate Professor
- 2009 – 2012 Bogazici University, Physics Department, Assistant Professor
- 2007 – 2009 Hitachi Global Storage Technologies San Jose Research Center, USA  
Postdoctoral Research Associate  
Supervisor: Dr. Bruce Terris
- 2003 – 2007 Ph.D., Applied Physics, Cornell University, USA  
Thesis Title: “Spin-Dependent Transport and Spin Transfer in  
Nanoconstrictions and Current Confined Nanomagnets”  
Thesis Supervisor: Prof. Robert A. Buhrman
- 2000 – 2003 M.S., Applied Physics, Cornell University, USA
- 1996 – 2000 B.S., Electrical and Electronic Engineering (*high honors degree*)  
B.S., Physics, Bogazici University, Turkey (*high honors degree*)

## PRIZES AND AWARDS

- Fulbright Commission- Academic Scholarship- 2017
- Bogazici University Foundation - Excellence in Early Research Award - 2015
- TUBITAK - Turkish Scientific and Technological Research Institute Patent Award - 2015
- TUBITAK - Turkish Scientific and Technological Research Institute H2020 FET-OPEN  
Over Threshold Score Award 2015
- Istanbul Technical University - Feyzi Akkaya Foundation - Distinguished Young Scientist  
Award - 2013
- Turkish Physical Society - Prof. Sevket Erk - Distinguished Young Scientist Award 2013
- Middle East Technical University - Prof. Mustafa Parlar Foundation - Research Incentive  
Award - 2010
- TUBA GEBIP Turkish Academy of Sciences Distinguished Young Scientist Award 2010
- Bogazici University Electrical and Electronic Eng. / Physics High Honor Degree -2000
- Kadikoy Anadolu Lisesi - Valedictorian Award 1996
- Isil Arslan Math Competition - 1<sup>st</sup> prize -1993

## GRANTED PATENTS

1. Read / Write Structures for a Three Dimensional Memory **US Patent# 8164940**  
**Ozhan Ozatay** and Bruce Terris  
**Grant Date: 24/04/2012**
2. Three Dimensional Optomagnetic Data Storage System and Method (**International patent PCT # WO2014102728-A1**)  
**Ozhan Ozatay** ve Yemliha Bilal Kalyoncu  
**Grant Date: 03/07/2014**
3. Bir Üç Boyutlu Opto-Manyetik Veri Depolama Sistemi ve Yöntemi-1 (**Turkish patent #: 2012/15356**)  
**Ozhan Ozatay** ve Yemliha Bilal Kalyoncu  
**Grant Date: 21/05/2015**
4. Bir Üç Boyutlu Opto-Manyetik Veri Depolama Sistemi ve Yöntemi-2 (**Turkish patent #: 2012/12865**)  
**Ozhan Ozatay** ve Yemliha Bilal Kalyoncu  
**Grant Date: 23/02/2015**
5. Tek Hücrede Çoklu Bilgi Depolama Amaçlı Faz Değişim Belleği (**Turkish patent # 2014/06990**)  
**Ozhan Ozatay**, Ibrahim Cinar, Aisha Gokce Ozbay ve Onur Dincer  
**Grant Date: 21/11/2016**
6. Three Dimensional Optomagnetic Data Storage System and Method (**US patent # 9812202**)  
**Ozhan Ozatay** ve Yemliha Bilal Kalyoncu  
**Grant Date: 07/11/2017**
- 7\*. Saf Spin Akımlarına Dayanan 3 Boyutlu Manyetik Bellek Cihazı (**Turkish patent application # 2016/15482**  
**US patent application # 36479.01**) Aisha Gokce Ozbay ve **Ozhan Ozatay**

\*Patent pending

## SELECTED PUBLICATIONS

1. J. Holanda, H. Saglam, V. Karakas, Z. Zang, Yi Li, R. Divan, Y. Liu, **O. Ozatay**, V. Novosad, J. E. Pearson, A. Hoffmann “*Magnetic Damping Modulation in IrMn<sub>3</sub>/Ni<sub>80</sub>Fe<sub>20</sub> via the Magnetic Spin Hall Effect*” **Phys. Rev. Lett.** **124**, 087204 (2020)
2. G. Siracusano, R. Tomasello, A. Giordano, V. Puliafito, B. Azzarboni, O. Ozatay, M. Carpentieri, and G. Finocchio “*Magnetic radial vortex stabilization and efficient manipulation driven by the Dzyaloshinskii-Moriya interaction and spin-transfer torque*” **Phys. Rev. Lett.** **117**, 087204 (2016)
3. U. Kilic, G. Finocchio, T. Hauet, S. H. Florez, G. Aktas, **O. Ozatay** “*Magnetic switching driven by nanosecond scale heat and magnetic field pulses: An application of macrospin Landau-Lifshitz-Bloch model*”, **Appl. Phys. Lett.**, **101**, 252407 (2012).
4. K.V. Thadani, G. Finocchio, Z. -P. Li, **O. Ozatay**, J. C. Sankey, Y. -T. Cui, R. A. Buhrman,

- D. C. Ralph, "Strong linewidth variation for spin-torque nano-oscillators as a function of in-plane magnetic field angle" **Phys. Rev. B**, **78**, 024409 (2008) –editor suggested article
5. **O. Ozatay**, P. G. Gowtham, K. W. Tan, J. C. Read, K. A. Mkhoyan, M. G. Thomas, G. D. Fuchs, P. M. Braganca, E. M. Ryan, K. V. Thadani, J. Silcox, D. C. Ralph, R.A. Buhrman, "Sidewall oxide effects on spin-torque- and magnetic-field-induced reversal characteristics of thin-film nanomagnets", **Nature Materials**, **7**, 7, 567-573 (2008)
6. V. S. Pribiag, I. N. Krivorotov, G. D. Fuchs, P. M. Braganca, **O. Ozatay**, J. C. Sankey, D. C. Ralph, R. A. Buhrman, "Magnetic vortex oscillator driven by dc spin-polarized current", **Nature Physics** **3**, 7 498-503 (2007)
7. N. C. Emley, I. N. Krivorotov, **O. Ozatay**, J. C. Sankey, A.G. F. Garcia, D. C. Ralph, R. A. Buhrman "Time resolved spin-torque switching and enhanced damping in permalloy/Cu/permalloy spin-valve nanopillars", **Phys. Rev. Lett.** **96**, 247204 (2006)

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### **BOOKS / BOOK CHAPTERS**

1. **O. Ozatay**, P.G. Mather, T. Hauet, J-U. Thiele, P. M. Braganca **Book Chapter** "Spin-Based Data Storage" **Comprehensive Nanoscience And Technology, Vol 4: Nanofabrication And Devices** , 561-614 editor: G. Wiederrecht, Elsevier 2012.
2. **O. Ozatay**, P.G. Mather, T. Hauet, J-U. Thiele, P. M. Braganca **Book Chapter** "Spin-Based Data Storage" **Handbook of Nanoscale Optics and Electronics**, 561-614 editor: G. Wiederrecht, Elsevier 2009.
3. **O. Ozatay** "Spin -Dependent Transport and Spin Transfer in Nanomagnets" **Book**, Lambert Academic Publishing 2009

### **INVITED CONFERENCE PAPERS IN INTERNATIONAL CONF**

1. **Magnetism and Magnetic Materials Conference (MMM) Anaheim, CA January 2004:**  
**O. Ozatay**, R. A. Buhrman, P. Chalsani, N. C. Emley, I. N. Krivorotov, "Magnetoresistance in Stable Ferromagnetic Nanocontacts" –invited
2. **Magnetism and Magnetic Materials Conference (MMM) Austin, TX November 2008:**  
D. Houssameddine, S. H. Florez, J. A. Katine, J. Michel, U. ebels, D. Mauri, **O. Ozatay**, B. Delaet, B. Viala, L. Folks, B. D. Terris, M. Cyrille "Spin-tansfer induced coherent microwave emission with large power from nanoscale MgO tunnel junctions" –invited
3. **IEEE International Magnetism Conference (INTERMAG) Madrid, Spain May 2008:**  
S. H. Florez, J. A. Katine, M. Carey, L. Folks, **O. Ozatay**, B. D. Terris "RF assisted spin transfer switching in nanopillar spin-valves"–invited
4. **Turkish Physical Society 27<sup>th</sup> International Physics Cong. 14 Sep 2010, Istanbul, Turkey:**  
**O.Ozatay** "Spin Torque Induced Magnetization Dynamics and Reversal in Nano-scale Spin Valves"(invited)
5. **9th International Symposium on Hysteresis Modelling and Micromagnetics (HMM) May 2013, Taormina,Italy** **O. Ozatay**, Y. Bilal Kalyoncu (invited) "On the route to three dimensional magnetic memory"

**6. 4th International Conference on Superconductivity and Magnetism (ICSM-2014), Antalya, Turkey, 2014 O. Ozatay (Invited) “Spintronic Devices for Memory and Sensor Applications”**

**7. Trends in Magnetism (TMAG 2022), Venice, Italy, 2022 O.Ozatay (Invited) “Ultrathin metallic antiferromagnets spin current manipulation & thermal stability”**

## ORGANIZATION OF INTERNATIONAL CONFERENCES

- 1. 5th International Conference on Superconductivity and Magnetism (ICSM-2016), Fethiye, Turkey, 24 April 2016** Member of International Scientific Program Committee
- 2. AEIT- 2014 Annual Conference Trieste, Italy Sep18-19 2014** Technical Committee Member

## SUPERVISING / MENTORING

**3 MS Students** (Ufuk Kilic –graduated 2013, Yemliha Bilal Kalyoncu –graduated 2014, Cemal İlkin Göksal grad. 2012)

**2 Post-Doctoral Fellows**

(Aisha Gokce – 2014 - 2016, Hasan Pişkin 2019 -)

**2 PhD Students** (Ibrahim Cinar –graduated 2017, Vedat Karakas – graduated 2019)