

EK-3

ÖZGEÇMİŞ

1. Adı Soyadı : Mustafa İlker Beyaz
2. Doğum Tarihi : 13.04.1982
3. Unvanı : Dr. Öğr. Üy.
4. Öğrenim Durumu : Doktora
5. Çalıştığı Kurum : Antalya Bilim Üniversitesi



Derece	Alan	Üniversite	Yıl
Lisans	Elektrik Elektronik Müh.	ODTÜ	2005
Y. Lisans	Electrical Engineering	University of Maryland, College Park	2008
Doktora	Electrical Engineering	University of Maryland, College Park	2011

5. Akademik Unvanlar

- Yardımcı Doçentlik Tarihi : 01.12.2011
Doçentlik Tarihi :
Profesörlük Tarihi :

6. Yönetilen Yüksek Lisans ve Doktora Tezleri

6.1. Yüksek Lisans Tezleri

- T1. Aissa Sekkouti, "A theoretical study and a micro-scale sensing platform for the detection of germination in Bacillus Stearothermophilus spores," M.S. Thesis, Antalya Bilim University, 2019
- T2. Hacene Chikh Baelhadj, "A non-resonant kinetic energy harvester for bio-implantable applications," M.S. Thesis, Antalya Bilim University, 2018.
- T3. Sahar Habibiabad, "A new MEMS approach for spirometers," M.S. Thesis, Middle East Technical University, 2016.
- T4. Utku Göreke, "Design of a MEMS based hydraulic pressure sensor," M.S. Thesis, Middle East Technical University, 2016.

6.2. Doktora Tezleri

7. Yayınlar

7.1. Uluslararası hakemli dergilerde yayınlanan makaleler (SCI,SSCI,Arts and Humanities)

- J1. H. C. Baelhadj, S. S. Adhikari, H. Davoodi, V. Badilita, M. İ. Beyaz, "A Sub-cm³ Energy Harvester for *in-vivo* Biosensors," *Microelectronic Engineering*, vol. 226, 111288, March 2020.
- J2. M. İ. Beyaz, S. Habibiabad, H. Yıldız, U. Göreke, K. Azgın, "A Compact Energy Transducer for Power Generation from Respiration," *Journal of Microelectromechanical Systems*, vol. 28, is. 3, 504-512, June 2019.
- J3. M. İ. Beyaz, S. Habibiabad, H. Yıldız, U. Göreke, K. Azgin, "A Turbine-Based MEMS Sensor for Spirometry with Wearable Devices," *IEEE Sensors Journal*, vol. 19, no 19, pp. 8612-8617, October 2019.
- J4. M. İ. Beyaz, F. Tat, K. Y. Özkaya, R. Özbek, "Hybrid Magnetic-Piezoelectric Energy Harvester for Power Generation around Waistline during Gait," *Journal of Electrical Engineering & Technology*, vol. 15, pp. 227-233, 2020.
- J5. M. İ. Beyaz, H. C Baelhadj, S. Habibiabad, S. S. Adhikari, H. Davoodi, V. Badilita, "A Non-Resonant Kinetic Energy Harvester for Bioimplantable Applications," *Micromachines*, 9, 217, May 2018.

- J6. U. Göreke, S. Habibiabad, K. Azgin, Y. Serinagaoglu, M. I. Beyaz, "The Development and Performance Characterization of Turbine Prototypes for a MEMS Spirometer," *IEEE Sensors Journal*, vol. 16, is. 3, pp. 628-633, February 2016.
- J7. K. Y. Ozkaya, M. I. Beyaz, "An Investigation on the Electromagnetic Design Optimization of Rotary Micromachines with Double-Layer Permanent Magnets," *Sensors and Actuators A: Physical*, vol. 222, pp. 335-340, February 2015.
- J8. B. Hanrahan, S. Misra, M. I. Beyaz, J. Feldman, C. M. Waits, R. Ghodssi, "An Adhesion-Dominated Rolling Friction Regime Unique to Micro-Scale Ball Bearings," *Tribology Letters*, vol. 56, no. 2, pp. 215-221, November 2014.
- J9. M. I. Beyaz, B. Hanrahan, J. Feldman, and R. Ghodssi, "Monitoring of Actuation Conditions in a Micro-Turbo-Generator," *IEEE Sensors Journal*, vol. 13, issue 8, pp. 2937-2943, August 2013.
- J10. M. I. Beyaz, B. Hanrahan, J. Feldman, and R. Ghodssi, "An Integrated Permanent Magnet Micro-Turbo-Generator Supported on Microball Bearings," *Journal of Microelectromechanical Systems*, vol. 22, issue 3, pp. 794-803, June 2013.
- J11. M. McCarthy, C.M. Waits, M. I. Beyaz, and R. Ghodssi, "A Rotary Microactuator Supported on Encapsulated Microball Bearings Using An Electro-Pneumatic Thrust Balance," *Journal of Micromechanics and Microengineering*, vol. 19, issue 9, pp. 1-7, August 2009.
- J12. M. I. Beyaz, M. McCarthy, N. Ghalichechian, and R. Ghodssi, "Closed-Loop Control of A Long-Range Micropositioner Using Integrated Photodiode Sensors," *Sensor and Actuators A: Physical*, 151, pp 187-194, April 2009.
- J13. D. Bowen, I. Mayergoyz, C. Krafft, D. Kroop, and M. I. Beyaz, "On Design of Air-Core Ethernet Transformers," *Journal of Applied Physics*, 105, 07A307, February 2009.
- J14. N. Ghalichechian, A. Modafe, M. I. Beyaz, and R. Ghodssi, "Design, Fabrication, and Characterization of A Rotary Micromotor Supported on Microball Bearings," *Journal of Microelectromechanical Systems*, vol. 17, no. 3, pp. 632-642, June 2008.

7.2. Uluslararası diğer hakemli dergilerde yayınlanan makaleler

7.3. Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında basılan bildiriler

- C1. S. Habibiabad, Y. S. Doğrusöz, M. İ. Beyaz, "Characterization and Performance Estimation of a MEMS Spirometer," *Proceedings of the Eurosensors 2016 Conference*, pp. 1020-1023, Budapest, Hungary, September 4-7, 2016.
- C2. U. Göreke, S. Habibiabad, K. Azgin, M. I. Beyaz, "A MEMS Turbine Prototype for Respiration Harvesting," *Proceedings of the Power MEMS 2015 Conference*, doi:10.1088/1742-6596/660/1/012059, Boston, MA, USA, December 1-4, 2015.
- C3. U. Goreke, K. Azgin, M. I. Beyaz, "Design and Electromagnetic Optimization of a Respiration Harvester," *Proceedings of the Eurosensors 2014 Conference*, pp. A4P-H01, Brescia, Italy, September 7-10, 2014.
- C4. M. I. Beyaz, B. Hanrahan, J. Feldman, and R. Ghodssi, "Integrated Sensing of Mechanical Parameters in a Micro-Turbo-Generator," *Proceedings of the 11th IEEE Sensors Conference (Sensors 2012)*, pp. 2062-2065, Taipei, Taiwan, October 28-31, 2012.
- C5. M. I. Beyaz, B. Hanrahan, J. Feldman, and R. Ghodssi, "An Integrated Electromagnetic Micro-Turbo-Generator Supported on Encapsulated Microball Bearings," *Proceedings of the 25th International Conference on Micro Electro Mechanical Systems (MEMS 2012)*, pp. 1209-1212, Paris, France, January 29 – February 2, 2012.
- C6. R. Ghodssi, B. Hanrahan, M. I. Beyaz, "Microball Bearing Technology for MEMS Devices and Integrated Microsystems," *Proceedings of the 16th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers 2011)*, pp. 1789-1794, Beijing, China, June 5-9, 2011.
- C7. M. I. Beyaz, B. Hanrahan, and R. Ghodssi, "First Silicon Microturbine with Integrated Permanent Magnets Supported on Encapsulated Microball Bearings," *Proceedings of the 10th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion*

- Applications (Power MEMS '10)*, pp. 167-171, Leuven, Belgium, November 30 – December 3, 2010.
- C8. B. Hanrahan, M. I. Beyaz, M. McCarthy, C.M. Waits, and R. Ghodssi, "A New Performance Regime for Microfabricated Ball Bearings," *Proceedings of the 10th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (Power MEMS '10)*, pp. 191-194, Leuven, Belgium, November 30 – December 3, 2010.
- C9. M. I. Beyaz, B. Hanrahan, and R. Ghodssi, "Microball Bearings for Microsystems Integration," *2010 Solid-State Sensor, Actuator, and Microsystems Workshop*, Open Poster Session, Hilton Head Island, SC, US, June 6-10, 2010.
- C10. M. I. Beyaz, M. McCarthy, and R. Ghodssi, "Fabrication of High-Aspect-Ratio Metal Structures with Planar Surfaces for Power MEMS Devices," *Proceedings of the 9th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (Power MEMS '09)*, pp. 586-588, Washington DC, US, December 1-4, 2009.
- C11. M. McCarthy, C. M. Waits, M. I. Beyaz, and R. Ghodssi, "A Rotary Microactuator Supported on Encapsulated Microball Bearings Using an Electro-Pneumatic Thrust Balance," *Proceedings of the 22nd IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2009)*, pp. 1095-1098, Sorrento, Italy, January 25-29, 2009.
- C12. M. I. Beyaz, M. McCarthy, N. Ghalichechian, and R. Ghodssi, "Feedback Control of A Long Range Micropositioner," *MEMS Alliance Symposium*, Johns Hopkins University - Applied Physics Lab, Laurel, MD, US, November 24, 2008.
- C13. M. McCarthy, C. M. Waits, M. I. Beyaz, and R. Ghodssi, "Rotary Microactuators Supported on Encapsulated Microball Bearings," *MEMS Alliance Symposium*, Johns Hopkins University - Applied Physics Lab, Laurel, MD, US, November 24, 2008.
- C14. M. McCarthy, M. I. Beyaz, C. M. Waits, and R. Ghodssi, "An Electro-Pneumatic Thrust Balance for Small-Scale Energy Conversion Using Encapsulated Rotary Microball Bearings," *Proceedings of the 8th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (Power MEMS '08)*, pp. 129-132, Sendai, Japan, November 9-12, 2008.
- C15. M. I. Beyaz, M. McCarthy, N. Ghalichechian, and R. Ghodssi, "Closed-Loop Control of A Long Range Microactuator," *Proceedings of the ASME International Mechanical Engineering Congress & Exposition*, Boston, MA, US, October 31-November 6, 2008.
- C16. M.I. Beyaz, M. McCarthy, N. Ghalichechian, and R. Ghodssi, "Photodiode Position Sensors for Integrated Feedback Control of A Long-Range Micropositioner," *Proceedings of the 7th IEEE Sensors Conference (Sensors 2008)*, pp. 803-806, Lecce, Italy, October 26-29, 2008.
- C17. M. I. Beyaz, M. McCarthy, C. M. Waits, B. Hanrahan, and R. Ghodssi, "Microball Bearing Technology for MEMS," *2008 Solid-State Sensor, Actuator, and Microsystems Workshop*, Open Poster Session, Hilton Head Island, SC, US, June 1-5, 2008.
- C18. M. I. Beyaz, N. Ghalichechian, and R. Ghodssi, "Toward An Autonomous Electrostatic Micromotor: Integrated Feedback Control," *Proceedings of the 21st IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2008)*, pp. 483-486, Tucson, AZ, US, January 13-17, 2008.
- C19. N. Ghalichechian, M. McCarthy, M. I. Beyaz, and R. Ghodssi, "Measurement and Modeling of Friction in Linear and Rotary Micromotors Supported on Microball Bearings," *Proceedings of the 21st IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2008)*, pp. 507-510, Tucson, AZ, US, January 13-17, 2008.
- C20. M. I. Beyaz, N. Ghalichechian, and R. Ghodssi, "Toward Smart Micromachines with Integrated Feedback Control," *International Semiconductor Device Research Symposium*, College Park, MD, US, December 12-14, 2007.
- C21. M. I. Beyaz, N. Ghalichechian, and R. Ghodssi, "Towards Feedback Control with Integrated Position Sensing in Micromachines," *American Vacuum Society 54th International Symposium*, Seattle, WA, US, October 14-19, 2007.
- C22. M. I. Beyaz, N. Ghalichechian, and R. Ghodssi, "Toward Smart Micromachines with Integrated Feedback Control," *MEMS Alliance Symposium*, Rockville, MD, US, October 2, 2007.

- C23. N. Ghalichechian, A. Modafe, M. I. Beyaz, and R. Ghodssi, "A Rotary Micromotor Supported on Microball Bearings," *The 14th International Conference on Solid-State Sensors, Actuators, and Microsystems (Transducers '07)*, Lyon, France, June 10-14, 2007.
- C24. N. Ghalichechian, A. Modafe, M. I. Beyaz, C. M. Waits, B. Geil, and R. Ghodssi, "Design and Fabrication of a Rotary, Electrostatic Micromotor Supported on Microball Bearings," *Proceedings of the 6th International Workshop on Micro and Nanotechnology for Power Generation and Energy Conversion Applications (Power MEMS '06)*, pp. 227-230, Berkeley, CA, US, November 29-December 1, 2006.
- C25. N. Ghalichechian, A. Modafe, M. I. Beyaz, and R. Ghodssi, "Chemical Mechanical Planarization of BCB Polymer Films: Effect of Cure Temperature," *AVS 53rd International Symposium*, San Francisco, CA, US, November 12-17, 2006.

7.4. Yazılan uluslararası kitaplar veya kitaplarda bölümler

7.5. Ulusal hakemli dergilerde yayımlanan makaleler

- J1. M. İ. Beyaz, "Energy Harvesting from Knee Motion Using Piezoelectric Patch Transducers," *Academic Platform – Journal of Engineering and Science*, vol. 7, is. 2, pp. 82-87, May 2019.

7.6. Ulusal bilimsel toplantılarda sunulan ve bildiri kitabında basılan bildiriler

- C1. M. I. Beyaz, A. Sekkouti, "A Micro-Scale Biosensor for the Detection of Bacillus Stearothermophilus Spore Germination," *Proceedings of ICENTE 2019*, Konya, Turkey
- C2. M. I. Beyaz, "Investigation of Diamagnetic Levitation for Dynamic MEMS Devices," *Proceedings of IMSEC 2019*, Alanya, Turkey
- C3. M. I. Beyaz, "Non-planar drive-sense coil structure for inductive MEMS microphones," *Proceedings of ISADET 2019*, Kahramanmaraş, Turkey

7.7. Diğer yayımlar

8. Projeler

- P1. Solunumdan elektrik üretebilen MEMS jeneratörü, TÜBİTAK 3501 programı, proje yürütücüsü
- P2. Elektronik biyoimplantlar için vücut içi mikrojeneratör, TÜBİTAK 2525 programı, proje yürütücüsü
- P3. Sensör arge ve imalatına yönelik mikro teknoloji merkezi, Batı Akdeniz Kalkınma Ajansı mali destek programı, proje yürütücüsü
- P4. NANOSEQ: Nanopor tabanlı hızlı ve düşük maliyetli DNA dizileme platformu geliştirilmesi, TÜBİTAK TEYDEB 1511 programı, danışman

9. İdari Görevler

10. Bilimsel ve Mesleki Kuruluşlara Üyelikler

11. Ödüller

- O1. Antalya Bilim Üniversitesi Araştırma Ödülü, Aralık 2019
- O2. James Clark School of Engineering, University of Maryland, College Park, Dekanlık Doktora Ödülü, Mayıs 2010
- O3. Electrical and Computer Engineering, University of Maryland, College Park, Tez Ödülü, Mart 2010

12. Son iki yılda verdiğiniz lisans ve lisansüstü düzeydeki dersler için aşağıdaki tabloyu doldurunuz.

Akademik Yıl	Dönem	Dersin Adı	Haftalık Saati		Öğrenci Sayısı
			Teorik	Uygulama	
2018-2019	Güz	EE 401 Digital Electronics	3	0	10
		ECE 501 Introduction to MEMS Design	3	0	4
		EE 491 Senior Project 1	1	0	4
	İlkbahar	EE 202 Circuit Theory 2	3	1	34
		EE 302 Analog Electronics	3	1	44
		EE 492 Senior Project 2	3	0	4
2018-2019	Güz	EE 401 Digital Electronics	3	0	13
		ECE 501 Introduction to MEMS Design	3	0	4
		EE 491 Senior Project 1	1	0	7
	İlkbahar	EE 202 Circuit Theory 2	3	1	46
		EE 302 Analog Electronics	3	1	31
		EE 492 Senior Project 2	3	0	7

Not: Açılmışsa, yaz döneminde verilen dersler de tabloya ilave edilecektir.