

# Faculty of Engineering and Natural Sciences

Annual Report 2016-2017 Academic Year

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FACULTY OF ENGINEERING AND NATURAL SCIENCES



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### **DEAN'S MESSAGE**



I am happy to share with you FENS Activity Report for the 2016-2017 Academic Year. I would like to summarize some of the highlights, details can be found in this report.

FENS graduated 426 undergraduate, 126 masters and 42 doctoral students in this academic year. Industrial Engineering and Mechatronics Engineering Programs have been accredited by MÜDEK, the local accreditation association which is a member of Washington Accord. We believe in the strength of the education we provide and the placement and success stories of our graduates are proofs of this. Accreditation is just another validation of the quality of education provided by FENS Programs.

Our strong research performance continued in 2016-17. As of June 2017, total budget of continuing research projects in FENS is about 60 million TL. FENS faculty members, postdocs and students continued to contribute to scientific

knowledge by publications with high impact. As a result of all of these, they won prestigious awards and Sabancı University continued its good performance in national and international rankings.

Sabancı University Program for Undergraduate Research (PURE) is intended for undergraduate students of Sabancı University who would like to pursue guided research project. 12 Faculty Members and 42 students involved in 22 projects in 2016-2017 summer term. At the end of PURE project, 2 concrete outputs have been published by prestigious journals.

First time this year Sabanci University Faculty of Engineering and Natural Sciences was joined the prestigious institutions from all over the world to celebrate the exciting research conducted by Doctor of Philosophy (PhD) students. Thus, Faculty of Engineering and Natural Sciences organized the first Three Minute Thesis (3MT) Competition in Turkey on May 17th, 2017.

4th grade undergraduate students under the advice of the participating institution and SU faculty members within the "Graduation Project" started to produce new projects from 2016-2017 academic year. The first outputs of the Industrial Oriented Projects that Sabanci University gave a new dimension to the university-industry collaboration were shared with the Spring Invitation held on Thursday, May 11, 2017 at Sabancı University Nanotechnology Research and Application Center (SUNUM).

> Yusuf Menceloğlu Faculty of Engineering and Natural Sciences

### **HIGHLIGHTS**





Industrial Engineering and Mechatronics Engineering Programs of the Faculty of Engineering and Natural Sciences have been accredited by MÜDEK as of 1 May 2017. MÜDEK (Association for Evaluation and Accreditation of Engineering Programs) is the only authorized association in Turkey for accreditation of engineering undergraduate programs.

MÜDEK accreditation acknowledges the suitability of our Programs' to high standards and expresses quality assurance. Accredited programs are eligible for "EUR-ACE Label" of the European Network for Accreditation of Engineering Education. MÜDEK is also a full member of Washington Accord, multi-party accreditation recognition agreement under the umbrella of International Engineering Alliance.

For the ongoing efforts and other details on accreditation, visit the accreditation web page.

#### **XRD, AN X-RAY DETECTOR**

XRD, an X-ray detector designed by a team led by Sabanci University Faculty of Engineering and Natural Sciences Associate Professor Emrah Kalemci, was deployed into low-Earth orbit at 15.15 Turkish time on May 26, 2017.



Designed and developed by a team led by Sabanci University Faculty of Engineering and Natural Sciences Associate Professor Emrah Kalemci at the High-Energy Astrophysics Detector Laboratory, XRD was deployed into low-Earth orbit from the International Space Station on BeEagleSat, a cube satellite developed by Professor Alim Rüstem Aslan from the ITU Faculty of Aerospace Sciences, at 15.15 Turkish time on May 26, 2017.

XRD was designed in the High-Energy Astrophysics Detector Laboratory of Sabancı University. The circuit design, software and testing of XRD were completed at the Istanbul Technical University Aerospace Systems Design and Testing Lab (USTTL), where the BeEagleSat host satellite was also produced. The production of XRD was undertaken mostly by undergraduate and gradaute students (Erdem Baş, Deniz Aksulu, Şevket Uludağ, Eray Akyol, Ertan Ümit), Associate Professor Emrah Kalemci, and Associate Professor Ayhan Bozkurt from Sabancı University. The effort was completed as a Sabancı University Internal Project with TÜBİTAK 1001 funding.

#### XRD WILL TRANSMIT DATA TO EARTH



XRD is an X-ray detector placed on an electronic circuit 10 x 10 cm in size, and will be used to measure high-energy X-ray backgrounds at various orbital heights. The system will operate for 30 minutes every other day and transmit captured data to Earth.

#### About BeEagleSat

BeEagleSat is a cube satellite that is 10  $\times$  10  $\times$  20 cm in size and hosts XRD. The device was developed as part of the European Union 7th Framework Program. The project extends to 36 cube satellites that will perform a variety of scientific measurements in low thermosphere.

The cube satellite project was conducted by undergraduate and graduate students under the leadership of implementer Professor Rüstem Aslan from Istanbul Technical University. The main partner of the school was Turkish Air Force Academy/ HUTEN, and supporting partners were Sabancı University, Havelsan A.Ş., Gümüsh and Ertek.

#### FIRST SIGNALS RECEIVED

The BeEagleSat project commenced in 2012 and was completed in 2016. It was delivered to a center in the Netherlands along with HAVELSAT, made at ITU USTTL, and other QB50 satellites. On April 18, 2017, the device was successfully launched on the ATLAS 5 rocket carrying the Orbital ATK Cygnus cargo vessel, and reached the ISS. Finally, the cube satellite was deployed into low-Earth orbit at 408 km on May 26, 2017 at 15.15 Turkish time by a cube satellite deployer made by NanoRacks. BeEagleSat powered up 5 hours after deployment and successfully transmitted its first signal. Once preparation tests are complete, the satellite will start transmitting data to the ground station located at ITU.



### Sabancı University Program for Undergraduate Research (PURE)

Sabanci University Program for Undergraduate Research (PURE) is intended for undergraduate students of Sabanci University who would like to pursue guided research project. The goal of the program is to introduce undergraduate students to real research problems early in their studies. Selected undergraduate fellows will work closely with a faculty member and his/her postdocs, graduate students on a specified project.

The first PURE episode took place in Summer 2017.

#### 2016-2017 Summer

-	
Number of Projects	22
Number of Faculty Members	13
Number of Students	42

#### Winners

Supervisor Name	Project Name	Student Name	Winners
Ersin Göğüş	Investigations of high energy astrophysics data to understand magnetars	Yusuf Özsoy	First Prize winner
Hüsnü Yenigün	Synchronizing Heuristics for Non-strongly Connected Automata	Berk Çirişci	Second Prize winner
Meltem Elitaş	Design and development of surgical tools	Elif Taşkın Eray Kurt	Third Prize winner

Concrete outputs (conference presentations/publications, articles, etc.)

Conference Publication:

Cirisci, B., Kahraman, M.K., Yildirimoglu, C.U., Kaya, K., Yenigun, H. 2018. Synchronizing Heuristics For Non-Strongly Connected Automata. In: Proc. of 6th International Conference on Model-Driven Engineering and Software Development (MODELSWARD 2018), Jan 22-24, 2018, Portugal.

Conference Proceeding:

"Design and development of surgical tools" (Meltem Elitaş) TOK 2017 conference. Conference proceedings are published. Students made a Patent application for their project.



### **Industry-Oriented Projects**

Industry Oriented Projects is a program in which the primary research topics of institutions are funded with the cooperation of Sabancı University (SU). The program consists of the projects of the 4th grade undergraduate students under the advice of the participating institution and SU faculty members within the "Graduation Project" course in the SU curriculum. The project is owned by the relevant industrial corporation. The SU and the participating institution will work together on the project.

This project was realized with 10 industrial institutions, 17 projects and 59 students.

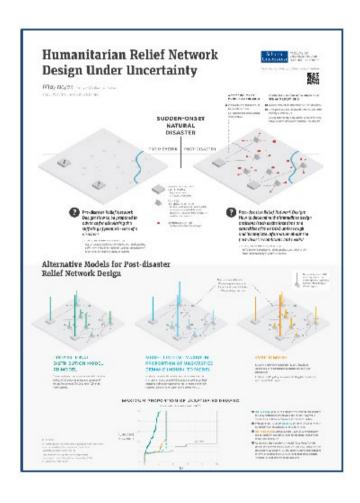
The first outputs of the Industrial Oriented Projects that Faculty of Engineering and Natural Sciences, gave a new dimension to the university-industry collaboration, were shared with the Spring Invitation held on Thursday, May 11, 2017 at Sabancı University Nanotechnology Research and Application Center.(SUNUM)

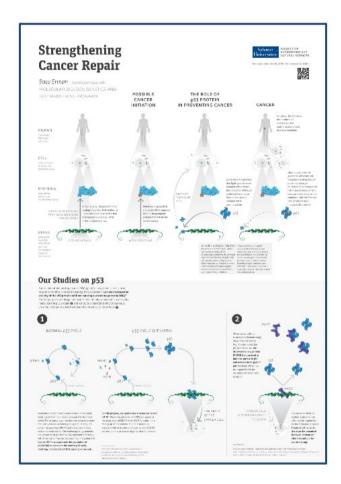


#### **Outreach Activities**

Designed to communicate science to the local public through web sites (in Turkish) and posters (both Turkish and English). Some of activities;

- Humanitarian Relief Network Design Under Uncertainty
- Strengthening Cancer Repair





#### **New Comers**



Ayesha Asloob Qureshi is a faculty member at Sabancı University since September 2016. She received her Ph.D. degree in Mathematics at Abdus Salam School of Mathematical Sciences, Lahore where she worked with Prof. Dr. Jurgen Herzog

(Üniversität Düisburg-Essen, Germany). Her research interest includes topics in Combinatorial Commutative Algebra, Computational Algebra and Algebraic Statistics.



Bekir Bediz is a faculty member in the Mechatronics Engineering Program at Sabancı University. He earned his B.S and M.S. degrees in Mechanical Engineering at Middle East Technical University, Ankara, Turkey in 2006 and

2009, respectively. Then, he joined the Multi-Scale Manufacturing and Dynamics Laboratory (MMDL) at Carnegie Mellon University (CMU). His Ph.D. dissertation work was on understanding and modeling the dynamic behavior of the mechanical micromachining process. Following his doctoral studies, Dr. Bediz continued to work as a post-doctoral researcher in MMDL on various micromanufacturing technologies (including micromachining, micro-molding, soft lithography, micro spin casting, etc.), structural dynamics (constructing dynamic models and modal testing of complex structures) and their applications in various interdisciplinary fields. His research interests include developing novel high-fidelity dynamic modeling approaches to accurately and precisely capturing the vibrational behavior of complex engineering structures, experimental modal analysis techniques, advancing multiscale manufacturing processes and related equipment/ sensors, and fabrication of micro-scale bio-devices.



Burak Kocuk is an assistant professor at the Industrial Engineering Program, Sabancı University. He obtained his BS degrees in Industrial Engineering and Mathematics in 2011, and MS degree in Industrial Engineering from Boğaziçi University in 2012. He obtained his

PhD degree of Operations Research at the School of Industrial and Systems Engineering, Georgia Institute of Technology in 2016. Before joining Sabancı University, he was a postdoctoral fellow at the Tepper School of Business, Carnegie Mellon University.



Eralp Demir received his Bachelor and Masters degrees from Middle East Technical University, Mechanical Engineering department in 2003 and 2005, respectively. He worked as a research assistant at Carnegie Mellon University, Mechanical Engineering Department until 2007. Later, he joined Max Planck Institute for Iron

Research as a researcher between 2007 and 2010. He received his PhD at RWTH Aachen University from Prof. Dierk Raabe from Metallurgy and Metal Physics Department. He developed a novel method to quantify geometrically necessary dislocations (GND) using electron backscattered diffraction (EBSD) maps to explain smaller stronger behavior. During his PhD studies, he implemented crystal plasticity theory of Maniatty and Dawson into finite elements in order to explain the experimental findings of single crystal micro mechanical behavior. Later, he joined Cornell University, Mechanical and Aerospace Engineering department as a post-doctoral associate between 2010 and 2012. Together with Prof. P.R. Dawson, he developed a novel finite element methodology to find the residual stress distribution inside aerospace materials. He is currently working at Sabanci University and his main field of interests are crystal plasticity finite element modeling and variable stiffness composite design.

#### **New Comers**



Erdinç Öztürk, received his BS degree in Microelectronics from Sabancı University in 2003. He received his MS degree in Electrical Engineering in 2005 and PhD degree in Electrical and Computer Engineering in 2009 from Worcester Polytechnic Institute.

He worked at Intel in Massachusetts for almost 5 years as hardware engineer, than he joined Istanbul Commerce University as assistant professor. He is currently affiliated in Computer Science and Engineering and Electronics Engineering programs at Faculty of Engineering and Natural Sciences at Sabancı University.



Hüseyin Özkan; Dr. Ozkan received his B.Sc. degrees in Electrical Engineering Mathematics from Bogazici University; and his M.Sc. and Ph.D. degrees in Electrical Engineering from Boston University and Bilkent University,

respectively. Before joining the Faculty of Engineering and Natural Sciences of Sabancı University, he had been working as a postdoctoral research associate in Vision and Computational Neuroscience at Massachusetts Institute of Techonology. His research interests are in machine learning, signal processing, computer vision and computational neuroscience.



Michel Lavrauw studied Mathematics at Ghent University (Belgium), and obtained my Ph.D. degree in Mathematics from Eindhoven University of Technology (The Netherlands) in 2001 under the supervision of Aart Blokhuis and Andries Brouwer. He worked as a postdoc at

the University of Naples (Marie Curie Fellowship), at Universitat Politècnica de Catalunya in Barcelona (EU-project COMBSTRU), Eindhoven University of Technology (Veni grant (NWO)), Ghent University (FWO fellowship), and Vrije Universiteit Brussel (VUB). In 2012, he obtained his Abilitazione Scientifica Nazionale for full professor (settore 01/A1, Algebra/Geomety) from the Italian Ministero dell'Istruzione dell'Università e della Ricerca, and was a faculty member at the University of Padua from 2011-2017 (associate professor since 2014). In 2016-2017 acedmic year, he joined the Math group of the Faculty of Engineering and Natural Sciences at Sabancı University.



Lütfi Taner Tunç a faculty member in Faculty of Engineering and Natural Sciences at Sabanci University, affiliated with Industrial Engineering Undergraduate and Manufacturing Engineering Graduate Program. Currently, he is affiliated with the Composite Technologies Centre of

Excellence, as well. Taner got his BSc in Mechanical Engineering in 2004 from Middle East Technical University in Ankara, Turkey. Then, he continued his studies on modelling of machining operations, specifically 5-axis milling, at MSc (2006) and PhD (2010) levels in Sabanci University. Upon completion of his PhD Studies, he worked for MAXIMA Manufacturing R&D Company from 2011 to 2014, in the meanwhile he was offering lectures in Sabanci University as part time lecturer. Then he moved to the University of Sheffield in 2014 work at the Nuclear Advanced Manufacturing Research Centre to hold Post-Doctoral Research Associate position to work on robotic machining research. He left Nuclear AMRC in 2017 to hold the Faculty Member position at Sabanci University. His research interests include modelling of machining operations together with machine tool dynamics for 5-axis machining. He is focusing on robotic manufacturing, composite manufacturing technologies such as composite machining and automated fibre layup.

#### **New Comers**



Turgay Bayraktar joined Sabanci University in June, 2017 as a faculty member in Mathematics Program. Dr Bayraktar received his BSc and MSc degrees in Mathematics from METU and his PhD degree from Indiana University, USA. Having

completed his graduate studies, he held postdoctoral positions at John Hopkins University, Indiana University and Syracuse University respectively. Dr. Bayraktar is working in the areas of Several Complex Variables, Holomorphic Dynamics and Complex Geometry."



**Tuğçe Yüksel;** Dreceived her PhD in Mechanical Engineering from Carnegie Mellon University in August, 2015. She earned her B.S. (2007) and M.S. (2010) degrees in Mechanical Engineering from Middle East Technical University, Turkey,

and was awarded a Fulbright Scholarship to pursue her graduate studies in the United States. Her research focuses on evaluating the performance, cost and environmental benefits of technology and operation conditions in vehicle electrification, and investigating battery design options for electrified vehicles.



Yasemin Şengül is a faculty member at Sabancı University since January 2017. She received her DPhil in Mathematics in the University of Oxford, UK, under the supervision of Prof. John M. Ball FRS. Her thesis was about well-posedness of dynamics of microstructure in solids. Dr. Şengül

received her B.Sc. and M.S. degrees in 2005 and 2006, respectively, from the Department of Mathematics in Bilkent University. Her research is on the analysis of partial differential equations and its applications in material science and engineering. More specifically, she is interested in the modelling of microstructure observed in elastic solids undergoing phase transformations, as well as the theory of gradient flows, infinite-dimensional dynamical systems, and strain-limiting theory of elastic solids.

#### **Promotions**

2 Associate Profesors have been promoted to Professorship:

**Cem Güneri,** Mathematics **ibrahim Kürşat Şendur,** Mechatronics Engineering

### **Faculty Member Achievements**

Ali Kosar (Mechatronics Engineering) joins the Editorial Board of the Elsevier journal Applied Thermal Engineering as an Associate Editor upon the recommendation of the Editor-in-Chief Prof. T.S. Zhao from Hong Kong University of Science&Technology.

Ali Rana Atılgan (Industrial Engineering), Bratislav Pantelic are respectively the first and second place, Can Akkan and Gündüz Ulusoy (Industrial Engineering) are the third place winners for the Graduating Class Award.

Emre Erol, **Cem Güneri (Mathematics)** and Cemil Koçak are respectively the first, second and third place winners for the First Year University Courses Award - Auditorium Courses.

**Güvenç Şahin (Industrial Engineering)** and SUNUM Researcher **Tolga Sütlü** received the Science Academy's Young Scientist Awards Program (BAGEP) 2017.

**Ilker Hamzaoğlu (Electronics Engineering)** is appointed as one of the three Senior Editors of IEEE Transactions on Consumer Electronics journal in SCI.

**Ismail Çakmak (Molecular Biology, Genetics and Bioengineering)** received 2016 IPNI Science Award.

**Müjdat Çetin (Electronics Engineering)** has been elected as the vice-chair of the IEEE Computational Imaging Special Interest Group

Özgür Gürbüz (Electronics Engineering) and İbrahim Tekin's (Electronics Engineering) project entitled "Design and Implementation of a Single Antenna Full-Duplex Radio" has been selected to be supported by TÜBİTAK 1003.

Selmiye Alkan Gürsel's (Materials Science and Nanoengineering) work with Olgun Güven of Hacettepe University on "Radiation grafted materials for energy conversion and storage applications" was published online in Progress in Polymer Science.

### **Student/Alumni Achievements**

Samet Zihir (MSMAT, 2011)'s company, SpectraBeam was acquired by Integrated Device Technologies (IDT).

**Eray Kurt (BSMAT Student)** and **Elif Taskin (BSEE Student)** will present the oral presentation of "Design and development of surgical tools" at the Turkish National Conference on Automatic Control (TOK 2017).

The work of title "Micro Scale Hong Kong Skyscrapers" of Ahmad Reza Motezakker (MSMAT Student) with the FENS Faculty Member Dr. Ali Koşar and the EPFL faculty member Guillermo Luis Villanueva is the Honorable Runner-up of the Picture of the Month Contest of the Center of Micronanotechnology at EPFL.

Ata Otaran (MSME, 2017), Gökay Çoruhlu (PhDME Student), and Yusuf Mert Şentürk (MSME, 2017), of HMI Laboratory have been awarded the People's Choice Award at the Student Innovation Challenge at IEEE WorldHaptics 2017 with their project titled "HandsOn-Computing: Promoting Algorithmic Thinking through Haptic Educational Robots." The award is sponsored by Disney Research.

Hacer Ezgi Karakaş Schüller (PhDBIO, 2017) has been awarded with "Best Oral Presentation Award" by the Organization Committee of 6th International Congress of Molecular Medicine that has been held between 22-25 May in İstanbul and organized by Turkish Society of Molecular Medicine.

Nurdan Erdem (BSBIO Student) and Yağmur Yıldızhan (MSME Student) for their first paper "A Numerical Approach for Dielectrophoretic Characterization and Separation of Human Hematopoietic Cells" published by the International Journal of Engineering Research & Technology.

Eda Salihoğlu (BSIE Student) and Kardelen Ergöz (BSECOB Student) won the 1st place with project titled "Solomanje" at "Markatlon Project Competition" orginized by Eczacıbaşı Consumer Product Group.

Muhammad Asif (PhDBIO Student) has received the 2016 IPNI Scholar Award. The award will be presented by Dr. Munir Rusan from IPNI following the BIO seminar.

Metehan Mutlu (BSME Student) has been awarded with "Best Presentation Award " by the Program Committee of 18th International Conference on Biomechanics and Biomedical Engineering.

Halit Alptekin (MSCS Student) and his team won the 1st place at Data Science Hackathon Competition.

Yunus Akkoç (PHDBIO student)'s study under the supervision of Assoc. Dr. Devrim Gözüacık, which entitled "Role of MIR376B in Breast Cancer" has been accepted to present in MOKAD (Molecular Cancer Research Association of Turkey) annual congress and he received the "Grand Poster Award" out of 250 posters.

The research team led by Dr. Devrim Gözüaçık is composed of Öznur Bayraktar (BSBIO, 2016), Özlem Oral, Nur Kocatürk, Yunus Akkoç (PHDBIO student), Karin Eberhart and Ali Koşar. An article providing the details of the study was published by the team in the October 2016 issue of the international scientific journal PLOS ONE.

Can Yıldızlı (MSCS, 2011) and Halit Alptekin (MSCS Student) TÜBİTAK 2241 Sanayiye Yönelik Lisans Bitirme Tezleri Yarışması'nda "Mobil Cihazlarda Kişi Gizliliği Koruması ve Veri Sızıntısı Önleyici Güvenlik Kalkanı" isimli projesiyle ikincilik ödülü almıştır.

The journal article of title "Numerical modeling of convective heat transfer of thermally developing nanofluid flows in a horizontal microtube" of **Abdolali Khalili Sadaghiani (PHDME Student)**, which was co-authored by FENS faculty members Dr. Mehmet Yıldız and Dr. Ali Koşar, was recently published in International Thermal Sciences, one of the most prestigious journals in the field of Thermal Sciences.

This notable achievement is being published as the cover story of the November 15th, 2016 issue of the Journal of Applied Polymer Science, as the fruits of hardwork by Kaan Bilge (PHTMAT Student), Ayca Urkmez (MSMAT, 2015), and Eren Simsek (PHDMAT, 2012). The team acknowledge financial support from TUBITAK funded project 213M542.

**Seçil Erbil (PHDBIO Student)** article that was published on August the 3rd in the prestigious " The Journal of Biological Chemistry reached 550 reads in only 2 months. The team received a special congratulation letter from the Editor-in-Chief Prof. Lila M. Gierasch (University of Massachusetts Amherst, USA).

The journal article of title "Review on Lithotripsy and Cavitation in Urinary Stone Therapy" of Morteza Ghorbani (MSME Student), which was co-authored by the SUNUM researcher Dr. Ozlem Oral, Faculty Member of Molecular Biology, Genetics and Bioengineering Dr. Devrim Gözüaçık, and Faculty Member of Mechatronics Engineering Program Dr. Ali Koşar, was recently published in IEEE Reviews in Biomedical Engineering, one of the most prestigious journal in the field of Biomedical Engineering.

Sorour Semsari Parapari (PHDMAT Student), Hazal Batili (BSMAT, 2016), Noyan Ozkan (BSMAT Student), and Deniz Anil (BSMAT Student) developed a method for recycling waste concrete that won them 1st place in the "Betonik Fikriler" Project Competition on May 2nd, 2016, organized by AkcanSa.

**Ali Ansari Hamedani (PHDMAT Student)** win the best poster award at NanoTR-12

Kemal Oltun Evliyaoglu (BSME, 2016)'s work will be published as a book chapter., K. O. and Elitas, M., Design and Development of a Self-Adaptive, Reconfigurable and Low-Cost Robotic Arm, Mechatronics and Robotics Engineering for Advanced and Intelligent Manufacturing, Lect. Notes Mechanical Engineering, Springer, ISBN: 978-3-33580-3.

# 2016 Alumni Attending Graduate School

NAME	INSTITUTION NAME	POSITION
Abba Ibrahim Ramadan	University of Kansas	Teaching Assistant
Abbas Farrokhi	Sabancı Üniversitesi	Research Assistant
Abdullahi Adamu	Sabancı Üniversitesi	Research Assistant
Ahmet Can Kırlıoğlu	Boston University	Phd Study
Armağan Daşcürcü	Columbia University	Phd Study
Asma Abdullah Abdulwahab Al-Murtadha	Sabancı Üniversitesi	Phd Study
Ayça Evrenkaya	Henley Business School	Master of Science
Aydın Akyol	King's College London	Master of Science
Aykut Özgün Önol	Northeastern University	Research Assistant
Ayşegül Lale Karadeniz	University of Warwick	Master of Science
Barış Esen	Sabancı Üniversitesi	Master of Science
Bartu Demirsoy	Hult University	MBA (Master of Business Administration)
Begüm Kanat	University of Warwick	Master of Science
Begüm Özemek	Acıbadem Üniversitesi	Master of Science
Bensu Uçar	Sabancı Üniversitesi	Phd Study
Beste Seymen	Sabancı Üniversitesi	Master of Science
Burak Dincer	New York University	Master of Science
Burak Seyid	ETH Zurich	Master of Science
Canberk Demirsoy	Technische Universität München	Master of Science
Caner Seymenoğlu	McGill University	Master of Science
Cansu Eriş	Heidelberg University	Master of Science
Cemre Gökalp	Sabancı Üniversitesi	Research Assistant
Çeri Reyhan	Technical University of Munich	Master of Science
Deniz Anıl	Sabancı Üniversitesi	Master of Science
Ece Baltacı	Northeastern University	Master of Science
Ece Bıçak	Brandeis University	Master of Science
Ece İşler	Galatasaray Üniversitesi	Master of Arts
Ecem Ağaoğlu	University of Southampton	Master of Science
Elif Dumlu	Kungliga Tekniska Högskolan, Royal Institute of Technology	Master of Science
Elif Kılıç	Northwestern University	Master of Science
Elif Nur Alıcı	Heriot-Watt University	Master of Science
Emir Artar	Sabancı Üniversitesi	Master of Science
Emre Burak Boz	Sabancı Üniversitesi	Master of Science

NAME	INSTITUTION NAME	POSITION
Ersoy Çolak Cholak	University of Copenhagen	Phd Study
Esaam Jamil	Sabancı Üniversitesi	Master of Science
Esra Sinoplu	ODTÜ	Phd Study
Ezgi Bakırcı	Universität Bern	Research Assistant
Fahad Sohrab	Tampere University of Technology	Research Assistant
Federico Davoli	Sabancı Üniversitesi	Research Assistant
Gökşin Liu	Sabancı Üniversitesi	Phd Study
Halime Ömrüuzun	Sabancı Üniversitesi	Phd Study
Halis Işık Güven	Griffith University	Phd Study
Hazal Batılı	KTH, Royal Institute of Technology	Master of Science
Hazal Ercan	Sabancı Üniversitesi	Master of Science
Hilal Şenuysal	Sabancı Üniversitesi	Master of Science
Hüseyin Anıl Sezen	University of Economics in Katowice	Phd Study
İbrahim Utku Arık	Sabancı Üniversitesi	Phd Study
İdil Karakoç	ETH Zurich	Master of Science
İpek Deniz Yıldırım	Bilgi Üniversitesi	Master of Science
Kaan Özer Agiş	Technische Universität München	Master of Science
Karen Abenyakar	University of Twente	Master of Science
Kemal Oltun Evliyaoğlu	Warwick Business School	Master of Science
Kudret Akçapınar	Sabancı Üniversitesi	Phd Study
Mehmet Berk Gedik	Kungliga Tekniska Högskolan, Royal Institute of Technology	Master of Science
Melike Çokol Çakmak	Sabancı Üniversitesi	Phd Study
Meltem Bayrak	Melbourne University	Master of Science
Milad Hassani	Sabancı Üniversitesi	Phd Study
Mısra Turp	University of Amsterdam	Master of Science
Muhammad Usman Ghani	Boston University	Phd Study
Nazlı Kocatuğ	Sabancı Üniversitesi	Master of Science
Nazlı Sürmeli	Bilgi Üniversitesi	Master of Science
Nihat Berk Özcan	University of LEEDS	Master of Science
Nilay Düzen	Cornell University	Master of Science
Omid Babaie Rizvandi	Sabancı Üniversitesi	Phd Study
Onur Zırhlı	Sabancı Üniversitesi	Master of Science

NAME	INSTITUTION NAME	POSITION
Oya Tekbulut	Pratt Institute	Phd Study
Ozan Toyran	Sabancı Üniversitesi	Master of Science
Pelin Cansu Ok	Politecnico di Milano	Master of Science
Pınar Ertem	University of Warwick	Master of Science
Reyda Karaçay	İstanbul Medipol Üniversitesi	Master of Science
Reyyan Fatima Bulut	University of Massachusetts, Medical School Worcester	Phd Study
Sadullah Çanakçı	Boston University	Phd Study
Sahl Sadeghi	Sabancı Üniversitesi	Research Assistant
Seda Yapça	IE Business School	Master of Science
Selçuk Ercan	ETH Zurich	Research Assistant
Serhat Emre Cebeci	Sabancı Üniversitesi	Master of Science
Sevim Çalışkan	University of Ulm	Master of Science
Sezen Yağmur Günay Önol	Northeastern University	Phd Study
Sina Sadighikia	Utrecht University	Research Assistant
Sinan Seymen	Sabancı Üniversitesi	Master of Science
Tolun Tosun	Sabancı Üniversitesi	Master of Science
Tuğçe Oruç	University of Birmingham	Phd Study
Yunus Murat Kıdil	Technische Universiteit Eindhoven	Master of Science
Zafer Emre Şen	BPP University	Master of Arts
Zahed Shahmoradi	University of Houston	Phd Study
Zain Fuad	Sabancı Üniversitesi	Research Assistant
Zeynep Tavsel	Queen Mary University of London	Master of Science

# 2016 PhD Alumni in Postgraduate Positions

NAME	INSTITUTION NAME	POSITION
Bahar Shamloo	Legacy Health	Post-doct Research Fellow
Beyza Vuruşaner Aktaş	NYU Langone Medical Center	Post-doct Research Fellow
İlker Arslan	Kemerburgaz Universitesi	Instructor
Melike Mercan Yıldızhan	Linkoping University	Post-doct Research Fellow
Ömer Ceylan	Sabancı Üniversitesi	Post-doct Research Fellow
Onur Akbal	Sabancı Üniversitesi	Post-doct Research Fellow
Onur Benli	Sabancı Üniversitesi	Post-doct Research Fellow
Yasemin Ceylan	Sabancı Üniversitesi	Post-doct Research Fellow

### **FENS Excellence in Teaching Awards**

2 Associate Profesors have been promoted to Professorship:

Our outstanding graduate students received their certificates to acknowledge their teaching achievements in 2016-2017 Academic Year.

The Recipients, their programs and the courses they supported are as follows:

Neda Tanoumand, Industrial Engineering MSc student, IE 301 Deterministic Models in OR

Mastaneh Torkamani Azar, Electronics Engineering, PhD-UG student, ENS 211 Signals & MATH 102 Calculus II Demet Kırmızıbayrak, Physics, MSc student, NS 102 Science of Nature II & MATH 306 Statistical Modelling Artrim Kjamilji, Computer Science and Engineering, PhD student, CS 201 Introduction to Computing & CS 204

Ali Asgharpour, Physics, PhD student, NS 101 Science of Nature I & NS 102 Science of Nature II

#### Gürsel Sönmez Awards

Advanced Programming

Our colleague Dr. Gürsel Sönmez tragically passed away in 2006. In his short but brilliant academic life, he made important contributions to science. In order to commemorate his achievements and to inspire and encourage young scientists, an award is presented each year to selected graduate students of FENS who write distinguished MS or PhD theses. The selection process is pursued at the end of each academic year, by the Gürsel Sönmez Award Committee formed by faculty members representing each program. The awardess are determined upon reaching a full consensus within the Committee, after very detailed and rigorous evaluation of all applications. The following students are the recipients of the Gürsel Sönmez Research Award in 2016-2017.



**Rebi Daldal,** during his MS studies in Sabanci University, worked on modeling and developing algorithms for the batch testing of a series system in the sequential testing problem, a topic which has not been tackled in the existing literature. His work, which also

constituted the basis for a TÜBİTAK 1001 project later on, resulted in two research articles in prestigious journals in his field. The first article focuses on the sequential testing problem when the groups of tests that can be performed together are restricted to subsets of given groups of tests. In the second article, he addressed the case where all groups of tests can be performed together. Rebi is the leading author in both articles and had significant contribution in problem modeling, the proof of their NP-hardness, algorithm design, and in particular coding and computer implementation. In addition to his thesis work, Rebi was also involved in a side project where his contribution led to a refereed international conference proceedings paper.



**Seyyed Hamed Mousavi's** MS work first explored the ground-breaking work of Hardy, Ramanujan, and Rademacher on finding an exact formula for the partition function p(n). He then studied another problem pursuing similar ideas for another partition enumerant, and concluded with an almost complete

result of his own. His original result is an exact formula for a certain class of colored partitions. He also has an alternative method to prove the second of the theorems. Hamed showed an outstanding performance and completed his MS course work and thesis in two semesters. He has submitted one journal article out of his thesis work and he has two other articles in preparation for submission. He was won five national and international medals in various venues.



**Tolga Çağlar's** PhD work focuses on phase transitions, specifically in spin glasses and other similar systems having quenched random impurities with dimensionality dependence. He took on various original problems where he used hard-spin mean field theory and renormalization group theory to obtain phase diagrams of

various degrees of ordering in these systems and their transition characteristics, a topic of deep interest among the statistical physics groups with implications for a variety of other problems including networks. The global renormalization- group calculations are stated to be of the kind that very few people in the world can perform, and Tolga has successfully made original contributions in this area. His work led to novel and interesting results, and publication of four articles in one of the most well-known and prestigious journals in his field of research.

Information about Dr. Gürsel Sönmez Awards and winners can be found at:

https://fens.sabanciuniv.edu/en/awards/dr-gursel-sonmez research-award

### **3MT- Three Minute Thesis Awards**

First time this year Sabanci University Faculty of Engineering and Natural Sciences is joining the prestigious institutions from all over the world to celebrate the exciting research conducted by Doctor of Philosophy (PhD) students.

Three Minute Thesis (3MT™) is a research communication competition developed by The University of Queensland in Australia. It aims to cultivate students' academic, presentation, and research communication skills. Presenting in a 3MT competition increases students' capacity to effectively explain their research in three minutes, in a language appropriate to a non-specialist audience.

On May 17th, 2017 Faculty of Engineering and Natural Sciences organized the first Three Minute Thesis (3MT) Competition. 14 successful FENS PhD candidates presented their research, each in three minutes. At this exciting and fun day, after thoughtful deliberation, our panel of guest judges declared the winner and the runner-up:



Hammad Munawar, 3MT 2017 Winner, Mechatronics Engineering PhD, 'Design Implementation and Control of an Overground Gait and Balance Trainer with an Active Pelvis-Hip Exoskeleton



**Gülşen Demiröz,** 3 MT 2017 Runner-Up, Computer Science and Engineering PhD, 'Cost-Aware Combinatorial Interaction Testing'



Hacer Ezgiş Karakaş Schüller, 3MT 2017 People's Choice, Molecular Biology, Genetics and Bioengineering PhD, 'Functional Canceer Screens UsingBiochip System'



**Zaeema Khan,** 3MT 2017 People's Choice, Molecular Biology, Genetics and Bioengineering PhD, 'Combating Draught'

## Sakıp Sabancı Award for the Highest Ranking Undergraduate Student



**Fulya Türker** graduated from the Molecular Biology, Genetics and Bioengineering Program. She will pursue PhD degree in Biological Chemistry department, at Johns Hopkins School of Medicine, Baltimore

Maryland in Fall 2017-2018.

# **Facts and Figures**

STAFF PROFILE (Numbers)	(Numbers)
Professors	38
Associate Professors	37
Assistant Professors	21
TOTAL NUMBER OF FULL-TIME FACULTY MEMBERS	96
Post-docs	36
Full-time instructors	3
Researchers	9
Research Assistants	6
Executive & Professional Staff	24

Program	Professors	Associate Professors	Assistant Professors	Instructor	Post-doc	Researcher	Research Assistant	Total
Computer Science and Engineering	5	3	2		1	1	1	13
Electronics Engineering	3	6	4		4	1	1	19
Industrial Engineering	6	7	4		2		1	20
Information Technology			1	3				4
Materials Science and Nanoengineering	5	7	1		5		1	19
Mathematics	4	3	3		4			14
Manufacturing Engineering			2			1	1	4
Mechatronics Engineering	6	4	3		5			18
Molecular Biology, Genetics and Bioengineering	6	3			1		1	10
Nano- Energy Technologies and Management			1					1
Nanotechnology Research and Application Center					10	5		15
Physics	3	4			4	1		12
Grand Total	38	37	21	3	36	9	6	149



### **EDUCATION**

FENS offers undergraduate degrees in 6 disciplines, graduate degrees in 9 disciplines and minor honor programs in 4 disciplines.

- Computer Science and Engineering (BS-MS -PhD)
   http://cs.sabanciuniv.edu/
- Computer Science and Engineering (BS-MS -PhD) http://cs.sabanciuniv.edu/
- Electronics Engineering (BS-MS -PhD) http://ee.sabanciuniv.edu/
- Industrial Engineering (BS-MS -PhD) http://ie.sabanciuniv.edu/
- Manufacturing Engineering (MS-PhD) http://mfg.sabanciuniv.edu/
- Materials Science and Nano Engineering (BS-MS -PhD) http://mat.sabanciuniv.edu/
- Mechatronics (BS-MS -PhD) http://me.sabanciuniv.edu/
- Molecular Biology, Genetics and Bioengineering (BS-MS -PhD) http://bio.sabanciuniv.edu/
- Chemistry (minor BS) http://chem.sabanciuniv.edu/
- Energy (minor BS) http://energy-minor.sabanciuniv.edu/en
- Mathematics (minor BS-MS-PhD) http://math.sabanciuniv.edu/
- Physics (minor BS-MS-PhD)
   http://phys.sabanciuniv.edu/

#### **Professional Graduate Programs**

- Data Analytics http://da.sabanciuniv.edu/en
- Energy Technologies and Management http://energy.sabanciuniv.edu/
- Information Technology http://msit.sabanciuniv.edu/
- Nanotechnology http://nano.sabanciuniv.edu/

# **Facts and Figures**

# **FENS Program Declarations**

BSBIO	21	% 3,6
BSCS	131	% 22,6
BSEE	57	% 9,8
BSIE	279	% 48,1
BSMAT	24	% 4,1
BSME	68	% 11,7
Total	580	% 100

Declarations in 2016-207 Academic Year				
Faculy of Engineering ang Natural Sciences	580	66 %		
School of Management	154	18 %		
Faculty of Arts and Social Sciences	143	16 %		
TOTAL	877	100%		

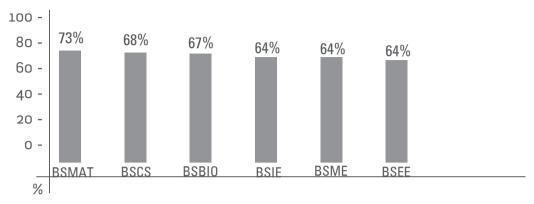
2016-2017 Fall Undergraduate Student Enrollment	Undergraduate
Molecular Biology, Genetics and Bioengineering	57
Computer Science and Engineering	194
Electronics Engineering	87
Industrial Engineering	708
Materials Science and Nanoengineering	52
Mechatronics Engineering	183
Undeclared	807
Grand Total	2088

2016-2017 Fall Graduate Student Enrollment	PhD	MS	Total
Computer Science and Engineering	35	22	57
Data Analytics		37	37
Electronics Engineering	32	16	48
Energy Technologies and Management		1	1
Energy Technologies and Management -Non Thesis		23	23
Industrial Engineering	17	34	51
Information Technology		33	33
Manufacturing Engineering	6	9	15
Materials Science and Nanoengineering	44	33	77
Mathematics	15	8	23
Mechatronics Engineering	33	20	53
Molecular Biology, Genetics and Bioengineering	36	18	54
Physics	12	6	18
Grand Total	230	260	490

# Courses Offered in 2016-2017

Program /	Laval	2010	Total		
Subject	Level	Fall	Spring	Summer	Total
BIO	Undergraduate	7	9		16
ы	Graduate	5	3		8
СНЕМ	Undergraduate	2	2		4
СПЕМ	Graduate	1			1
CS	Undergraduate	10	16	2	28
CS	Graduate	8	4		12
DA	Graduate	5	5	3	13
EE	Undergraduate	11	10		21
EE	Graduate	8	5		13
ENS	Undergraduate	8	11	5	24
EINO	Graduate	2	1		3
ETM	Graduate	4	5	3	12
IE	Undergraduate	18	17	4	39
IL.	Graduate	7	7		14
IF	Undergraduate	1	1		2
IT	Graduate	5	5	3	13
MAT	Undergraduate	5	8		13
MAI	Graduate	6	5		11
MATH	Undergraduate	5	7	4	16
MAITI	Graduate	8	5		13
ME	Undergraduate	10	6		16
IVIE	Graduate	4	2		6
NS	Undergraduate	5	7		12
PHYS	Undergraduate	4	3		7
	Graduate	4	6		10
Total		153	151	24	328

# **4-Year Undergraduate Students Graduation Rate**



Alumni 2016-2017 Undergraduate Programs	Fall 2016-2017	Spring 2016-2017	Summer 2016-2017	Total
Molecular Biology, Genetics and Bioengineering	5	15	1	21
Molecular Biology, Genetics and Bioengineering-Double Major	1			1
Computer Science and Engineering	6	41	12	59
Computer Science and Engineering-Double Major		4		4
Electronics Engineering	3	19		22
Electronics Engineering-Double Major	1	1		2
Materials Science and Nanoengineering	4	17	1	22
Materials Science and Nanoengineering-Double Major		1		1
Mechatronics Engineering	14	37	13	64
Mechatronics Engineering -Double Major		1		1
Industrial Engineering	44	132	53	229
Total	78	268	80	426

	2016-2017 Fall		2016-20	17 Spring	Grand Total	
Graduate Programs Alumni	MSc	PhD	MSc	PhD	Granu Totat	
Molecular Biology, Genetics and Bioengineering	1	3	5	7	16	
Computer Science and Engineering	2	2	3	3	10	
Data Analytics			32		32	
Electronics Engineering	1	1	5	3	10	
Energy Technologies & Management (Non Thesis)	1		13		14	
Industrial Engineering	5	1	12	1	19	
Information Technology			20		20	
Materials Science and Nanoengineering	3	1	6	6	16	
Mathematics	2		2	2	6	
Mechatronics Engineering	4	1	5	8	18	
Manufacturing Engineering			3		3	
Physics			1	3	4	
Grand Total	19	9	107	33	168	

# **Application, Acceptance and Enrollment Statistics of Graduate Students**

			MS			PhD				
2016-2017 Fall	Applica- tion	Accept- ance	Enroll- ment	Enroll/ Accept.	Accept./ Appl.	Applica- tion	Accept- ance	Enroll- ment	Enroll/ Accept.	Accept./ Appl.
Computer Science and Engineering	57	12	7	58%	21%	24	4	2	50%	17%
Data Analytics (Non Thesis)	79	30	29	97%	38%	No PhD in DA program				
Electronics Engineering	54	17	5	29%	31%	29	13	5	38%	45%
Industrial Engineering	48	14	8	57%	29%	25	5	3	60%	20%
Energy Technologies and Management (Non Thesis)	59	21	17	81%	36%	No PhD in ENE program				
Information Technology	53	24	19	79%	45%		No Pl	nD in IT pro	ogram	
Materials Science and Nanoengineering	50	17	10	59%	34%	23	8	3	38%	35%
Mathematics	13	5	3	60%	38%	10	5	5	100%	50%
Mechatronics	46	19	5	26%	41%	19	13	4	31%	68%
Molecular Biology, Genetics and Bioengineering	47	11	7	64%	23%	23	3	2	33%	13%
Physics	11	4	2	50%	36%	8	2	1	50%	25%

			MS					PhD		
2016-2017 Spring	Applica- tion	Accept- ance	Enroll- ment	Enroll/ Accept.	Accept./ Appl.	Applica- tion	Accept- ance	Enroll- ment	Enroll/ Accept.	Accept./ Appl.
Computer Science and Engineering	17	5	1	20%	29%	9	3	3	100%	33%
Electronics Engineering	15	3	2	67%	20%	16	5	2	40%	31%
Industrial Engineering	15	1	1	100%	7%	6	2	2	100%	33%
Manufacturing Engineering	7	1	1	100%	14%	11	6	1	17%	55%
Materials Science and Nanoengineering	18	3		0%	17%	25	12	6	50%	48%
Mathematics	4	2	2	100%	50%	1				
Mechatronics	15	4	2	50%	27%	15	5	2	40%	33%
Physics	6	2	1	50%	33%	5	3	3	100%	60%
Molecular Biology, Genetics and Bioengineering	15					7	2	2	100%	29%

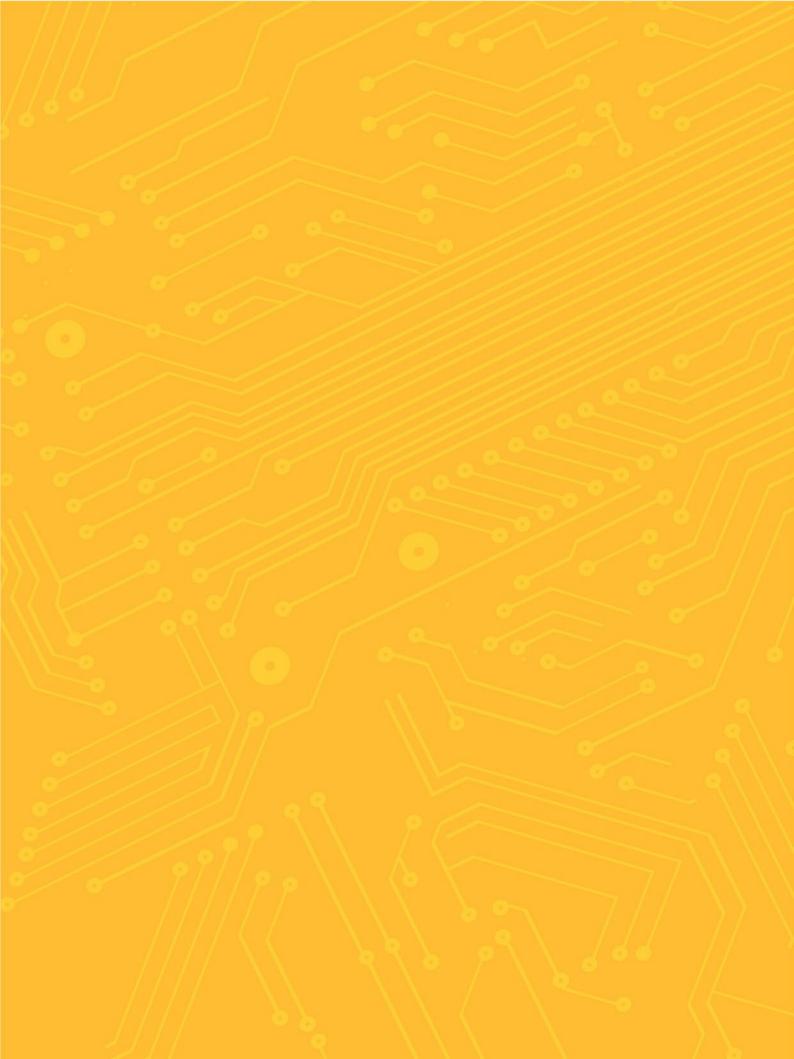
# **PhD Dissertations**

Name/Surname	Program	Thesis Title	Term	Thesis Advisor
Ahmet Özcan Nergiz	Mechatronics Engi- neering	Design and Implementation of an Enhanced Framework for Complex Mechatronic Systems Software Development	2016-2017 Spring	Asıf Şabanoviç
Ahmet Sinan Yavuz	Molecular Biology,Genetics and Bioengineering	Predictive anlysis of conditional epigenetic variability	2016-2017 Spring	İsmail Çakmak
Akhtar Rasool	Mechatronics Engi- neering	Control of Three Phase Converters as Source for Micro-Grid	2016-2017 Spring	Asif Şabanoviç
Amin Rahmat	Mechatronics Engi- neering	Numerical Simulation of Mul- tiphase flows under Electrohydro- dynamics Effects	2016-2017 Spring	Mehmet Yıldız
Arzu Özbey	Mechatronics Engi- neering	Inertial Focusing in Curvilinear Channels	2016-2017 Spring	Ali Koşar
Aslı Yenenler	Molecular Biology,Genetics and Bioengineering	Protein engineering applications for functional enhancement of cellulase and lipase enzymes	2016-2017 Fall	İsmail Çakmak
Bahriye Karakaş	Molecular Biology,Genetics and Bioengineering	Exploring the effects of mitochondrial estrogen receptors on mitochondrial priming and endocrine therapy response in breast cancer cells	2016-2017 Fall	Hüveyda Başağa
Barış Pekerten	Physics	Düşük Boyutlu Topolojik Sistem- lerde Kuantum Faz Geçişleri ve Kuantum Taşınım.	2016-2017 Spring	İnanç Adagideli
Begüm Yarar Kaplan	Materials Science and Engineering	Gas Diffusion Electrdes Based on Carbon Graphene for PEM Fuel Cell	2016-2017 Spring	Selmiye Alkan Güresel
Behzad Sardari Ghojehbeiglou	Electronics Engineer- ing	Development of a Static Fourier Transform Spectrometer and Real- Time Substrates for Surface Enhanced Raman Scattering	2016-2017 Spring	Meriç Özcan
Bekir Ergüner	Molecular Biology,Genetics and Bioengineering	Computational Methodsfor Analyzing NGS Data to Discover Clinically Relevant Mutations.	2016-2017 Spring	İsmail Çakmak
Danial Esmaeili Aliabadi	Industrial Engineering	Analysis of Collusion and Competi- tion in Electricity Markets Using an Agent-Based Approach	2016-2017 Fall	Güvenç Şahin
Duygu Karaoğlan Altop	Computer Science and Engineering	Secure Intra- Network Communi- cations for Body Area Networks	2016-2017 Fall	Albert Levi
Ece Canan Sayitoğlu	Molecular Biology, Genetics and	Intracellular Immunodynamics of Lentiviral gene Delivery	2016-2017 Fall	Batu Erman
	Bioengineering	-		Tolga Sütlü
Eesa Rahimi	Mechatronics Engi- neering	Dynamically Tunable Localized Surface Plasmons using VO2 Phase Transition	2016-2017 Spring	Kürşat Şendur
Emre Kaplan	Computer Science and Engineering	Privacy Risks of Spatio-Temporal Data Transformations	2016-2017 Fall	Yücel Saygın

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Name/Surname	Program	Thesis Title	Term	Thesis Advisor
Fiaz Ahmad	Mechatronics Engi- neering	Event-Driven State Estimation in Electric Distribution Systems	2016-2017 Spring	Meltem Elitaş
Asif Şabanoviç	Computer Science and Engineering	Efficient and Secure document Similarity Search Over Cloud Utiliz- ing Mapreduce	2015-2016 Fall	Erkay Savaş
Gülşen Demiröz	Computer Science and Engineering	Cost-Aware Combinatorial Interaction Testing	2016-2017 Spring	Cemal Yılmaz
Hacer Ezgi Karakaş	Molecular Biology,Genetics and Bioengineering	Tumor-stroma communication through activation of autophagy in fibroblast cells, an important component of stroma.	2016-2017 Spring	Devrim Gözüaçık
Haleh Abdizadeh	Materials Science and Engineering	Modeling and Simulation of Processes Regulating Protein Binding in Various Environments	2016-2017 Spring	Canan Atılgan
Hammad Munawar	Mechatronics Engi- neering	Design, Implementation and Control of a Robot –Assisted Gait Trainer with an Active Pelvis-Hip Exoskeleton	2016-2017 Spring	Volkan Patoğlu
Haq Nawaz	Electronics Engineer- ing	Dual Port Microstrip Patch Antennas and Circuits with High Interport Isolation for In-Band Full Duplex (IBFD) Wireless Applications	2016-2017 Fall	İbrahim Tekin
Hatice Duman	Mathematics	Spectral Properties of Hill- Schrödinger Operators with Special Distribution Potentials	2016-2017 Spring	Albert Erkip
İnanç Arın	Computer Science and Engineering	Impact Assessment & Prediction of Tweets and Topics	2016-2017 Spring	Yücel Saygın
İsmet Özalp	Computer Science and Engineering	Hiyerarşik Verilerde Mahremiyetin Korunması	2016-2017 Spring	Yücel Saygın
Kaan Bilge	Materials Science and Engineering	Sub-Phase Design for Electrspun Nanofibrous Interlayer Toughening in Hierarchical Composites	2016-2017 Fall	Melih Papila
Leyla Ateş	Mathematics	On Lattices from Function Fields	2016-2017 Spring	Cem Güneri
Mehrdad Karimza- dehkhouei	Mechatronics Engi- neering	Experimental investigation of laminar flow, pool boiling, heat transfer, stability and bubble dynamics in nanofluids	2016-2017 Spring	Ali Koşar
Merve Senem Avaz	Materials Science and Engineering	Molecularly Imprinted Polymer and Graphene Nanosensors for Explosives Detection.	2016-2017 Spring	Yusuf Ziya Menceloğlu
Mishal Kazmi	Electronics Engineer- ing	Learning Logic rules from text us- ing Statistical methods for Natural Language Processing.	2016-2017 Spring	Yücel Saygın

Name/Surname	Program	Thesis Title	Term	Thesis Advisor
Naimat Ullah	Molecular Biology,Genetics and Bioengineering	Comparative Metabolite of Drought stress Responsive Bio- chemical Pathways in Root and Leaves of Triticeae Species	2016-2017 Spring	Hikmet Budak
Navid Khani	Industrial Engineering	Modeling and additive manufac- turing of multi-material structures	2016-2017 Spring	Bahattin Koç
Oğuzhan Oğuz	Materials Science and Engineering	Structure-Property Behavior of Poly(Ethylene Oxide) Based Poly(urethane-urea) Copolymers and Their Nanocomposites	2016-2017 Spring	Yusuf Ziya Menceloğlu
Omid Akhlaghi Bag- hoojari	Materials Science and Engineering	Rheological Investigation of Collodial Systems.	2016-2017 Spring	Yrd.Özge Akbulut
Rupak Bardhan Roy	Electronics Engineer- ing	Study on Localized Transient Thermal Expansion Gradient Formation for Acoustic Wave Generation in Novel Thermoacoustic Imaging Modality.	2016-2017 Spring	Ayhan Bozkurt
Seçil Erbil Bilir	Molecular Biology,Genetics and Bioengineering	Identification and Characterization of Novel Mammalian Autophagy Proteins.	2016-2017 Spring	Devrim Gözüaçık
Tolga Çağlar	Physics	Chiral Spin Glasses, Continuum of Devil's Staircases, and Thresholded Roughening Transition from Frozen Impurities	2016-2017 Spring	A.Nihat Berker
Tuna Demircik	Physics	Holographic Equilibration in con- fining Gauge Theories	2016-2017 Spring	Ersin Göğüş
Tüğçe Ayça Tekiner Çağlar	Molecular Biology,Genetics and Bioengineering	Regulation of proline oxidase in colon carcinoma cells upon 5-fluorouracil treatment: Role of PRODH in cell death and epithelial-mesenchymal transition	2016-2017 Spring	Hüveyda Başağa
Zahra Goharib- ajestani	Materials Science and Engineering	Decoration of graphene sheets by metal oxide particle: Synthesis, Characterization and application in hydrogen storage	2016-2017 Spring	Yuda Yürüm
Zoya Khalid	Molecular Biology,Genetics and Bioengineering	Computational Approaches to study Drug Resistance Mechanisms	2016-2017 Spring	İsmail Çakmak



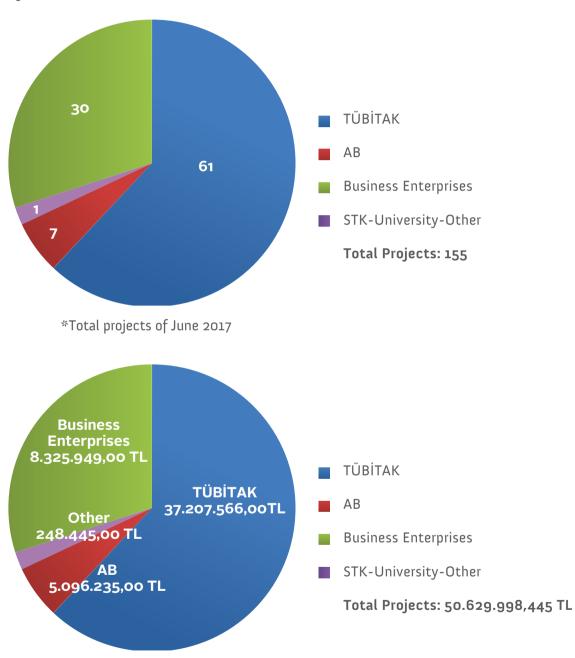
## **RESEARCH**

Paralleling its academic programs, FENS research is concentrated on areas at the forefront of science and technology, from nanoscience to genetics and from robotics to the design of new materials. Both basic and applied research are carried out and encouraged in FENS. Our research is funded by national (such as TÜBİTAK) and international (such as EU) agencies. An important aspect of FENS research is its interdisciplinary nature. Collaborative research with industry as well as contributions to high tech incubation and startup efforts are also among the fundamentals of the FENS research mission.



### **Facts and Figures**

# **Projects**



<sup>\*\*</sup>Total projects budget as of June 2017

# 2016-2017 Granted Patents

Inventor	Invention Subject	State
Özge Akbulut;Yusuf Menceloğlu; Omid Akhlaghi	A Polymeric Admixture For Suspensions	EP
Özge Akbulut;Yusuf Menceloğlu; Omid Akhlaghi	A Polymeric Admixture For Suspensions	DE
Özge Akbulut;Yusuf Menceloğlu; Omid Akhlaghi	A Polymeric Admixture For Suspensions	GB
Özge Akbulut;Yusuf Menceloğlu; Omid Akhlaghi	A Polymeric Admixture For Suspensions	FR
Yusuf Menceloğlu; Burcu Saner Okan; Mehmet Yıldız	Method For Production Of Three-Dimensional Closed Graphene-Based Nano/Micro Structures	EP
Yusuf Menceloğlu; Burcu Saner Okan; Mehmet Yıldız	Method For Production Of Three-Dimensional Closed Graphene-Based Nano/Micro Structures	GB
Özge Akbulut; Yusuf Menceloğlu; Omid Akhlaghi	Additive For Suspensions	EP
Özge Akbulut;Yusuf Menceloğlu; Omid Akhlaghi	Additive For Suspensions	DE
Özge Akbulut; Yusuf Menceloğlu; Omid Akhlaghi	Additive For Suspensions	GB
Özge Akbulut; Yusuf Menceloğlu; Omid Akhlaghi	Additive For Suspensions	FR
Ali Koşar; Osman Yavuz Perk	Pharmaceutical Drug Delivery System	EP
Ali Koşar; Osman Yavuz Perk	Pharmaceutical Drug Delivery System	GB
Ali Koşar; Osman Yavuz Perk	Pharmaceutical Drug Delivery System	DE
Volkan Patoğlu	A Series Elastic Holonomic Mobile Platform For Upper Extremity Rehabilitation	US
Ahmet Onat; Sandor Markon	Position Detection Device For Movable Magnet Type Linear Motor	TR
Volkan Patoğlu	Exoskeleton	US
Volkan Patoğlu	Exoskeleton	CN
Volkan Patoğlu	Exoskeleton	JP

### **SCI Publications in 2016**

- Ozbey, Arzu Karimzadehkhouei, Mehrdad Akgonul, Sarp Gozuacik, Devrim Kosar, Ali, "Inertial Focusing Of Microparticles in Curvilinear Microchannels", Scientific Reports, vol. 6, -, 2016
- Abdizadeh, Haleh Atilgan, Canan, "Predicting Long Term Cooperativity And Specific Modulators Of Receptor Interactions in Human Transferrin From Dynamics Within A Single Microstate", Physical Chemistry Chemical Physics, vol. 18, 7916 7926, 2016
- Abdolhosseinzadeh, Sina Asgharzadeh, Hamed Sadighikia, Sina Khataee, Alireza, "Uv-Assisted Synthesis Of Reduced Graphene Oxide-Zno Nanorod Composites immobilized On Zn Foil With Enhanced Photocatalytic Performance", Research On Chemical intermediates, vol. 42, 4479 4496, 2016
- Acer, Merve Sabanovic, Asif, "Design, Kinematic Modeling And Sliding Mode Control With Sliding Mode Observer Of A Novel 3-Prr Compliant Mechanism", Advanced Robotics, vol. 30, 1228 1242, 2016
- Akay, Erdem Yilmaz, Cagatay Kocaman, Esat S. Turkmen, Halit S. Yildiz, Mehmet , "Monitoring Poisson'S Ratio Degradation Of Frp Composites Under Fatigue Loading Using Biaxially Embedded Fbg Sensors ", Materials , vol. 9 , , 2016
- Akhlaghi, Omid Menceloglu, Yusuf Z. Akbulut, Ozge, "Rheological Behavior Of Poly(Acrylonitrile) Concentrated Solutions: Effect Of Sb2O3 Nanoparticles On Shear And Extensional Flow ", Colloid And Polymer Science, vol. 294, 1463 1473, 2016
- Akmehmet, Guliz Inan Sturm, Saso Bocher, Laura Kociak, Mathieu Ambrozic, Bojan Ow-Yang, Cleva W., "Structure And Luminescence in Long Persistence Eu, Dy, And B Codoped Strontium Aluminate Phosphors: The Boron Effect ", Journal Of The American Ceramic Society, vol. 99, 2175 2180, 2016
- Aksu, Burak Celebi, Ceren Budak, Erhan, "An Experimental Investigation Of Oblique Cutting Mechanics", Machining Science And Technology, vol. 20, 495 521, 2016
- Alcan, Gokhan Ghorbani, Morteza Kosar, Ali Unel, Mustafa, "A New Visual Tracking Method For The Analysis And Characterization Of Jet Flow ", Flow Measurement And instrumentation, vol. 51, 55 67, 2016
- Alewiwi, Mahmoud Orencik, Cengiz Savas, Erkay, "Efficient Top-K Similarity Document Search Utilizing Distributed File Systems And Cosine Similarity", Cluster Computing-The Journal Of Networks Software Tools And Applications, vol. 19, 109 126, 2016
- Aliabadi, Danial Esmaeili Kaya, Murat Sahin, Guvenc, "Determining Collusion Opportunities İn Deregulated Electricity Markets", Electric Power Systems Research, vol. 141, 432 441, 2016
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