

Prof. ASAF BEHZAT ŞAHİN

Personal Information

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International Researcher IDs

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Biography

Dr. Sahin received his B.S. degree in Electrical and Electronics Engineering from Middle East Technical University, Ankara, Turkey in 1996, and the M.S. and Ph.D. degrees from University of Southern California, Los Angeles, CA, USA in 1998 and 2003. He worked as a part time consultant on optical systems for several Silicon Valley companies until 2004. He joined the faculty of the Electrical-Electronics Engineering Department of Middle East Technical University in 2004, where he worked as an assistant professor until 2012. He also gave lectures in Air War College, İstanbul and Middle East Technical University Northern Cyprus Campus.

Since 2012, he has been with the Electrical and Electronics Engineering Department of the School of Engineering and Natural Sciences, Yildirim Beyazit University, Ankara. His major research interests are Fiber Optics, Communication, Quantum Cryptography, Terahertz, Millimeter waves, and Remote Imaging. He has 2 international patents in the field of optical communications, and more than 100 research publications and conference proceedings in various fields. He has participated in more than 40 R&D projects and is currently researcher and principal investigator in projects in the fields of terahertz spectrometry, non-destructive acoustic and optical testing for quality, millimeter and sub-millimeter wave remote imaging for security, millimeter wave and terahertz frequency communication systems, fiber optical distributed acoustic sensors, and mems integrated fiber microphone.

Education Information

Doctorate, University of Southern California, Electrical Engineering, United States Of America 1998 - 2003

Undergraduate, Middle East Technical University, Faculty Of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, Turkey 1991 - 1996

Foreign Languages

English, C1 Advanced

Dissertations

Doctorate, Experimental demonstration of techniques to improve fiber optic microwave analog and digital communications, University Of Southern California, Electrical Engineering, 2003

Research Areas

Optics and Photonics, Electromagnetic Waves, Antennas and Propagation

Academic Titles / Tasks

Associate Professor, Yıldırım Beyazıt Üniversitesi, Mühendislik Ve Doğa Bilimleri Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2015 - Continues

Assistant Professor, Yıldırım Beyazıt Üniversitesi, Mühendislik Ve Doğa Bilimleri Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2012 - 2015

Assistant Professor, Middle East Technical University, Faculty Of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2006 - 2012

Lecturer, Middle East Technical University, Faculty Of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 2004 - 2006

Research Assistant, University of Southern California, Engineering, Electrical Systems, 1998 - 2003

Research Assistant, Middle East Technical University, Faculty Of Engineering, Elektrik-Elektronik Mühendisliği Bölümü, 1996 - 1997

Academic and Administrative Experience

Yıldırım Beyazıt Üniversitesi, Mühendislik Ve Doğa Bilimleri Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2015 - Continues

Courses

Graduation Project, Undergraduate, 2017 - 2018, 2016 - 2017

Telecommunications, Undergraduate, 2017 - 2018

Signals and Systems, Undergraduate, 2016 - 2017

Telecommunication Electronics, Undergraduate, 2016 - 2017

Advising Theses

ŞAHİN A. B., Low-cost Perimeter Intrusion Radar Development, Postgraduate, A.İNANÇ(Student), 2020

ŞAHİN A. B., Distributed Fiber Optic Acoustic Sensor Based on Sagnac – Michelson Interferometer, Postgraduate, C.GÜLTEKİN(Student), 2020

ŞAHİN A. B., X-band Indoor High Data Rate Wireless Communication, Postgraduate, Z.SEDİQI(Student), 2020

ŞAHİN A. B., Detecting Microwave and Millimeter Wave/THz Signals Using AC Driven Glow Discharge Detectors, Postgraduate, H.SSALI(Student), 2019

ŞAHİN A. B., Optical Emission Spectroscopic Investigation of the Millimeter/thz Wave and Magnetic Field Combined Effect on the Cold Plasma Abnormal Region, Postgraduate, A.ABDULMAJED(Student), 2017

ŞAHİN A. B., Development and Performance Analysis of Transmitter Receiver Structures for High Data Rate Communication Systems at 240 GHz, Postgraduate, Ö.ERSOY(Student), 2017

ŞAHİN A. B., Development of a 60W pulsed fiber laser amplifier for materials processing, Postgraduate, Y.OZAN(Student), 2014

ŞAHİN A. B., Determination of buried circular cylinder with ground penetrating radar using an optical fiber sensor,

Postgraduate, H.GONCA(Student), 2011

ŞAHİN A. B., Down conversion and filtering of microwave signals in optical domain, Postgraduate, G.SELÇUK(Student), 2008

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **Compressive sensing imaging with periodic perturbation induced caustic lens masks in a ripple tank**
Arık D. T., ŞAHİN A. B., ERSOY Ö.
Multidimensional Systems and Signal Processing, 2024 (SCI-Expanded)
- II. **Performance of an Active THz Imaging System for Recognition of Concealed Faces**
Yıldırım İ. O., ALTAN H., ŞAHİN A. B.
Journal of Infrared, Millimeter, and Terahertz Waves, vol.44, no.5-6, pp.365-378, 2023 (SCI-Expanded)
- III. **A Novel Constellation Modification Method for Harmonic Modulated MPSK Data Transmission in Millimeter Wave Communication**
ERSOY Ö., KARAKOÇ M. C., ŞAHİN A. B.
IEEE Access, vol.11, pp.55281-55296, 2023 (SCI-Expanded)
- IV. **The Constellation Modification in Frequency Multiplication on MPSK Data Transmission**
ERSOY Ö., KARAKOÇ M. C., ŞAHİN A. B.
Advances in Electrical and Computer Engineering, vol.23, no.4, pp.51-60, 2023 (SCI-Expanded)
- V. **Super-resolution algorithm applied to images acquired at millimeter wave frequency in single pixel and computational ghost imaging configurations**
ŞENGÜN ERMEYDAN E., ÇANKAYA İ., ŞAHİN A. B.
Journal of Electromagnetic Waves and Applications, vol.33, no.17, pp.2328-2340, 2019 (SCI-Expanded)
- VI. **Time-Domain Characterization of the Radiation Pattern of the Terahertz Photoconductive Antennas**
Elmabruk K., Demir K., ALTAN H., Sahin A. B., ÜNLÜ M.
JOURNAL OF INFRARED MILLIMETER AND TERAHERTZ WAVES, vol.40, no.6, pp.595-605, 2019 (SCI-Expanded)
- VII. **Stand-Off Through-the-Wall W-Band Millimeter-Wave Imaging Using Compressive Sensing**
Alkus U., ŞAHİN A. B., ALTAN H.
IEEE GEOSCIENCE AND REMOTE SENSING LETTERS, vol.15, no.7, pp.1025-1029, 2018 (SCI-Expanded)
- VIII. **Characterization of a terahertz wave scanned imaging system for threat detection at standoff distances**
Yıldırım İ. O., ÖZKAN V. A., İDİKUT F., Takan T., ŞAHİN A. B., ALTAN H.
OPTICAL AND QUANTUM ELECTRONICS, vol.48, no.7, 2016 (SCI-Expanded)
- IX. **Detection of far-infrared radiation using glow discharge detectors**
Takan T., Alasgarzade N., Uzun-Kaymak I. U., ŞAHİN A. B., ALTAN H.
OPTICAL AND QUANTUM ELECTRONICS, vol.48, no.5, 2016 (SCI-Expanded)
- X. **Simulation of locating buried objects via fringe pattern-based measurements in an optical fiber sensor-integrated continuous-wave ground-penetrating radar system**
ŞAHİN A. B., Bulur H. G.
TURKISH JOURNAL OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES, vol.23, no.1, pp.28-37, 2015 (SCI-Expanded)
- XI. **Development of a rapid-scan fiber-integrated terahertz spectrometer**
Keskin H., ALTAN H., Yavas S., İLDAY F. Ö., Eken K., ŞAHİN A. B.
OPTICAL AND QUANTUM ELECTRONICS, vol.46, no.4, pp.495-503, 2014 (SCI-Expanded)
- XII. **Spectrum-aware underwater networks: Cognitive acoustic communications**
Bicen A. O., Sahin A. B., Akan O. B.
IEEE Vehicular Technology Magazine, vol.7, pp.34-40, 2012 (SCI-Expanded)
- XIII. **Performance optimization of RZ data format in WDM systems using tunable pulse-width management at the transmitter**
Yan L., Motaghian Nezam S., Sahin A. B., McGeehan J., Luo T., Yu Q., Willner A. E.

Journal of Lightwave Technology, vol.23, no.3, pp.1063-1067, 2005 (SCI-Expanded)

- XIV. **Doubling of bandwidth utilization using two orthogonal polarizations and power unbalancing in a polarization-division-multiplexing scheme**
Hayee M., Cardakli M., Sahin A. B., Willner A.
IEEE Photonics Technology Letters, vol.13, no.8, pp.881-883, 2001 (SCI-Expanded)

Articles Published in Other Journals

- I. **A Comparative Study of Artificial Neural Networks and Naïve Bayes Techniques for the Classification of Radar Targets**
ARIK D. T., KARAL Ö., ŞAHİN A. B.
Bitlis Eren Üniversitesi Fen Bilimleri Dergisi, vol.9, no.4, pp.1779-1788, 2020 (Peer-Reviewed Journal)
- II. **Development of 15-dB gain conical horn antenna using 3D printing technology**
KARAKOÇ M. C., ŞAHİN A. B.
Electrica, vol.20, no.2, pp.177-181, 2020 (ESCI)

Books & Book Chapters

- I. **Compressive Sensing Imaging at Sub-THz Frequency in Transmission Mode**
ÖZKAN V. A., Menteşe Y., TAKAN T., ŞAHİN A. B., ALTAN H.
in: THz for CBRN and Explosives Detection and Diagnosis, Mauro Pereira, Oleksiy Shulika, Editor, Springer Netherlands, Dordrecht, pp.49-55, 2017
- II. **Investigating Glow Discharge Detectors as a Millimeter-Wave/Terahertz Radiation Detection Tool**
Alasgarzade N., Nebioğlu M. A., TAKAN T., UZUN KAYMAK İ. Ü., ŞAHİN A. B., ALTAN H.
in: THz for CBRN and Explosives Detection and Diagnosis, Mauro Pereira, Oleksiy Shulika, Editor, Springer Netherlands, Dordrecht, pp.179-187, 2017

Refereed Congress / Symposium Publications in Proceedings

- I. **Modified QPSK Modulation for Frequency Multiplied Transmission Frekans Carpimh Iletim icin Degistirilmis QPSK Modulasyonu**
ERSOY Ö., KARAKOÇ M. C., ŞAHİN A. B.
31st IEEE Conference on Signal Processing and Communications Applications, SIU 2023, İstanbul, Turkey, 5 - 08 July 2023
- II. **Non-Destructive Defect Detection on PCB Boards Using a Metamaterial-Based Circular Patch Antenna**
Bakir S. S., ŞAHİN A. B.
2023 Innovations in Intelligent Systems and Applications Conference, ASYU 2023, Sivas, Turkey, 11 - 13 October 2023
- III. **Evaluation of performance of an active terahertz imaging system for concealed face recognition**
Yıldırım İ. O., Doğru Ş., ŞAHİN A. B., ALTAN H.
Artificial Intelligence for Security and Defence Applications 2023, Amsterdam, Netherlands, 4 - 05 September 2023, vol.12742
- IV. **Propagation of Laguerre-Gaussian Modes at Millimeter-wave through Scattering Media**
Dogru S., ALTAN H., ŞAHİN A. B.
Emerging Imaging and Sensing Technologies for Security and Defence VIII 2023, Amsterdam, Netherlands, 5 - 06 September 2023, vol.12740
- V. **Effect of Amplification on Microwave Based Quantum Radar Systems**
KARAKOÇ M. C., ERSOY Ö., ŞAHİN A. B.

13th International Conference on Electrical and Electronics Engineering, ELECO 2021, Virtual, Bursa, Turkey, 25 - 27 November 2021, pp.243-247

- VI. **Investigation of Harmonic Frequency Multiplication on Transmitted Data through Pulse Shaping for 6G Communication**
ERSOY Ö., ŞAHİN A. B.
7th International Conference on Electrical and Electronics Engineering, ICEEE 2020, Antalya, Turkey, 14 - 16 April 2020, pp.237-242
- VII. **Design of Frequency Upconversion and Downconversion Blocks for 240 GHz Communication Systems**
Ersoy Ö., Sahin A. B., Cicek A., Karakoc M. C., Cavus E., Ozyurt S.
25th Signal Processing and Communications Applications Conference (SIU), Antalya, Turkey, 15 - 18 May 2017
- VIII. **Super-resolution image reconstruction applied to an active millimeter wave imaging system based on compressive sensing**
Alkus U., Ermeýdan E. S., ŞAHİN A. B., ÇANKAYA İ., ALTAN H.
Millimetre Wave and Terahertz Sensors and Technology X 2017, Warszawa, Poland, 11 September 2017, vol.10439
- IX. **Design of a Phase Shifting Impedance Tuner for Terahertz Photomixers Arrays**
Celik S. B., Demir K., Sahin A. B., Unlu M.
International Symposium of IEEE-Antennas-and-Propagation-Society / USNC/URSI National Radio Science Meeting, California, United States Of America, 9 - 14 July 2017, pp.1281-1282
- X. **Terahertz Milimetre Bandı Bina içi Dağıtık Yüksek Hızlı Veri Aktarımı Deneysel Çalışmaları**
ŞAHİN A. B.
17. Ulusal Optik, Elektro-Optik ve Fotonik Çalıştayı Kitapçığı, Turkey, 18 September 2015, vol.1, pp.11
- XI. **Design of a Frequency Reconfigurable, Terahertz Antenna for Photomixers**
Demir K., Bilgin H., ŞAHİN A. B., Unlu M.
41st International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz), Copenhagen, Denmark, 25 - 30 September 2016
- XII. **Modulation and frequency response of GDDs in the millimeter wave THz region**
ŞAHİN A. B., namıg A., TAKAN T., ALTAN H.
SPIE Security+ Defence, 21 - 23 October 2015, vol.1
- XIII. **Varying Temperature Surface Reflection and its Effect on the Indoor Terahertz Wireless Communications**
ŞAHİN A. B.
International Conference on Semiconductor Mid-IR Materials and Optics, Prag, Czech Republic, 8 - 11 April 2015, vol.1, pp.59
- XIV. **Comparison of terahertz technologies for detection and identification of explosives**
Beigang R., Biedron S. G., Dyjak S., Ellrich F., Haakestad M. W., Huebsch D., Kartaloglu T., Ozbay E., Ospald F., Palka N., et al.
Conference on Terahertz Physics, Devices, and Systems VIII - Advanced Applications in Industry and Defense, Massachusetts, United States Of America, 5 - 06 May 2014, vol.9102
- XV. **Compressive sensing imaging through a drywall barrier at sub-THz and THz frequencies in transmission and reflection modes**
Takan T., ÖZKAN V. A., İDİKUT F., Yildirim I. O., ŞAHİN A. B., ALTAN H.
Conference on Image and Signal Processing for Remote Sensing XX, Amsterdam, Netherlands, 22 - 24 September 2014, vol.9244
- XVI. **Image Reconstruction and Optimization Using a Terahertz Scanned Imaging System**
Yildirim I. O., ÖZKAN V. A., İDİKUT F., Takan T., ŞAHİN A. B., ALTAN H.
Conference on Electro-Optical Remote Sensing, Photonic Technologies, and Applications VIII and Military Applications in Hyperspectral Imaging and High Spatial Resolution Sensing II, Amsterdam, Netherlands, 22 - 23 September 2014, vol.9250
- XVII. **Characterization of a Glow Discharge Detector with Terahertz Time Domain Spectroscopy**

Cinar K., ALTAN H., ŞAHİN A. B.

38th International Conference on Infrared, Millimeter, and Terahertz Waves (IRMMW-THz), Mainz, Germany, 1 - 06 September 2013

XVIII. System limitations due to chromatic dispersion and receiver bandwidth for 2 D time wavelength OCDMA systems

ŞAHİN A. B., willner a.

The 16th Annual Meeting of the IEEE Lasers and Electro-Optics Society, 2003. LEOS 2003., Tucson, AZ, USA, 5 - 07 May 2003

XIX. Distance independent RF fading compensation using a tunable nonlinearly chirped FBG in a phase diversity configuration

alan w., olaf a., steven h., ŞAHİN A. B.

Optical Fiber Communication Conference, Baltimore, Maryland, United States Of America, 7 - 10 March 2000, vol.2, pp.323-325

XX. Enhanced Robustness of RZ WDM Systems Using Tunable Pulse-Width Management at the Transmitter

Şahin A. B.

2002 28TH European Conference on Optical Communication, Kobenhavn, Denmark, 8 - 12 September 2002, pp.115-116

XXI. Delayed self-heterodyne interferometer measurements of narrow linewidth fiber lasers

Şahin A. B.

Conference on Lasers and Electro-Optics, California, United States Of America, 7 - 11 May 2000, pp.30-35

Supported Projects

ŞAHİN A. B., Project Supported by Higher Education Institutions, Elektrik ve Elektronik Mühendisliği Bölümü Merkezi Araştırma Laboratuvarı Altyapı Projesi, 2017 - 2019

ŞAHİN A. B., Project Supported by Higher Education Institutions, NATO Terahertz Sensor Grubu Saha çalışması, 2013 - 2015

ŞAHİN A. B., Project Supported by Higher Education Institutions, Yıldırım Beyazıt Üniversitesi Kablosuz Lazer Optik Haberleşme Laboratuvarı Kurulumu, 2013 - 2015

Metrics

Publication: 54

Citation (WoS): 37

Citation (Scopus): 202

H-Index (WoS): 3

H-Index (Scopus): 5

Non Academic Experience

Yıldırım Beyazıt Üniversitesi

Orta Doğu Teknik Üniversitesi

Orta Doğu Teknik Üniversitesi

Hava Harp Okulu Havacılık ve Uzay Enstitüsü

University of Southern California

Orta Doğu Teknik Üniversitesi