

Assoc. Prof. YUNUS BABACAN

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International Researcher IDs

ORCID: 0000-0002-6745-0626

Publons / Web Of Science ResearcherID: T-4586-2018

Yoksis Researcher ID: 133810

Education Information

Doctorate, Istanbul University, Institute Of Graduate Studies In Sciences, Elektrik-Elektronik Mühendisliği, Turkey 2012 - 2016

Postgraduate, Ataturk University, Fen Bilimleri Enstitüsü, Elektrik-Elektronik Mühendisliği, Turkey 2008 - 2011

Undergraduate, Ataturk University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, Turkey 2004 - 2008

Foreign Languages

English, B2 Upper Intermediate

Certificates, Courses and Trainings

Foreign Language, Georgia Institute of Technology English Courses, Georgia Institute of Technology Language Center, 2016

Dissertations

Doctorate, Memristör tasarımı ve yeni uygulamaları, İstanbul Üniversitesi, Elektrik-Elektronik Mühendisliği, Elektrik-Elektronik Mühendisliği, 2016

Postgraduate, Er/p-Si Schottky yapılarında engel yüksekliği ve Gauss dağılımının sıcaklığa bağlılığı, Atatürk Üniversitesi, Elektrik-Elektronik Mühendisliği, Elektrik-Elektronik Mühendisliği, 2011

Research Areas

Electrical and Electronics Engineering, Electronic, Printed Circuits, Thin Film, Thick Film and Hybrid ICs, Circuit Theory, Electronic Circuits, Engineering and Technology

Academic Titles / Tasks

Associate Professor, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2019 - Continues

Assistant Professor, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2017 - 2019

Assistant Professor, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2017 - 2018

Research Assistant, Istanbul University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2012 - 2017

Research Assistant, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2011 - 2012

Research Assistant, Gumushane University, Mühendislik Fakültesi, Elektrik-Elektronik Mühendisliği, 2010 - 2010

Academic and Administrative Experience

Yükseköğretim Kurulu Üyesi, Erzincan Binali Yildirim University, Tercan Meslek Yüksekokulu, 2021 - Continues

Director of Vocational School, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, 2018 - Continues

Head of Department, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2018 - Continues

Fakülte Yönetim Kurulu Üyesi, Erzincan Binali Yildirim University, Mühendislik-Mimarlık Fakültesi, Elektrik-Elektronik Mühendisliği Bölümü, 2019 - 2022

Courses

Sayısal Tasarım, Undergraduate, 2021 - 2022

Devre Analizi-II, Undergraduate, 2018 - 2019

Elektronik-II, Undergraduate, 2018 - 2019

Analog Tümdevre Tasarımı, Postgraduate, 2018 - 2019

Devre Analizi-I, Undergraduate, 2018 - 2019

Elektronik-I, Undergraduate, 2017 - 2018

Published journal articles indexed by SCI, SSCI, and AHCI

- I. **A new floating memcapacitor emulator circuit without using passive elements**
Korkmaz M. O., BABACAN Y., Yesil A.
International Journal of Circuit Theory and Applications, vol.52, no.7, pp.3650-3663, 2024 (SCI-Expanded)
- II. **CCII- and OTA-Based Tunable Memcapacitor Emulator Circuits Without Using Passive Elements**
Korkmaz M. O., BABACAN Y., Yesil A.
Circuits, Systems, and Signal Processing, vol.43, no.7, pp.4093-4120, 2024 (SCI-Expanded)
- III. **Single VDCC Based Memcapacitor Emulator Circuit without Using Passive Elements and Analog Multiplier**
Korkmaz M. O., Sagbas M., BABACAN Y., Yesil A.
Indian Journal of Pure and Applied Physics, vol.62, no.4, pp.310-319, 2024 (SCI-Expanded)
- IV. **Special Memristor and Memristor-Based Compact Neuron Circuit**
Altan M. A., ORMAN K., BABACAN Y., Yesil A.
Journal of Circuits, Systems and Computers, vol.33, no.5, 2024 (SCI-Expanded)
- V. **Electronically Controllable Fully Floating Memcapacitor Circuit**
Gur M., AKAR F., ORMAN K., BABACAN Y., Yesil A., GÜL F.
Circuits, Systems, and Signal Processing, vol.42, no.11, pp.6481-6493, 2023 (SCI-Expanded)
- VI. **Tunable memristor employing only four transistors**

- Yesil A., BABACAN Y.
AEU - International Journal of Electronics and Communications, vol.169, 2023 (SCI-Expanded)
- VII. **A new CCII based meminductor emulator circuit and its experimental results**
Korkmaz M. O., BABACAN Y., Yesil A.
AEU - International Journal of Electronics and Communications, vol.158, 2023 (SCI-Expanded)
- VIII. **Controlling a 4D Chaotic Oscillator with a Quadratic Memductance and its Implementation**
Gokyildirim A., Yesil A., BABACAN Y.
Journal of Circuits, Systems and Computers, vol.31, no.16, 2022 (SCI-Expanded)
- IX. **DDCC-based meminductor circuit with hard and smooth switching behaviors and its circuit implementation**
ORMAN K., Yesil A., BABACAN Y.
Microelectronics Journal, vol.125, 2022 (SCI-Expanded)
- X. **Investigation of STDP mechanisms for memristor circuits**
BABACAN Y., Yesil A., Tozlu O. F., KAÇAR F.
AEU - International Journal of Electronics and Communications, vol.151, 2022 (SCI-Expanded)
- XI. **Implementation of a memristor-based 4D chaotic oscillator and its nonlinear control**
Gokyildirim A., YEŞİL A., BABACAN Y.
ANALOG INTEGRATED CIRCUITS AND SIGNAL PROCESSING, vol.110, no.1, pp.91-104, 2022 (SCI-Expanded)
- XII. **Electronically controllable memcapacitor emulator employing VDCCs**
Konal M., KAÇAR F., BABACAN Y.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.140, 2021 (SCI-Expanded)
- XIII. **Operational Transconductance Amplifier-Based Electronically Controllable Memcapacitor and Meminductor Emulators**
Demir E., Yesil A., BABACAN Y., KARACALI T.
JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS, vol.30, no.12, 2021 (SCI-Expanded)
- XIV. **Electronically controllable neuristor based logic gates and their applications**
TOZLU Ö. F., KAÇAR F., BABACAN Y.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.138, 2021 (SCI-Expanded)
- XV. **Design of Memristor with Hard-Switching Behavior Employing Only One CCCII and One Capacitor**
Yesil A., BABACAN Y.
JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS, vol.30, no.9, 2021 (SCI-Expanded)
- XVI. **The Implementation of Logic Gates Using Only Memristor Based Neuristor**
ORMAN K., BABACAN Y.
Informacije MIDEM, vol.51, no.2, pp.113-117, 2021 (SCI-Expanded)
- XVII. **Electronically Controllable Memcapacitor Circuit with Experimental Results**
Yesil A., BABACAN Y.
IEEE Transactions on Circuits and Systems II: Express Briefs, vol.68, no.4, pp.1443-1447, 2021 (SCI-Expanded)
- XVIII. **The Implementation of Logic Gates Using Only Memristor Based Neuristor**
Orman K., Babacan Y.
INFORMACIJE MIDEM, vol.51, no.2, pp.113-117, 2021 (SCI-Expanded)
- XIX. **Neuristor based electronically controllable logic gates**
BABACAN Y., KAÇAR F.
Analog Integrated Circuits and Signal Processing, vol.106, no.3, pp.707-711, 2021 (SCI-Expanded)
- XX. **An electronically controllable, fully floating memristor based on active elements: DO-OTA and DVCC**
Yesil A., Babacan Y., Kacar F.
AEU - International Journal of Electronics and Communications, vol.123, 2020 (SCI-Expanded)
- XXI. **A New Floating Memristor Based on CBTA with Grounded Capacitors**
YEŞİL A., BABACAN Y., KAÇAR F.
JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS, vol.28, no.13, 2019 (SCI-Expanded)
- XXII. **Electronically tunable memristor based on VDCC**
YEŞİL A., BABACAN Y., KAÇAR F.

- AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.107, pp.282-290, 2019 (SCI-Expanded)
- XXIII. **A novel OTA-based circuit model corroborated by an experimental semiconductor memristor**
Gül F., BABACAN Y.
MICROELECTRONIC ENGINEERING, vol.194, pp.56-60, 2018 (SCI-Expanded)
- XXIV. **Wavelet analysis of a memristor emulated model proposed for compact fluorescent lamp operated systems**
BABACAN Y., Uzunoglu C. P., ÇEKLI S., KAÇAR F., UĞUR M.
ELECTRIC POWER SYSTEMS RESEARCH, vol.160, pp.56-62, 2018 (SCI-Expanded)
- XXV. **Design and experimental evolution of memristor with only one VDTA and one capacitor**
YESIL A., BABACAN Y., KACAR F.
IEEE TRANSACTIONS ON COMPUTER-AIDED DESIGN OF INTEGRATED CIRCUITS AND SYSTEMS, no.1, pp.1, 2018 (SCI-Expanded)
- XXVI. **The Fabrication and MOSFET-Only Circuit Implementation of Semiconductor Memristor**
BABACAN Y., YESIL A., Gül F.
IEEE TRANSACTIONS ON ELECTRON DEVICES, vol.65, no.4, pp.1625-1632, 2018 (SCI-Expanded)
- XXVII. **Memristive retinomorph architecture removing noise and preserving edge**
YILDIRIM M., BABACAN Y., KAÇAR F.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.97, pp.38-44, 2018 (SCI-Expanded)
- XXVIII. **A new floating memristor based on CBTA with grounded capacitors**
Yesil A., BABACAN Y., Kacar F.
JOURNAL OF CIRCUITS SYSTEMS AND COMPUTERS, vol.1, no.1, pp.1-15, 2018 (SCI-Expanded)
- XXIX. **Ultra-Low voltage-power DT MOS based full-wave rectifier**
BABACAN Y.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.91, pp.18-23, 2018 (SCI-Expanded)
- XXX. **Floating memristor emulator with subthreshold region**
Babacan Y., Kacar F.
ANALOG INTEGRATED CIRCUITS AND SIGNAL PROCESSING, vol.90, no.2, pp.471-475, 2017 (SCI-Expanded)
- XXXI. **Memristor emulator with spike-timing-dependent-plasticity**
BABACAN Y., KACAR F.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.73, pp.16-22, 2017 (SCI-Expanded)
- XXXII. **Memristor emulator with tunable characteristic and its experimental results**
BABACAN Y., Yesil A., Kacar F.
AEU-INTERNATIONAL JOURNAL OF ELECTRONICS AND COMMUNICATIONS, vol.81, pp.99-104, 2017 (SCI-Expanded)
- XXXIII. **A spiking and bursting neuron circuit based on memristor**
Babacan Y., Kacar B., Gurkan K.
NEUROCOMPUTING, vol.203, pp.86-91, 2016 (SCI-Expanded)
- XXXIV. **Harmonic Generation Analyses of Memristor with Different Barriers and Neuron**
Babacan Y., Kacar F.
ACTA PHYSICA POLONICA A, vol.130, no.1, pp.226-227, 2016 (SCI-Expanded)
- XXXV. **Modeling and Suppression of Chaotic Ferroresonance in a Power System by Using Memristor-based System**
Uzunoglu C. P., Babacan Y., Kacar F., Ugur M.
ELECTRIC POWER COMPONENTS AND SYSTEMS, vol.44, no.6, pp.638-645, 2016 (SCI-Expanded)
- XXXVI. **A new DDCC based memristor emulator circuit and its applications**
Yesil A., Babacan Y., Kacar F.
MICROELECTRONICS JOURNAL, vol.45, no.3, pp.282-287, 2014 (SCI-Expanded)

Articles Published in Other Journals

- I. **A floating CCCII and DDCC based memcapacitor circuit with electronically controllable behavior**
KAYA A. H., Yesil A., BABACAN Y.
Erzincan Üniversitesi Fen Bilimleri Enstitüsü Dergisi, vol.15, no.1, pp.93-105, 2022 (Peer-Reviewed Journal)
- II. **FCS Based Memcapacitor Emulator Circuit**
MADSAR M., BABACAN Y., ÇİÇEK K.
İğdir Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 2020 (Peer-Reviewed Journal)
- III. **MOSFET Based Parallel Inductance Simulator**
BABACAN Y., YEŞİL A.
Journal of the Institute of Science and Technology, vol.9, no.1, pp.30-38, 2019 (Peer-Reviewed Journal)
- IV. **Elektronik Olarak Ayarlanabilir Memristör Tabanlı Chua Devresinin Gerçeklenmesi**
YEŞİL A., BABACAN Y.
İğdir Üniversitesi Fen Bilimleri Enstitüsü Dergisi, 2019 (Peer-Reviewed Journal)
- V. **Implementation of Electronically Controllable Memristor Based Chua Circuit**
YEŞİL A., BABACAN Y.
Journal of the Institute of Science and Technology, vol.9, no.1, pp.121-129, 2019 (Peer-Reviewed Journal)
- VI. **An Operational Transconductance Amplifier-based Memcapacitor and Meminductor**
BABACAN Y.
ISTANBUL UNIVERSITY-JOURNAL OF ELECTRICAL AND ELECTRONICS ENGINEERING, no.1, pp.36-38, 2018 (Scopus)
- VII. **FCS Based Memristor Emulator with Associative Learning Circuit Application**
BABACAN Y., Kacar F.
ISTANBUL UNIVERSITY-JOURNAL OF ELECTRICAL AND ELECTRONICS ENGINEERING, vol.17, no.2, 2017 (ESCI)

Books & Book Chapters

- I. **Mikroelektronik Devreler ve Uygulamaları**
BABACAN Y., YEŞİL A., KAÇAR F.
Nobel Akademik Yayıncılık, Ankara, 2023
- II. **Chapter VII - MEMORY CIRCUIT ELEMENTS AND APPLICATIONS**
ORMAN K., BABACAN Y.
in: ACADEMIC STUDIES IN ENGINEERING SCIENCES, Assoc. Prof. Dr. Halil İbrahim Kurt, Editor, LIVRE de LYON, Lyon, pp.77-101, 2020
- III. **Emulator circuits and resistive switching parameters of memristor**
YEŞİL A., GÜL F., BABACAN Y.
in: Memristor and Memristive Neural Networks, Alex Pappachen James, Editor, INTECH, Zagreb, pp.41-61, 2018
- IV. **Memristor devices and models**
Yesil A., Gül F., BABACAN Y.
in: Memristor and Memristive Neural Networks, Dajana Pemac, Editor, Intech, New York, pp.1-29, 2018
- V. **Memristör Modelleri ve Uygulamaları**
BABACAN Y.
Lambert Academic, İstanbul, 2017

Refereed Congress / Symposium Publications in Proceedings

- I. **Smart Greenhouse System and Control of Necessary Parameters for Accelerating Plant Growth-II**
AKDEMİR N., BABACAN Y.
14 th International Exergy, Energy, and Environment Symposium (IEEES-14), 24 - 27 December 2023

- II. **Smart Greenhouse System and Control of Necessary Parameters for Accelerating Plant Growth-I**
AKDEMİR N., BABACAN Y.
14 th International Exergy, Energy, and Environment Symposium (IEEEES-14), 24 - 27 December 2023
- III. **İNSANSIZ HAVA ARAÇLARI İÇİN FIRCASIZ DC MOTOR ÜRETİMİ VE ELEKTRİKSEL KARAKTERİSTİKLERİNİN İNCELENMESİ-II**
Abdulhadi M., Babacan Y.
6.ULUSLARARASI MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ KONGRESİ, İstanbul, Turkey, 20 November 2021
- IV. **OTA TABANLI MEMKAPASİTÖR DEVRESİNİN FOURİER ÖZELLİĞİNİN İNCELENMESİ**
GÜR M., BABACAN Y.
6.ULUSLARARASI MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ KONGRESİ, Turkey, 20 November 2021
- V. **İNSANSIZ HAVA ARAÇLARI İÇİN FIRCASIZ DC MOTOR ÜRETİMİ VE ELEKTRİKSEL KARAKTERİSTİKLERİNİN İNCELENMESİ-I**
Abdulhadi M., BABACAN Y.
6.ULUSLARARASI MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ KONGRESİ, Turkey, 20 November 2021
- VI. **OTA TABANLI MEMKAPASİTÖR DEVRESİNİN STDP ÖZELLİĞİNİN İNCELENMESİ**
GÜR M., BABACAN Y.
6.ULUSLARARASI MÜHENDİSLİK VE TEKNOLOJİ YÖNETİMİ KONGRESİ, Turkey, 20 November 2021
- VII. **A Review of High-Grade Nonlinear Basic Passive Circuit Elements Memcapacitor and Meminductor**
Demir E., YEŞİL A., BABACAN Y., KARACALI T.
II. INTERNATIONAL CONFERENCE ON INNOVATIVE ENGINEERING APPLICATIONS, Turkey, 20 May 2021
- VIII. **A Brief Discussion on Data and Database Requirements of EVoting Systems**
Demir E., ÇABUK U. C., BABACAN Y., KARACALI T.
II. INTERNATIONAL CONFERENCE ON INNOVATIVE ENGINEERING APPLICATIONS, Turkey, 20 May 2021
- IX. **Investigation of STDP behavior for DDCC based memristor circuit**
BABACAN Y., YEŞİL A.
IV. INES International Academic Research Congress (INES - 2018), 30 October - 03 November 2018
- X. **MOSFET-C based decremental grounded memristor**
YEŞİL A., BABACAN Y.
IV. INES International Academic Research Congress (INES - 2018), Antalya, Turkey, 30 October - 03 November 2018
- XI. **Fully floating memristor based neuron circuit implementation**
BABACAN Y.
IV. International Academic Research Congress (INES), 30 October - 03 November 2018
- XII. **Neuron Circuit Based on CCII-**
BABACAN Y., YEŞİL A., KONAL M., KACAR F.
22nd International Conference ELECTRONICS 2018, Palang, Bangladesh, 18 - 20 June 2018
- XIII. **Comparison of Basic Soft Switching Techniques in DC-DC Boost Converters Used in Solar PV Panels**
TING N. S., ŞAHİN Y., BABACAN Y.
I. International Symposium on Innovative Approaches in Scientific Studies, Antalya, Turkey, 11 - 13 April 2018, pp.437-440
- XIV. **A novel circuit design of neuristor based logic OR gate**
BABACAN Y.
International Conference on Intelligent Transportation Systems, 19 - 21 April 2018
- XV. **Cognitive approach to Memristor which is able to associative learning**
BABACAN H. H., BABACAN Y.
Ist International Symposium on Innovative Approaches in Scientific Studies, 11 - 13 April 2018
- XVI. **Pathological Element-Based Memelement Circuit**
BABACAN Y.
Ist International Symposium on Innovative Approaches in Scientific Studies, 11 - 13 April 2018
- XVII. **EXPERIMENTAL RESULT OF FLOATING MEMRISTOR EMULATOR WITH SUBTHRESHOLD REGION**
BABACAN Y., YEŞİL A., BAŞAK M. E., KAÇAR F.

V. INTERNATIONAL ENERGY TECHNOLOGIES CONFERENCE ENTECH'xx17, 15 - 16 December 2017

XVIII. Memristor-Based Sodium and Potassium Channels Model

BABACAN Y., Yıldırım M., KAÇAR F.

ELECO'17, Bursa, Turkey, 14 - 17 November 2017, pp.1

XIX. A Circuit Model for Single Cell 1 Diode-1 Memristor (1D1M) Semiconductor Device

GÜL F., BABACAN Y.

INES, 18 - 21 October 2017

XX. Memristor: Three MOS Transistors and One Capacitor

BABACAN Y.

INES'17, Antalya, Turkey, 15 - 17 October 2017, pp.1

XXI. Modelling of Compact Fluorescent Lamp Characteristics Using Memristor

UZUNOĞLU C. P., BABACAN Y., CEKLI S., KAÇAR F., UĞUR M.

MEMRISYS, 3 - 06 April 2017

XXII. Implementing Hodgkin-Huxley Circuit Based on Non-linear Resistor

UZUNOGLU C. P., BABACAN Y., KACAR F.

International Conference on Memristive Materials, Devices & Systems (MEMRISYS 2017), Atina, Greece, 3 - 06 April 2017, pp.3-4

XXIII. Modelling of Compact Fluorescent Lamp Characteristics Using Memristor Emulator Circuit

UZUNOGLU C. P., BABACAN Y., Cekli S., KACAR F., UGUR M.

International Conference on Memristive Materials, Devices & Systems (MEMRISYS 2017), Atina, Greece, 3 - 06 April 2017, pp.1-2

XXIV. Harmonic Generation Analyses of Memristor with Different Barriers and Neuron

BABACAN Y., KAÇAR F.

2nd International Conference on Computational and Experimental Science and Engineering (ICCESEN 2015), 14 - 19 October 2015

Supported Projects

Babacan Y., Yeşil A., TUBITAK Project, Yüksek Dereceden Lineer Olmayan Memkapasitör ve Memindüktör Tasarımı ve Uygulamaları, 2019 - 2021

BABACAN Y., KAÇAR F., YEŞİL A., Project Supported by Higher Education Institutions, Memristör tabanlı Memristive Fuse yapısı ile retina devresi tasarımı, 2019 - 2020

Tınç N. S., Babacan Y., Project Supported by Other Official Institutions, Elektrikli Araç Prototip Üretimi, 2018 - 2019

BABACAN Y., KACAR F., UZUNOGLU C. P., GÜLNAHAR M., Project Supported by Higher Education Institutions, Ayarlanabilir Eşik Gerilimlerine Sahip Memristör Devre Modeli Tasarımı ve Deşarj Lambasına Uygulanması ile Memkapasitör/Memindüktör Tasarımı, 2017 - 2018

Activities in Scientific Journals

TURKISH JOURNAL OF ELECTRICAL ENGINEERING & COMPUTER SCIENCES , Editor, 2017 - 2018

Scientific Research / Working Group Memberships

Beyin araştırmaları derneği, İSTANBUL ÜNİVERSİTESİ, Türkiye, <http://www.bad.org.tr>, 2017 - Continues

Metrics

Publication: 72

Citation (WoS): 232

Citation (Scopus): 875

H-Index (WoS): 7

H-Index (Scopus): 14

Scholarships

BİDEB, TUBITAK, 2015 - Continues

Non Academic Experience

Georgia Institute of Technology