SHAHRIAR JAMASB

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**Google Scholar:** <https://scholar.google.com/citations?user=NvmirCYAAAAJ&hl=en>

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**PUBLICATIONS**

***Research Communications:***

**A physical model for drift in pH ISFETs**

S Jamasb, S Collins, RL Smith

**Sensors and Actuators B: Chemical 49** (1-2), 146-155, 1998.

**A physical model for threshold voltage instability in Si3N4-gate H+-sensitive FET's (pH-ISFET's)**

S Jamasb, SD Collins, RL Smith

**IEEE Transactions on Electron Devices 45** (6), 1239-1245, 1998.

**An analytical technique for counteracting drift in ion-selective field effect transistors (ISFETs)**

S Jamasb

**IEEE Sensors Journal 4** (6), 795-801, 2004.

**Counteracting threshold-voltage drift in ion-selective field effect transistors (ISFETs)**

**using threshold-setting ion implantation**

A Elyasi, M Fouladian, S Jamasb

**IEEE Journal of the Electron Devices Society 6**, 747-754, 2018.

**Continuous monitoring of pH and blood gases using ion-sensitive and gas-sensitive field effect transistors operating in the amperometric mode in presence of drift**

S Jamasb

**Biosensors 9 (1), 44**, 2019.

**Current-mode signal enhancement in the ion-selective field effect transistor (ISFET) in the presence of**

**drift and hysteresis**

S Jamasb

**IEEE Sensors Journal 21 (4)**, 4705-4712, 2020.

**Classification and comparison of maximum power point tracking techniques**

**for photovoltaic systems: A review**

AR Reisi, MH Moradi, S Jamasb

**Renewable and sustainable energy reviews 19,** 433-443, 2013.

**An energy management system (EMS) strategy for combined heat and power (CHP) systems based on hybrid optimization method employing fuzzy programming**

MH Moradi, M Hajinazari, S Jamasb, M Paripour

**Energy 49,** 86-101, 2013.

**Modeling of effective electrical conductivity and percolation behavior in conductive-polymer nanocomposites reinforced with spherical carbon black**

M Mazaheri, J Payandehpeyman, S Jamasb

**Applied Composite Materials** **29**, 695-710, **2022**.

**Physics-Based Modeling and Experimental Study of Conductivity and Percolation Threshold**

**in Carbon Black Polymer Nanocomposites**

J Payandehpeyman, M Mazaheri, AS Zeraati, S Jamasb, U Sundararaj

**Applied Composite Materials**, 1-21, **2023**.

**Electrical transport in the superconducting and normal states in Y2Ba5Cu7Ox high-temperature superconductor**

M Mazaheri, S Jamasb

**Solid State Communications 234**, 21–25, **2016**.

**Extension of the neuronal membrane model to account for suppression of the action potential**

**by a constant magnetic field**

S Jamasb

**Biophysics 62**, 428-433, **2017**.

**Kinetics of the hydration reaction at the electrolyte–insulator interface**

S Jamasb

**Surface Engineering and Applied Electrochemistry 53**, 59-63, **2017**.

**Level shifting circuit for hybrid superconductor-to-semiconductor interface**

F Aghighi, S Jamasb, M Mazaheri

**Physica C: Superconductivity and its Applications 552**, 57-60, **2018**.

**Rectification of graphene self-switching diodes: First-principles study**

H Ghaziasadi, S Jamasb, P Nayebi, M Fouladian

**Physica E: Low-dimensional Systems and Nanostructures 99**, 123-133, **2018**.

**Fabrication, characterization, and analysis of the crystal structure, electrical and magnetic properties of the superconducting compound** **Y2Ba5Cu7Ox**

M Mazaheri, S Jamasb

**Mavad Novin (Novel Materials), 10** **(37)**, 163-176, **2019**.

**Effect of side gates doping on graphene self-switching nano-diode rectification**

H Ghaziasadi, S Jamasb, P Nayebi

**Materials Research Express 6 (7)**, 075012, **2019**.

**A method for image edge detection based on interval-valued fuzzy sets**

R Baghbani, S Jamasb, MB Khodabakhshi

**Journal of Intelligent & Fuzzy Systems 37 (2)**, 2275-2288, **2019**.

**Investigation of the mechanism of transport across the poly/monocrystalline silicon interface in polysilicon-emitter bipolar transistors based on variations in the interface** **treatment process**

S Jamasb

**Turkish Journal of Electrical Engineering and Computer Sciences 27** (5), 3923-3934, **2019**.

**Comprehensive modeling of the depletion-mode metal-oxide-semiconductor (MOS) capacitor for circuit simulation**

S Jamasb, M Khodabakhshi

**Modeling in Engineering, vol. 18. No. 62,** 43-56, **10.22075/JME.2020.19671.1847, 2020**.

**Nanotechnology application in drug delivery to osteoarthritis (OA), rheumatoid arthritis (RA), and osteoporosis (OSP)**

M Rabiei, S Kashanian, SS Samavati, H Derakhshankhah, S Jamasb, SJP McInnes

**Journal of Drug Delivery Science and Technology 61 (2)**, 102011, **2020**.

**Pulsed entanglement and quantum steering in a three-mode electro-optomechanical system**

M Mazaheri, S Jamasb

**Quantum Information Processing 19**, 1-19, **2020**.

**Nanomaterial and advanced technologies in transdermal drug delivery**

M Rabiei, S Kashanian, SS Samavati, S Jamasb, SJP McInnes

**Journal of drug targeting 28 (4)**, 356-367, **2020**.

**Active targeting towards and inside the brain based on nanoparticles: a review**

M Rabiei, S Kashanian, SS Samavati, S Jamasb, SJP McInnes

Current Pharmaceutical Biotechnology 21 (5), 374-383, **2020**.

**Modeling the effect of constant magnetic field on action potenial generation in neuron**

S Jamasb, A Elyasi

**Modeling in Engineering, vol. 19. No. 64,** 87-93, **10.22075/JME.2020.19694.184, 2021**.

**Characterization and Modeling of the Polysilicon Emitter Contact for Circuit Simulation**

S Jamasb

**Journal of Circuits, Systems and Computers 30** (14), 2150251, **2021**.

**Characteristics of SARS-CoV2 that may be useful for nanoparticle pulmonary drug delivery**

M Rabiei, S Kashanian, SS Samavati, H Derakhshankhah, S Jamasb, SJP McInnes

**Journal of Dug Targeting 30** (3), 233-243, **2022**.

**A Subcircuit-Based Model for the Accumulation-Mode MOS Capacitor**

S Jamasb, MB Khodabakhshi, R Baghbani

**Journal of Circuits, Systems and Computers 32** (03), 2350054, **2023**.

***International Conference Proceedings:***

**A 622 MHz Stand-alone LVDS Driver Pad in 0.18-μm CMOS**

S Jamasb, R Jalilizeinali, PM Chau

Proceedings of the **44th** **IEEE Midwest Symposium on Circuits and Systems**, **2001**.

**Accurate continuous monitoring using ISFET-based biosensors based on characterization and modeling of drift and low frequency noise**

S Jamasb, JN Churchill, SD Collins, RL Smith

Proceedings of the **20th Annual International Conference of the IEEE Engineering in Medicine and Biology Society**, **1998**.

**A physically-based model for drift in Al2O3-gate pH ISFET's**

S Jamasb, SD Collins, RL Smith

Proceedings of the **IEEE** **International Solid State Sensors and Actuators Conference (Transducers' 97)**, **1997**.

**Correction of instability in ion-selective field effect transistors (ISFETs) for accurate continuous monitoring of pH**

S Jamasb, SD Collins, RL Smith

Proceedings of the **19th Annual International Conference of the IEEE Engineering in Medicine and Biology Society**, **1997**.

**Determination of Low-frequency Noise Spectrum in Ion-sensitive Field Effect Transistors (ISFET’s) based on a Physical Model for Drift**

S. Jamasb, S.D. Collins, R.L. Smith

Proceedings of the **International Conference on Modeling and Simulation of Microsystems, Hilton Head Island, SC, March 2001.**

**Characterization, Modeling, and Correction of Drift in Complementary pH ISFET’s**

S. Jamasb, S.D. Collins, R.L. Smith

Proceedings of the **International Electrochemical Society Conference, San Francisco, CA, September 2001.**

**Survey on ASIC Design of High-speed Photo Receiver Using the 0.18µm CMOS Technology**

M. Moradpour, A. Ramezani, S. Jamasb

Proceedings of the **7th International Conference on Circuits, Systems, Signal, and Telecommunications (CSST’13), January 10, 2013, 17-19**.

**Biophysical Basis of the Suppression of Action Potential by Steady Magnetic Fields**

S. Jamasb

Proceedings of the **6th International Conference on Bioscience and Bioinformatics (ICBB’15), Dubai, February 23, 2015, 101-104.**

**Continuous Monitoring of pH using Ion-selective Field Effect Transistors (ISFET’s) Operating with a Fixed Bias Applied to the Reference Electrode**

S. Jamasb

Proceedings of the **6th International Conference on Bioscience and Bioinformatics (ICBB’15), Dubai, February 23, 2015, 115-119.**

**A CMOS Circuit Technique for Maintenance of the Common Mode Level in a Differential Output Driver**

B. Mohagheghi, S. Jamasb, M. Fouladian

Proceedings **of the International Conference on Science and Engineering, Dubai, UAE, December 1st 2015.**

***National Conference Proceedings:***

S. Jamasb, "Fractal Analysis of EEG Signals for Diagnosis of Epilepsy: A Review", Proc. of the 1st International Epilepsy Congress, Mashhad, Iran, December 10-13 2010, p149.

S. Jamasb, "A Physically-informed Method for Signal Enhancement based on a Model for Long-term Instability (Drift)", Proc. of 3rd *International Conf. on Signal Acquisition and Processing* (*ICSAP 2011*), Singapore, Feb. 26-28, 2011.

S. Jamasb, “Accurate Modeling of the Polysilicon-Insulator-Well (PIW) Capacitor in CMOS Technologies”, The Second National Conference on Applied Research in Electrical, Mechanical, and Mechatronics Engineering, February 19, 2015.

S. Jamasb, “Kinetics of Chemical Ageing at the Electrolyte-insulator Interface”, Proc of the 2nd National Conference on Mathematics and its Applications in Engineering, Sciences, Jouybar, Iran, 14-15 May 2015.

M. Nabi Zand, S. Jamab, “Analytical Correction of Threshold Voltage Drift in Ion-selective Field Effect Transistors (ISFETs)”,The Second National Conference on Developments in Civil Engineering, Architechture, Electrical Engineering, and Mechanical Engineering in Iran, Gorgan, Iran, December 17, 2015.

M. Rajabi, S. Jamab, “A Low-power, Compact, Dynamic D-type Flip-Flop for Implementation of the Digital Delay Line in a Decision Feedback Equalizer”,The Second National Conference on Developments in Civil Engineering, Architechture, Electrical Engineering, and Mechanical Engineering in Iran, Gorgan, Iran, December 17, 2015.

M. Nabi Zand, S. Jamasb, “Drift Counteraction in Ion-selective Field Effect Transistors by Adjusting the Charge in the Semiconductor”, Proc. of the International Conference in Electrical Engineering, Tehran University, Tehran, Iran, June 1st 2016.

S. Jamasb, “A physical model for long-term instability in organic light-emitting diode”, Proc. of the 21st Iranian optics and photonics conference, Shahid Beheshti University, Tehran, 649-652, 2015.

H. Ebrahimi, S. Jamasb, “Correction of instability in ion-sensitive field effect transistor (ISFET) by utilizing the complementary-ISFET inverting amplifier topology”, The Third National Conference on Applied Research in Electrical, Mechanical, and Mechatronics Engineering, Tehran, 2016.

S. Jamasb, “A Dynamic Double-edge-triggered D-type Flip-flop”, The Fifth National Conference on Applied Research in Electrical, Mechanical, and Mechatronics Engineering, Khaje Nasir Toosi Uinversity of Technology, Tehran, January 24, 2019.

S. Jamasb, “Characterization of the Emitter Contact in Poly- emitter Bipolar Transistors for Extraction of the Series Emitter Resistance”, The Fifth National Conference on Applied Research in Electrical, Mechanical, and Mechatronics Engineering, Khaje Nasir Toosi Uinversity of Technology, Tehran, January 24, 2019.

**COURSES TAUGTHT**

**UNDERGRADUATE COURSES**

* **Biosensors**
* **Medical Physics**
* **Electronic Circuits**
* **Device Physics**
* **RF Integrated Circuits**
* **Power Electronics**
* **Electromagnetics**
* **Applied Mathematics**
* **Anatomy, Physiology for Biomedical Engineering Students**
* **Professional English for Electrical Engineering Students**
* **Professional English for Biomedical Engineering Students**

**GRADUATE COURSES**

* **Integrated Circuits Fabrication Technology**
* **Semiconductor Devices**
* **Neuromuscular Control Systems**
* **Neurophysiology**

**EXPERIENCE**

**ACADEMIC EXPERIENCE**

**EDUCATION**

###  **University of California, Davis, CA, USA**

 Ph.D. in Biomedical Engineering, December 1998

Dissertation Title: *Characterization, Modeling, and Correction of Drift in Ion-Selective Field Effect Transistors (ISFET’s)*

Dissertation Supervisor: Professor Rosemary L. Smith

 **University of California, Davis, CA, USA**

 Master of Science in Engineering, June 1993

### Thesis Title: *Analog and Digital Integrated Circuit Blocks for a Decision Feedback Equalizer*

Dissertation Supervisor: Professor Paul J. Hurst

**University of California, Davis, CA, USA**

Bachelor of Science in Electrical Engineering, June 1988, *CUM LAUDE*

##### CURRENT ACADEMIC POSITION

##### *Associate Professor:* Department of Biomedical Engineering, Hamedan University of Technology, Ministry of Science, Research and Technology,

##### Hamedan, Iran, Fall 2010- Present

* *Focus of Research*: Integrated Biomedical and Chemical Sensors, Solid-state Device Physics, Molecular Imaging, Applications of Artificial Intelligence in Medicine, Bioelectronic and Integrated Circuits
* *Teaching Responsibility*: Undergraduate courses on biosensors, integrated circuits and devices, and survey courses in anatomy and physiology and Graduate courses in Integrated Circuit (IC) fabrication, semiconductor devices, neuromuscular control and neurophysiology
* *Title of undergraduate courses taught*

Biosensors, Medical Physics, Electronic Circuits, Device Physics, RF Integrated Circuits, Power Electronics, Electromagnetics, Applied Mathematics, Anatomy, Physiology for Biomedical Engineering Students, Professional English for Biomedical and Electrical Engineering Students

* *Title of graduate courses taught*

Integrated Circuits Fabrication Technology, Semiconductor Devices, Neuromuscular Control Systems, Neurophysiology

##### TEACHING EXPERIENCE (United States)

*Instructor:*Department of Electrical Engineering, University of California,

 Irvine, California, Fall 1999 and Fall 2000.

* Senior-level required course, ECE 113D, Integrated Electronic

Circuit Design (hands-on, project-based course).

*Instructor:* Department of Electrical Engineering, University of California,

 San Diego, California, Spring 2001.

* Senior project course ECE 111, Advanced Digital Design Project

*Instructor:* Department of Electrical Engineering,San Diego State University*,*

 San Diego, California, Spring 2001, Spring 2002.

* Senior-level elective course EE 503, Biomedical Instrumentation.

*Instructor:*University of California, San Diego, Extension, San Diego, California,

Winter 2000, Spring 2000, Summer 2000, Winter 2002.

## ECE courses, High-speed Digital Design and Digital ASIC Design.

*Instructor:*University of California, Irvine, Extension, Irvine, California

 Fall 2000, Fall 2001, Summer 2003, Spring 2004

* Biomedical Instrumentation, High-speed Digital Design

**INDUSTRIAL EXPERIENCE (United States)**

*Electronic Design Principal Engineer:*Conexant Systems**,** Newport Beach andSan Diego,

 California, March 1999-Decemer 2001.

* Design of specialty I/O circuits for Giga-bit Rate Communication products
* Design of Electrostatic Protection Circuitry

*Technical Manager:* Commquest, an IBM Company,Encinitas, California, 1998-1999.

* Research and development in I/O design methodology for low-power applications
* Design of I/O circuits, and ESD protection circuitry for digital interfaces

*Device Engineering Manager:* Cirrus Logic, Fremont, California, 1995-1998.

* Management of a team of four engineers ( a senior and a junior device engineer as well as a senior and junior design engineer) performing device characterization and SPICE model generation for CMOS integrated circuits fabricated in 0.25µm-0.6µm CMOS technologies
* Design of CMOS analog and digital integrated circuit blocks for model-

 versus-siliconcorrelation (individual contribution).

*Senior Device Engineer:* Cirrus Logic, Fremont, California, January 1991- January 1995

* Device characterization and generation of SPICE models for MOS and bipolar transistors fabricated in 0.6µm-1.2µm CMOS technologies

*Device Engineer:* Samsung Semiconductor, San Jose, California, April’89-December’90

* Device characterization and generation of SPICE models for MOS and bipolar transistors fabricated in 0.80µm-1.0µm CMOS and BiCMOS technologies

*Device Support Engineer:* Foxboro/ICT, San Jose, California, October 1988-April 1989

* Responsible for characterization of integrated piezoresistive pressure transducers and process control monitoring. Performed process characterization and optimization using SUPREM TCAD software.

**HONORS AND AWARDS**

* Recipient of the Superior Researcher Award, Hamedan University of Technology
* Recipient of the Superior Instructor Award, Hamedan University of Technology
* Recipient of Chairman’s Team Award, Conexant Systems, 2001
* Vivian Bryan Nelson Scholarship, UC Davis, 1987-1988
* τβπ, national engineering honor society, since 1987
* πµε, mathematics honor society, since 1987
* Golden Key, national honor society, since 1987