

IEEE Circuits and Systems Society
Analog Signal Processing Technical Committee
Annual Activity Report
2009-2010

The Analog Signal Processing (ASP) Technical Committee serves to foster research, development, education and industrial dissemination of knowledge relating to the theory, analysis, design, and practical implementation of analog circuits. The committee's scope spans basic scientific theory to industrial application. More information on this committee can be found on the world-wide web at <http://ewh.ieee.org/soc/icss/committees/asptc>.

Committee members are experts in analog signal processing areas and are committed to and are active within this field. The committee currently has 70 members. In 2009, Shahriar Mirabbasi took over from Hanspeter Schmid as the Chair of the committee. Alyssa Apsel served as the chair-elect and Viktor Gruev served as the secretary and web coordinator.

The following summarizes CASS-related activity by the ASP committee and its members during the year 2009-2010.

1. ISCAS 2010

The Analog Signal Processing (ASP) track once again played an important role in ISCAS 2010 (<http://www.iscas2010.org>), and a great majority of ASPTC members assisted in the preparation of the technical program as well as paper evaluations. During the last ASPTC meeting in Taipei, Taiwan at ISCAS 2009, Viktor Gruev was nominated and elected by the committee as the new secretary and web coordinator. For 2009-2010, Shahriar Mirabbasi served as the chair, and Alyssa Apsel served as the chair-elect. Mohamad Sawan is nominated and elected as the new secretary at ASPTC meeting in Paris, France at ISCAS 2010.

As we have done in the past, once again for ISCAS 2010, current ASPTC chair, Shahriar Mirabbasi, chair-elect Alyssa Apsel, and last year's chair Hanspeter Schmid acted as Analog Signal Processing track co-chairs. These three coordinated the review process of all papers submitted to this track. The total number of papers submitted to the Analog Signal Processing track was 413, representing 20% of all papers submitted to ISCAS 2010. Of this total, 185 papers were selected for the final program (130 lecture presentations and 55 poster presentations), for a 44.8% total acceptance rate.

The ISCAS 2010 review process for the ASP track went smoothly, primarily due to the tremendous service of the Review Committee Member (RCM) volunteers listed below:

Analog Signal Processing RCMs:

Name	Affiliation
Alyssa Apsel	Cornell University, USA
Gert Cauwenberghs	University of California at San Diego, USA
Joseph Sylvester Chang	Nanyang Technological University, Singapore
Degang Chen	Iowa State University, USA
Jose M. de la Rosa	Institute of Microelectronics of Seville, Spain
Andreas Demosthenous	University College London, UK
William R. Eisenstadt	University of Florida, USA
Mourad N. El-Gamal	McGill University, Canada
Jorge Fernandes	INESC-ID/Instituto Superior Técnico, Portugal
Igor Filanovsky	University of Alberta, Canada
Robert Fox	University of Florida, USA
Randall Geiger	Iowa State University, USA
Maysam Ghovanloo	Georgia Institute of Technology, USA
Srikanth Gondi	K-micro, USA

Viktor Gruev	Washington University, USA
Anas Hamoui	McGill University, Canada
Pavan Kumar Hanumolu	Oregon State University, USA
Ramesh Harjani	University of Minnesota, USA
Markus Helfenstein	NXP, Switzerland
Luis Hernandez Corporales	Carlos III University, Spain
Shu-Chuan Huang	Tatung University, Taiwan
Vadim Ivanov	Texas Instruments, USA
Byunghoo Jung	Purdue University, USA
Tor Sverre Lande	University of Oslo, Norway
Dimitrios Loizos	NetLogic Microsystems, USA
Felix Lustenberger	Espros Photonics Corporation, Switzerland
Dongsheng Brian Ma	University of Arizona, USA
Bradley A. Minch	Olin College, USA
Shahriar Mirabbasi	University of British Columbia, Canada
Pedram Mohseni	Case Western Reserve University, USA
Un-Ku Moon	Oregon State University, USA
P. R. Mukund	Rochester Institute of Technology, USA
Luis Oliveira	Universidade Nova de Lisboa, Portugal
Gaetano Palumbo	University of Catania, Italy
Shanthi Pavan	Indian Institute of Technology-Madras, India
Salvatore Pennisi	Univeristy of Catania, Italy
Jaime Ramirez-Angulo	New México State University, USA
Gordon Roberts	McGill University, Canada
Mohamad Sawan	Ecole Polytechnique Montreal, Canada
Hanspeter Schmid	University of Applied Sciences NW Switzerland
Jose Silva-Martinez	Texas A&M University, USA
Robert Sobot	University of Western Ontario, Canada
Sameer Sonkusale	Tufts University, USA
Paul Sotiriadis	Johns Hopkins University, USA
Tuna Tarim	Texas Instruments, USA
Thierry Taris	University of Bordeaux, France
Albert Wang	University of California at Riverside, USA
Dag Wisland	University of Oslo, Norway
Apisak Worapishet	Mahanakorn University of Technology, Thailand
George Jie Yuan	Hong Kong University of Science and Technology, Hong Kong

A total of 37 technical sessions were chaired by ASPTC members at ISCAS 2010, as listed below:

Sessions sponsored by Analog Signal Processing:

Session Name	Chair
Continuous-Time Sigma-Delta Converters (Lecture)	Luis Hernandez
Basic Amplifiers (Lecture)	Jorge Fernandes
Sigma-Delta: Filters & DACs (Lecture)	Robert Sobot
Circuits for Wireless Systems (Lecture)	Luis Oliveira
Calibration Techniques for Data Converters (Lecture)	Jose Silva-Martinez
Switching Amplifiers & Feedback Techniques (Lecture)	Gregorio Cappuccino
Regulators & DC/DC Converters (Lecture)	Mohamad Sawan
Special & Current-Mode Filters (Lecture)	Viktor Gruev
Specialty Amplifiers (Poster)	Igor Filanovsky
Continuous-Time Signal Processing (Poster)	Albert Wang

Amplifiers, Filters & Sensor Interfaces (Poster)	Maysam Ghovanloo
Analog Techniques (Poster)	Shahriar Mirabbasi
Successive Approximation ADCs (Lecture)	Randall Geiger
Analog Building Blocks (Lecture)	Salvatore Pennisi
References & Power Converter Circuits (Lecture)	Vadim Ivanov
Pipelined & Flash ADCs (Lecture)	Tony Chan Carusone
Analog Circuits & IC Technology (Lecture)	George Yuan
Mixed-Signal Test I (Lecture)	Tuna Tarim, Non-member co-chair: Rajeev Dokania
Oscillators for Wireless Applications (Lecture)	Alyssa Apsel
Sigma-Delta Systems & Techniques (Lecture)	Gabor Temes
Wireless Circuits & Systems (Lecture)	Thierry Taris
Circuit Theory & Techniques (Lecture)	Paul Sotiriadis
Sigma-Delta Applications (Lecture)	Anas Hamoui
Complex Amplifiers (Lecture)	Gaetano Palumbo
Data Converter Techniques (Lecture)	Degang Chen
Interfaces for Wireless Sensor Networks (Lecture)	Byunghoo Jung
MEMS Interfaces (Lecture)	Hanspeter Schmid
Digital to Analog Conversion Techniques (Lecture)	Joseph Chang
Mixed-Signal Test II (Lecture)	P.R. Mukund Non-member co-chairs: Mustansir Mukadam and Xuan Zhang
Gm-C & Active-RC Filters (Lecture)	Robert Sobot
Sigma-Delta Conversion I (Poster)	Tor Lande
Sigma-Delta Conversion II (Poster)	Shahriar Mirabbasi
Pipelined ADCs (Poster)	Randall Geiger
High Performance Data Converters (Poster)	Jose M. de la Rosa
References & Converter Circuits (Poster)	Gabriel Rincon-Mora
Oscillators & Time/Phase-Domain Circuits (Poster)	Igor Filanovsky
High-Speed Circuits (Poster)	Gregorio Cappuccino

Our committee members also contributed to ISCAS 2010 as:

Technical Program Co-Chair: Wouter Serdijn

ASP Track Chairs: Alyssa Apsel, Viktor Gruev, and Shahriar Mirabbasi

Special Sessions organizers: Paul Sotiriadis, Jorge Fernandes, Luis Hernandez

Tutorial Presenters: Jose M. de la Rosa, Gabriel Rincon-Mora

2. CASS-sponsored and/or Other conferences, meetings and committees

Members of ASPTC are active in organizing and coordinating many other conferences and meetings in the CAS field. These activities are summarized in the following list:

IEEE CASS Board of Governors

Mohamad Sawan

Wouter Serdijn

Tuna Tarim

Tony Chan Carusone (Solid-State Circuit Society Representative to CASS)

IEEE CASS Administrative Vice President

Tuna Tarim

IEEE Circuits and Systems Society Mac Van Valkenburg Award Subcommittee

Gabor Temes (Chair)

IEEE Circuits and Systems Society Meritorious Service Award Subcommittee

Tor Sverre Lande

IEEE Circuits and Systems Society Vitold Belevitch Award Subcommittee

Gabor Temes

Guillemin-Cauer and Darlington Awards Committee

Wouter A. Serdijn (EIC TCAS-I), Chair

Mohamad Sawan (DEIC TCAS-II)

Un-Ku Moon (Expert nominated by VP Pubs)

IEEE CASS Nominations Committee

Wouter A. Serdijn

TBioCAS Best Paper Award Committee

Tor Sverre Lande (TBioCAS EIC)

Andreas Demosthenous (Expert nominated by VP Pubs)

Young Author Award Committee

Wouter A. Serdijn (EIC TCAS-I)

Tor Sverre Lande (TBioCAS EIC)

Budget Committee

Tuna Tarim

Fellows Evaluating Committee

Ramesh Harjani

Randy L Geiger

Gaetano Palumbo

IEEE CASS Conference Division

Wouter A. Serdijn

IEEE CASS Publication Activities

Mohamad Sawan

IEEE CASS ExCom

Tuna Tarim

IEEE Biomedical Circuits and Systems Conference (BioCAS)

Mohamad Sawan, Technical Program Co-Chair

Ralph Etienne-Cummings, Tutorial Presenter

Paul Sotiriadis, Technical Program Committee

Pedram Mohseni, Technical Program Committee

Viktor Gruev, Technical Program Committee

Sameer Sonkusale, Technical Program Committee

Andreas Demosthenous, Technical Program Committee

Wouter A. Serdijn, Technical Program Chair

IEEE International Conference on Electronics, Circuits and Systems (ICECS)

Jose M. de la Rosa, Technical Program Committee

Mohamad Sawan, Tutorial Presenter

Wouter A. Serdijn, Special Session Co-Chair

Anas Hamoui, Technical Program Chair

IEEE International NEWCAS Conference

Mohamad Sawan, General Chair

Anas Hamoui, Special Sessions Chair

IEEE Custom Integrated Circuits Conference (CICC)

Ramesh Harjani, Technical Program Committee

Ramesh Harjani, Educational Sessions Chair

Shahriar Mirabbasi, Technical Program Committee

Tony Chan Carusone, Technical Program Committee

Symposium on Integrated Circuits and Systems Design

Paul Sotiriadis, Technical Program Committee

Nano-Nets - Fourth International ICST Conference on Nano-Networks

Paul Sotiriadis, Technical Program Committee

IEEE High Speed Workshop 2010

Valencia Joyner, Technical Program Committee

IEEE Workshop on Optical Wireless Communications - GLOBECOM

Valencia Joyner, Technical Program Committee

IEEE Sensors Conference

Sameer Sonkusale, Technical Program Committee

Viktor Gruev, Technical Program Committee

International System on Chip Conference

Sameer Sonkusale, Technical Program Committee

Great Lakes Symposium on VLSI Circuit

Sameer Sonkusale, Technical Program Committee

Midwest Symposium on Circuits and Systems

Jose Silva Martinez, Track Chair of "Analog Circuits and Signal Processing, 2010

Symposium on Integrated Circuits and Systems Design

Jose Silva Martinez, Technical Program Committee

IEEE International Conference on Portable Information Devices

Ramesh Harjani, Technical Program Committee

IEEE Circuits & Systems for Medical & Environmental Applications Workshop

Ramesh Harjani, Technical Program Committee

The International Symposium on Quality Electronic Design (ISQED)

Dongsheng Brian Ma, Technical Program Committee

The Applied Power Electronics Conference and Exposition (APEC)

Dongsheng Brian Ma, Technical Program Committee

IEEE International Solid-State Circuits Conference (ISSCC)

Un-Ku Moon, Technical Program Committee

Ralph Etienne-Cummings, Technical Program Committee

VLSI Circuits Symposium

Un-Ku Moon, Technical Program Committee

IEEE International Mixed-Signals, Sensors, and Systems Test Workshop

Viktor Griev, Technical Program Committee

IEEE/NIH LiSSA 2009 special session on Circuits and Systems activity in Life science area

Viktor Gruev,

IEEE International Conference on Computer Design (ICCD)

Andreas Demosthenous, Technical Program Committee

Conference on Ph.D. Research in Microelectronics & Electronics (PRIME)

Andreas Demosthenous, Review Committee Member

VLSI Circuits Symposium

Un-Ku Moon, Technical Program Committee

IEEE European Solid-State Circuits Conference (ESSCIRC)

Andreas Demosthenous, Technical Program Committee

IEEE NORCHIP Conference

D.T. Wisland, Technical Program Committee

Symposium on Integrated Circuits and Systems Design

D.T. Wisland, Technical Program Committee

Solid-State Systems Symposium

D.T. Wisland, Technical Program Committee

Second Asia Pacific Conference on Postgraduate Research in Microelectronics and Electronics (PrimeAsia2010)

Wouter A. Serdijn, International Advisor

Workshop on Intelligent Solutions in Embedded Systems

Gaetano Palumbo, Program Committee

IEEE Solid-State Circuits Adcom

Tony Chan Carusone (Solid-State Circuit Society Representative to CASS)

3. Editorial boards and Publications (Books, Book Chapters, and Journals)

Members of the ASPTC were active on the editorial boards of IEEE and CAS-related journals and transactions, and in promoting ASP and CAS in other publications generally, as summarized below:

Editorial boards

IEEE Transactions on Circuits and Systems I

Editor-in-Chief : Wouter A. Serdijn (2010 and 2011)

Deputy Editor-in-Chief: Wouter A. Serdijn (2008 and 2009)

Associate Editors: Joseph Sylvester Chang, Andreas Demosthenous, Felix Lustenberger, Shahriar Mirabbasi, Hanspeter Schmid, Igor Filanovsky, Gaetano Palumbo, Shanthi Pavan, Anas Hamoui, Jose Silva-Martinez

Guest Editor : Shahriar Mirabbasi, Wouter A. Serdijn

IEEE Transactions on Circuits and Systems II

Deputy-Editor-in-Chief (2010): Mohamad Sawan

Editor-in-Chief (2009): Tony Chan Carusone

Deputy-Editor-in-Chief (2009): Un-Ku Moon

Associate Editors: Pedram Mohseni, Alyssa Apsel, Gabriel A. Rincón-Mora, Maysam Ghovanloo, Joseph Sylvester Chang (2009), Deuk Heo, Pavan Kumar Hanumolu (2009), Salvatore Pennisi (2009), Paul Sotiriadis (2009), Salvatore Pennisi (2009)

IEEE Transactions on Biomedical Circuits and Systems

Steering Committee: Mohamad Sawan

Associate Editor: Pedram Mohseni, Mohamad Sawan, Ralph Etienne-Cummings, Anas Hamoui

IEEE CASS Electronics Newsletter

Andreas Demosthenous, Associate Editor

IEEE Journal of Solid-State Circuits

Guest Editor: Ramesh Harjani

Guest Editor: Tony Chan Carusone

Associate Editor: Un-Ku Moon

IEEE Sensors Journal

Senior Associate Editor: Ralph Etienne-Cummings

Journal of Applied Research and Technology Member of editorial board: Jose Silva-Martinez

Journal of Physiological Measurement, IOP

Andreas Demosthenous, International Advisory Board

Journal Analog Integrated Circuits and Signal Processing

Associate Editor : Gabor Temes

Editorial Board: Anas Hamoui

Journal of Healthcare Engineering

International Editorial Board: Mohamad Sawan

International Journal of Circuit Theory and Applications

Editorial Board: Mohamad Sawan

Springer Publisher in the field of Analog and biomedical books

Advisor: Mohamad Sawan

Journal of Electrical and Computer Engineering, Hindawi Publishing Corporation

Member of the Editorial Board: Jose Silva-Martinez

Micro-electronics Journal

Member of the Editorial Board: Jose Silva-Martinez

International Science & Technology Transactions

Member of the Editorial Board: Jose Silva-Martinez

Research Letters in Electronics, Hindawi Publishing Corporation

Member of the Editorial Board: Jose Silva-Martinez

Recent Patents on Electrical Engineering

Member of the Editorial Board: Jose Silva-Martinez

Journal of Applied Research and Technology

Member of the Editorial Board: Jose Silva-Martinez

Books and book chapters

- [1] D.J.R. Cristaldi, S. Pennisi, F. Pulvirenti, Liquid Crystal Display Drivers - Techniques and Circuits, Springer, 2009.
- [2] Jose Silva-Martinez and Aydin Karsilayan, "Continuous-Time Filters with On-Chip Tuning," (Book chapter; Advanced Analog Circuit Design, Arthur van Roermund, Herman Casier and Michiel Steyaert, Editors; 2009.
- [3] Jose Silva-Martinez, Cho-Ying Lu, Marvin Onabajo, Fabian Silva-Rivas, Vijay Dhanasekaran and Manisha Gambhir, "Wideband Continuous-Time Multi-Bit Delta-Sigma ADCs," book chapter in Advanced Analog Circuit Design, Arthur van Roermund, Herman Casier and Michiel Steyaert, Editors; Kluwer Publishers, to be published 2010.
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- [5] NADERI, A., SAWAN, M., SAVARIA, M., "Undersampling Delta-Sigma Modulators: Theory, Design and Implementation", Book, Lambert Academic Publishers, 2009.
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Journal publications

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- [6] D. Marano, G. Palumbo, S. Pennisi, "Improved Power-Efficient RNMC Technique with Voltage Buffer and Nulling Resistors for Low-Power High-Load Three-Stage Amplifiers", Journal of Circuits, Systems, and Computers, Vol. 18, No. 7, pp. 1321-1331, Nov. 2009.
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Invited Talks/Lectures

1. P. Mohseni, "Integrated circuits and systems for brain neuromonitoring and microstimulation," Neural Prosthesis Seminar Series, Case Western Reserve University, Cleveland, OH, January 15, 2010.
2. P. Mohseni, "A wireless integrated microsystem for time-share chemical and electrical neural recording," Dept. of Electrical Engineering, Sharif University of Technology, Tehran, Iran, March 8, 2009.
3. Jose Silva-Martinez, "Wideband Continuous-Time Multi-Bit Delta-Sigma ADCs," Advanced Analog Circuit Design workshop, Grantz, Austria, March 30-April 1, 2010.
4. Jose Silva-Martinez and Aydin Karsilayan, "Continuous-Time Filters with On-Chip Tuning," Advanced Analog Circuit Design workshop, Lund Sweden, March 30-April 1, 2009.
5. Jose Silva-Martinez, "IC Design Techniques for High-Performance Sigma-Delta Modulators", 20 Hrs course, Polytechnical University of Catalunya, Barcelona Spain, May 2010.
6. Ralph Ettienne-Cummings, Hong Kong University of Science and Technology, Hong Kong, P.R. China, May 2009.
7. Ralph Ettienne-Cummings, JHU Applied Physics Laboratory, Laurel, MD, August 2009.
8. Ralph Ettienne-Cummings, Center for Research in Minority Institutions, U. Hawaii - Manoa, HI, October 2009.

9. Ralph Ettienne-Cummings, Bodian Lecture, Mind-Brain Institute, JHU, Baltimore, MD, November 2009.
10. Ralph Ettienne-Cummings, Morgan State University, Baltimore, MD, November 2009.
11. SAWAN M., "Efficient Wireless Power Recovery and Bidirectional Data Transmission in Smart Medical Devices", Invited talk at CMC Microsystems Wearable Wireless Devices for Bio-Medical Applications Workshop, Montreal, February 2010.
12. SAWAN M., "Multi-modes high performance digital pixel sensor for visual intracortical microstimulation", Invited talk at CMC Microsystems Bioimaging for Bio-Sensing Applications Workshop, Montreal, November 2009.
13. SAWAN M., "Emerging CMOS-Based biosensing technologies", Tutorial at The Symposium on Integrated Circuits and Systems Design (SBCCI), Brazil, Sept. 2009.
14. SAWAN M., "Capacitive Sensing Technique Dedicated for Biodiagnostic Microsystems", Tutorial at The the 19th European Conference on Circuit Theory and Design (ECCTD), Turkey, Sept. 2009.
15. Wouter A. Serdijn, ISCAS 2010 PhD/GOLD Special Session "How to Have a Successful Academic Career", 31 May 2010

4. **Other professional recognitions**

IEEE Fellow

Albert Wang (2009)
 Un-Ku Moon (2009)
 Robert Bogdan Staszewski (2009)
 Tor Sverre Lande (2010)
 Jose Silva-Martinez (2010)

2009 Mac Van Valkenburg Award from CASS

Gabor Temes

NSF Faculty Early Career Development (CAREER) Award

Valencia Joyner
 Pedram Mohseni
 Sameer Sonkusale
 Dongsheng Brian Ma

IEEE Circuits and Systems Society Darlington Outstanding Paper Award

Shanthi Pavan

Swarnajayanthi Fellowship Award from the Department of Science and Technology, Govt. of India, 2009. (This is given to researchers below 40 years of age - one award in all branches of engineering, all over India)

Shanthi Pavan

Young Faculty Recognition Award from Indian Institute of Technology - Madras, for excellence in teaching and research.

Shanthi Pavan

"Technomenter Award" - given by the India Semiconductor Association, for outstanding contributions to the area of Micro/Nano Electronics and VLSI.

Shanithi Pavan

Frontier Trends in Microelectronics, Best Poster Award, 2009

Sameer Sonkusale

International Semiconductor Device Research Symposium, Best Poster Award, 2009

Sameer Sonkusale

2009, Best Graduate Thesis Award, College of Engineering, The University of Arizona, (as thesis advisor of Ms. Ling Su);

Dongsheng Brian Ma

2009, Nominated for University of Arizona Accolades Outstanding Faculty Award;

Dongsheng Brian Ma

2009, 1st Place Winner in 52nd IEEE International Midwest Symposium on Circuits & Systems Student Paper Contest (as student advisor of Rajdeep Bondade)

Dongsheng Brian Ma

IEEE CASS Distinguish Lecturer

Ralph Etienne-Cummings

IEEE Solid-State Circuits Society Distinguished Lecturer

Un-Ku Moon

Outstanding Paper Award, International Conference on Mixed Design of Integrated Circuits and Systems (MIXDES'09)

Luis Oliveira

National Semiconductor VL Distinguished Faculty, National Semiconductor University

Wouter A. Serdijn

5. 2009-2010 planned activities

ASPTC remains strongly committed to promote CAS interests in the ASP field, and assist with organizing and coordinating CASS-sponsored activities, such as ISCAS 2011. We will continue to seek close working relationships with other CASS technical committees in co-organizing events of inter-disciplinary nature, as we have done for special sessions and tutorials at ISCAS and MWSCAS in recent years. We will also maintain a broader influence in other societies such IEEE-CS and IEEE-SSCS. Finally, we hope to continue with an annual special section devoted to excellent papers in the area of analog signal processing in TCAS-I.

Sharhiar Mirabbasi, Chair, June 29, 2010