OUR TEAM

SKL-AMSV Leadership Team

Rui Paulo da Silva Martins, Director
Seng-Pan U, Deputy Director
Pui-In Mak, Associate Director (Research) & Wireless Research Line Coordinator
Sai-Weng Sin, Teaching Coordinator & Data Conversion Research Line Coordinator
Mang-I Vai, Biomedical Research Line Coordinator
Man-Chung Wong, Integrated Power Research Line Coordinator

SKL-AMSV Faculty

Man-Kay Law, Assistant Professor
Sio-Hang Pun, Assistant Professor
Yan Zhu, Assistant Professor
Chi-Seng Lam, Assistant Professor
Yan Lu, Assistant Professor
Jun Yin, Assistant Professor
Chi-Hang Chan, Assistant Professor
Yanwei Jia, Assistant Professor
Yong Chen, Assistant Professor
Ka-Fai Un, Macao Fellow
Ka-Meng Lei, Macao Fellow

SKL-AMSV Administrative and Technical Staff

Weng-Keong Che, Technology Transfer Officer
Fan Ng, Functional Head of Administration
Un-Pang Lei, Administrative Officer
Chi-Wai Tang, Senior Administrative Assistant
Yuen-Ki Chan, Senior Administrative Assistant
Pui-Wan Sou, Administrative Assistant
Sut Wai Ieong, Administrative Assistant

SKL-AMSV Scientific Advisory Board Members

Franco Maloberti, University of Pavia, Italy
Zhiliang Hong, Fudan University, China
Zhihua Wang, Tsinghua University, China
Behzad Razavi, University of California, Los Angeles, USA
Howard Cam Luong, Hong Kong University of Science & Technology, Hong Kong
Ming-Dou Ker, National Chiao-Tung University, Taiwan
Hoi-Jun Yoo, Korea Advanced Institute of Science and Technology, Korea
Akira Matsuzawa, Tokyo Institute of Technology, Japan
Michiel Steyaert, Katholieke Universiteit Leuven, Begium
Bram Nauta, University of Twente, Netherlands
Chris Mangelsdorf, Analog Devices
Bang-Sup Song, University of California, San Diego, USA
Jacob Baker, University of Nevada, Las Vegas, USA

Rui Paulo da Silva Martins

Vice-Rector (Research), U. of Macau
Chair Professor ECE, IEEE Fellow
Academician, Academy of Sciences of Lisbon, Portugal
Director, State Key Laboratory of AMS-VLSI

Rector's Office, N6-5033, University of Macau, Taipa, Macau, China
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RESEARCH INTERESTS

Data Conversion and Signal Processing
Wireless IC
Biomedical IC
Integrated Power Electronics
Multidisciplinary Area of Microfluidics, Lab-on-a-Chip

PROFESSIONAL SERVICES

- Chairman, IEEE CAS Society Fellow Evaluation Committee, Class of 2018
- General Chair, ACM/IEEE ASP-DAC 2016
- Nominations Committee Member, IEEE CAS Society 2016
- Division I (CASS, EDS, SSCS) – Director of IEEE, Nominating Committee, Representative of CASS, 2014
- IEEE CAS Society Fellow Evaluation Committee, Classes of 2013-2014
- Vice-President (World), Regional Activities and Membership of the IEEE CAS Society 2012-2013
- Associate Editor, IEEE TCAS-II 2010-2013
- Vice-President (Region 10/Asia, Australia, The Pacific) IEEE CAS Society 2009-2011
- General Chair, IEEE APCCAS 2008
- Founding Chairman, IEEE Macau Chapter CAS/COM, 2005-2008
- Founding Chairman, IEEE Macau Chapter, 2003-2005

AWARDS

- IEEE Council on Electronic Design Automation (CEDA) Outstanding Service Award 2016, Tokyo, Japan.
- Business Awards of Macau – Innovation Excellence Award, 2014 (attributed to the SKL-AMSV)
- Macao Science & Technology Invention Awards 2012, 2014, and 2016
- IEEE ISSCC Silk-Road Award 2011 and 2016 (as co-supervisor)
- IEEE Circuits and Systems Society "World-Chapter of the Year" 2009 (as Founding Chapter Chair)
- "Honorary Title of Value", Decoration attributed by the Macao Special Administrative Region Government (Chinese Administration), 2001
- "Medal of Merit (Class of Professional Merit)", Decoration attributed by the Macao Government (Portuguese Administration), 1999

THESIS SUPERVISED (OR CO-SUPERVISED)

19 Ph.D.
21 M.Sc.

SELECTED PUBLICATIONS

- K-M Lei, H. Heidari, P.-I. Mak, M.-K. Law, F. Maloberti, R. P. Martins, "A Handheld High-Sensitivity Micro-NMR CMOS Platform With B-Field Stabilization for Multi-Type Biological/Chemical Assays", IEEE Journal of Solid-State Circuits, pp. 284-297, vol. 52, No.1, Jan. 2017.

- J. G, X. Liu, T. Chen, P-I Mak, Y. Du, M-I Vai, B. Lin, R.P.Martins, "An intelligent digital microfluidic system with fuzzy-enhanced feedback for multi-droplet manipulation", Lab on a Chip, Royal Society of Chemistry, Vol.13, Issue 3, pp.443-451, 2013.

- Z. Yan, P.-I. Mak, M.-K. Law and R. P. Martins, "A 0.016-mm^2 144-μW Three-Stage Amplifier Capable of Driving 1-to-15 nF Capacitive Load with >0.95-MHz GBW," IEEE Journal of Solid-State Circuits, vol. 48, pp. 527-540, Feb. 2013.
  P.-I. Mak and R. P. Martins, "A 0.46-mm2 4-dB NF Unified Receiver Front-End for Full-Band Mobile TV in 65-nm CMOS," IEEE Journal of Solid-State Circuits, pp. 1970-1984, vol. 46, Sep. 2011.

- Y. Zhu, C.-H. Chan, U-F. Chio, S.-W. Sin, S.-P. U, R.P. Martins, and F. Maloberti, "A 10-bit 100-MS/s Reference-Free SAR ADC in 90nm CMOS," IEEE Journal of Solid-State Circuits, vol. 45, no. 6, pp. 1111 -1121, Jun 2010.

Seng-Pan U (Ben)

General Manager and Senior Analog Design Manager of Synopsys - Chipidea Microelectronics (Macau) Ltd.
Visiting Professor (Part-Time), IEEE Fellow
Deputy Director, State Key Laboratory of AMS-VLSI

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RESEARCH INTERESTS

Data Conversion and Signal Processing
Analog and Power Management ICs
Analog Front-End Systems (Audio Video, Wireless)
Serdes Wireline ICs

PROFESSIONAL SERVICES

- Member, Sci&Tech Council of China Ministry of Edu., 2016-
- Member, Sci&Tech Council of Macau SAR, 2016 -
- President, IEEE Macau Section, 2016-2018
- President, Macau Industry-University-Research Institute Collaboration Association, 2016 - Present
- Founder & Honorary Chair, IEEE SSCS Chapter, 2009-
- Honorary Chairman, IEEE CAS/COM Chapter, 2010-
- ITPC Member (Data Converter Subcommittee) & China Country Representative, IEEE ISSCC, 2015-
- Chairman, Data Converters Subcommittee, IEEE Asian Solid-State Circuits Conf. (A-SSCC), 2017- (09-16 TPC)
- Chairman, Ana. Mixed-Signal & RF Design Subcom., The Int. Sym. VLSI Des. Auto. & Test (VLSI-DAT), 2012 -
- Editorial Board Member, Springer Journal of Analog Integrated Circuits and Signal Processing, 2012-
- IEEE SSCS Distinguished Lecturer, 2014-2015
- Local Organization Chair, IEEE A-SSCC, 2019
- Tech. Program Co-Chair, PRIME-ASIA, 2011
- Tech. Program Co-Chair, IEEE APCCAS 2008

AWARDS

- National State Sci. & Tech. Progress Award, 2011
- He Leung Ho Lee Fund. S&T. Innovation Award, 2010
- Scientific Chinese of the Year Award, 2012
- "Honorary Title of Value", Macau SAR Decoration, 2010
- Macau Sci. & Tech. Invention Awards 2012, 2014, 2016
- Macau Sci. & Tech. Progress Awards 2012, 2014, 2016
- Macau Business Awards - Research Achi. Award, 2013
- IEEE Solid-State Circuit Society "Outstanding Chapter Award" 2013 (as Founding Chapter Chairman)
- IEEE Circuits and Systems Society "World-Chapter of the Year" 2009 (as Chapter Secretary)
- IEEE ESSCIRC Best Paper Award, 2014 (as co-author)
- IEEE SSCS Pre-doc Achi. Award, 2015 (as supervisor)
- IEEE ISSCC Silk-Road Award, 2011 (as supervisor)
- IEEE A-SSCC SDC Winner Award, 2011 (as supervisor)

THESIS SUPERVISED (OR CO-SUPERVISED)

8 Ph.D., 26 M.Sc., 36 B.Sc. (Final Year Project)

SELECTED PUBLICATIONS

- M. Huang, Y. Lu, S-P U, R.P. Martins, "A Reconfigurable Bidirectional Wireless Power Transceiver with Max Current Charging Mode and 58.6% Battery-to-Battery Efficiency," IEEE ISSCC Dig. Tech. Papers, pp.376-377, Feb. 2017.

- M. Huang, Y. Lu, S-P. U, R.P. Martins, "An Output-Capacitor-Free Analog-Assisted Digital Low-Dropout Regulator with Tri-loop Control", IEEE ISSCC Dig. of Tech. Papers, pp.376-377, Feb. 2017.

- C-H. Chan, Y. Zhu, H-I. Meng, Z-W. Hong, S-P. U, R.P. Martins, "A 5mW 7b 2.4GS/s 1-then-2b/cycle SAR ADC with Background Offset Calibration", IEEE ISSCC Dig. of Tech. Papers, pp. 282-284, Feb. 2017.

- Y. Zhu, C-H. Chan, S-P. U, R.P. Martins, "An 11b 450MS/s 3-way TI Sub-ranging Pipelined-SAR ADC in 65nm CMOS", IEEE J. Solid-State Circuits, vol.51, pp.1223-34, May 2016.

- C-H Chan, Y.Zhu, S-W Sin, S-P. U, R.P.Martins. "A 6b 5GS/s 4 Interleaved 3b/Cycle SAR ADC", IEEE J. Solid-State Circuits, vol.51, Issue2, pp.365-377, Nov.2015. & IEEE ISSCC Dig. of Tech. Papers, pp.466-8, Feb. 2015. S-S Wong, U-F Chio, Y.Zhu, S-W Sin, S-P. U, R.P.Martins "A 2.3mW 10-bit 170MS/s Two-Step Binary-Search Assisted Time-Interleaved (TI) SAR ADC," IEEE J. Solid-State Circuits. vol. 48, Issue 8, pp.1783-1794, Aug. 2013 & Proc. of IEEE CICC, pp.1-4, Sep 2012.

Pui-In Mak (Elvis)

Associate Professor, IEEE Senior Member
Associate Director (Research),
State-Key Laboratory of AMS-VLSI

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RESEARCH INTERESTS

3G/4G/5G Transceivers (sub-6GHz, >28 GHz)
IoT Transceivers (Bluetooth LE, ZigBee, NB-IoT)
Analog Techniques (amplifier, filter, crystal oscillator)
Portable In-Vitro Diagnostic Devices (DNA, proteins)
Microfluidic Technologies (digital, channel, hybrid)
Biomedical Readout Interfaces (EEG, ECG)

PROFESSIONAL SERVICES

- Board of Governor, IEEE CASS 2009-2011
- Distinguished Lecturer, IEEE SSCS 2017-2018
- Distinguished Lecturer, IEEE CASS 2014-2015
- Editorial Board Member, IEEE Press 2014-2016
- Senior Editor, IEEE JETCAS 2014-2015
- Associate Editor, IEEE TCAS-I 2010-2011, 2014-2015
- Associate Editor, IEEE TCAS-II 2010-2013
- Guest Editor, IEEE JSSC 2018
- Guest Editor, IEEE RFIC Virtual Journal 2013
- TPC Vice-Chair, IEEE/ACM ASPDAC 2016
- TPC Member, IEEE ISSCC 2017-Present
- TPC Member, IEEE ESSCIRC 2016-Present
- TPC Member, IEEE A-SSCC 2014-2016

AWARDS

- National Scientific & Technological Progress Award'11
- Macao Science & Technology Invention Awards'12'14'16
- Honorable Title of Value, Macau Government'06
- University of Cambridge Visiting Fellowship'09
- Invited Distinguished Speaker, Qualcomm-USA'17
- Invited Keynote Speaker, IEEE PRIME/SMACD'16
- Invited Keynote Speaker, IEEE'RFID-TA'16
- IEEE ISSCC Silkroad Award'16
- IEEE A-SSCC Distinguished Design Award'15
- IEEE TCAS-II Best Associate Editor'12-'13
- IEEE CASS Outstanding Young Author Award'10
- IEEE SSCS Pre-Doctoral Achievement Awards 14'15'17 (as advisor)

CURRENT GROUP MEMBERS

Ph.D.

Tantan Zhang, 2010 (co-supervisor)
Cheng Dong, 2012 (co-supervisor)
Wei-Han Yu, 2012
Chak-Fong Cheang, 2012
Gengzhen Qi, 2013
Xingqiang Peng, 2014
Haidong Yi, 2015
Chao Fan, 2016

M.Sc.

Tongquan Jiang, 2014 (co-supervisor)

POST-DOC./R.A.

Jie Gao, 2015
Liang Wan, 2015
Tianlan Chen, 2017

SELECTED PUBLICATIONS

- K.-M. Lei, H. Heidari, P.-I. Mak, M.-K. Law, F. Maloberti and R. P. Martins, "A Handheld High-Sensitivity Micro-NMR CMOS Platform with B-Field Stabilization for Multi-Type Biological/Chemical Assays," IEEE Journal of Solid-State Circuits (JSSC), vol. 52, Jan. 2017. [Also in ISSCC 2016]

- F. Lin, P.-I. Mak and R. P. Martins, "An RF-to-BB-Current-Reuse Wideband Receiver with Parallel N-Path Active/ Passive Mixers and a Single-MOS Pole-Zero LPF," IEEE Journal of Solid-State Circuits (JSSC), vol. 49, pp. 2547-2559, Nov. 2014. [Also in ISSCC'14]

- Z. Lin, P.-I. Mak and R. P. Martins, "A 2.4-GHz ZigBee Receiver Exploiting an RF-to-BB-Current-Reuse Blixer + Hybrid Filter Topology in 65-nm CMOS," IEEE Journal of Solid-State Circuits (JSSC), vol. 49, pp. 1333-1344, Jun. 2014. [Also in ISSCC'13]

- Z. Yan, P.-I. Mak, M.-K. Law and R. P. Martins, "A 0.016-mm^2 144-μW Three-Stage Amplifier Capable of Driving 1-to-15 nF Capacitive Load with >0.95-MHz GBW," IEEE Journal of Solid-State Circuits (JSSC), vol. 48, pp. 527-540, Feb. 2013. [Also in ISSCC'12]

- P.-I. Mak and R. P. Martins, "A 0.46-mm^2 4-dB NF Unified Receiver Front-End for Full-Band Mobile TV in 65-nm CMOS," IEEE Journal of Solid-State Circuits (JSSC), pp. 1970-1984, vol. 46, Sept. 2011. [Also in ISSCC'11]

Sai-Weng Sin

Associate Professor, IEEE Senior Member
Academic Coordinator,
State-Key Laboratory of AMS-VLSI

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RESEARCH INTERESTS

High-Performance Data Converters
- Pipelined, SAR, Flash, Binary Search, etc…
- Oversampling Data Converters

Power Management Integrated Circuits
Analog and Mixed-Signal Integrated Circuits
Low Voltage Switched-Capacitor Circuits
Integrated Analog Front-Ends

PROFESSIONAL SERVICES

- TPC and SDC Member, A-SSCC 2013-Present
- Publication Chair, ASPDAC 2016
- TPC Member, VLSI-SoC 2015
- TPC Member, The International Wireless Symposium
- Secretary, IEEE Solid-State Circuit Society (SSCS) Macau Chapter, 2009-2016
- Treasurer/Secretary, IEEE Macau CAS/COM Joint Chapter, 2009-2016

AWARDS

- Co-recipient of Third Class, Macau Scientific and Technological Invention Award, 2016
- Co-recipient of Second Class, Macau Scientific and Technological Invention Award, 2012, 2014
- Co-recipient of Second Class, State Scientific and Technological Progress Award, China, 2011
- PRIME Silver Leaf Certificate 2015 (as advisor)
- Best Master Thesis Award in Tsinghua University 2012 (as co-advisor)
- Student Design Contest Award, A-SSCC 2011 (as co-advisor)
- Silk Road Award, ISSCC 2011(as co-advisor)

CURRENT GROUP MEMBERS

Ph.D.

Liang Qi, 2015
Dongyang Jiang, 2014
Jianwei Liu, 2012
Da Feng, 2010
Mingqiang Quo, 2014
Biao Wang, 2013
Dezhi Xing, 2012

M.Sc.

Song Cui, 2016
Hubert Liang, 2014
Jiaji Mao, 2013
Hanyu Wang, 2016
Jixuan Li, 2014

POST-DOCTORAL FELLOW

U-Fat Chio, 2012

R.A.

Luis Brochado Reis, 2016

SELECTED PUBLICATIONS

- Chi-Hang Chan, Yan Zhu, Sai-Weng Sin, Seng-Pan U, R. P. Martins, "A 5.5mW 6b 5GS/s 4-times Interleaved 3b/cycle SAR ADC in 65nm CMOS," in IEEE International Solid-State Circuit Conference (ISSCC), 2015.

- He-Gong Wei, Chi-Hang Chan, U-Fat Chio, Sai-Weng Sin, Seng-Pan U, R. P. Martins and F. Maloberti, "A 0.024mm^2 8-bit 400 MS/s SAR ADC with 2-bit per Cycle and Resistive DAC in 65 nm CMOS," in IEEE International Solid-State Circuit Conference (ISSCC), vol. 54, pp.188-189, Feb 2011.

- Si-Seng Wong, U-Fat Chio, Yan Zhu, Sai-Weng Sin, Seng-Pan U, Rui Paulo Martins, "A 2.3 mW 10-bit 170 MS/s Two-Step Binary-Search Assisted Time-Interleaved SAR ADC", in IEEE Journal of Solid-State Circuits. vol. 48, Issue 8, pp. 1783-1794, Aug 2013.

- Arshad Hussain, Sai-Weng Sin, Chi-Hang Chan, Seng-Pan U, Franco Maloberti, Rui Paulo Martins, "Active-Passive ΔΣ Modulator for High-Resolution and Low-Power Applications," in IEEE Transactions on Very Large Scale Integration (VLSI) Systems, vol. 25, no. 1, pp. 364 – 374, Jan 2017.

- Yuan Ren, Sai-Weng Sin, Chi-Seng Lam, Man-Chung Wong, Seng-Pan, U, R.P.Martins, " A High DR Multi-Channel Stage-Shared Hybrid Front-End for Integrated Power Electronics Controller", IEEE Asian Solid-State Circuit Conference – (A-SSCC), pp. 1-4, Nov 2016.

Vai Mang I

Associate Professor, IEEE Senior Member
President, Macau Society of Biomed. Eng.
Exec. Board Member, CSBME

Room 3013, 3/F, N21, University of Macau, Taipa, Macau, China
Tel.: +853-8822 4461 I Email: fstmiv@umac.mo

RESEARCH INTERESTS

Embedded Systems
Biomedical Electronics
Biomedical Signal Processing
Intra-Body Communication

PROFESSIONAL SERVICES

- General Chair, The Optoelectronics Global Conference (OGC) 2015, 2015
- Member of The IEEE Industrial Electronics Society (IES) Technical Committee on Cloud and Wireless Systems for Industrial Applications, since 2015
- Executive Board Member of the EEE EMBS Hong Kong - Macau Joint Chapter, since 2012
- Chair of IEEE Macau Section (2008-2009)
- Committee Member of Biomedical Electronics Society, the Chinese Institute of Electronics, since 2004
- Executive Board Member, Chinese Society of Biomedical Engineering (CSBME)
- Committee Member of Medical Neural Engineering Section, the Chinese Society of Biomedical Engineering, since 2010

CURRENT GROUP MEMBERS

Ph.D.

Chen Changhao, 2010
Yu Yuanyu, 2011
Zhang Shuang, 2011
Dong Cheng, 2012
Wang Jiujiang, 2012
Wang Panke, 2015
Sun Peng, 2015

M.Sc.

Cui Xutong, 2014
Wang Zhi Jiong, 2014
Liu Xin, 2014
Chen Zhimin, 2015
Han Yibo, 2015

R.A.

Huang Huajuan, 2016
Che U Kin, 2016

SELECTED PUBLICATIONS

- Xi Mei Chen, Shovan Barma, Sio Hang Pun, Mang I Vai, Peng Un Mak, "Direct Measurement of Elbow Joint Angle Using Galvanic Couple System," IEEE Transactions on Instrumentation and Measurement, 66(4), pp. 757-766, April, 2017

- Chang Hao Chen, Elizabeth A McCullagh, Sio Hang Pun, Peng Un Mak, Mang I Vai, Pui In Mak, Achim Klug, Tim C Lei, "An Integrated Circuit for Simultaneous Extracellular Electrophysiology Recording and Optogenetic Neural Manipulation," IEEE Transactions on Biomedical Engineering, 64(3), pp.557-568, March, 2017

- Jiujiang Wang, Sio Hang Pun, Peng Un Mak, Ching-Hsiang Cheng, Yuanyu Yu, Pui-In Mak, Mang I Vai, "Improved Analytical Modeling of Membrane Large Deflection With Lateral Force for the Underwater CMUT Based on Von Kármán Equations," IEEE Sensors Journal, 16(17), pp. 6633-6640, 2016

- Wenya Nan, João Pedro Rodrigues, Jiali Ma, Xiaoting Qu, Feng Wan, Pui-In Mak, Peng Un Mak, Mang I Vai, Agostinho Rosa, "Individual Alpha Neurofeedback Training Effect on Short Term Memory," International journal of psychophysiology, 86(1), pp. 83-87, October, 2012

- Sio Hang Pun, Yue Ming Gao, Peng Un Mak, Mang I Vai, Min Du, "Quasi-static Modeling of Human Limb for Intra-body Communications With Experiments," IEEE Transactions on Information Technology in Biomedicine, 15(6), pp. 870-876, November, 2011

Man Chung Wong
Associate Professor
IEEE Senior Member

Room 3012, 3/F, N21, University of Macau, Taipa, Macau, China
Tel.: +853-8822 4391 | Email: mcwong@umac.mo

RESEARCH INTERESTS

Integrated Power Electronics Controllers
Integrated DC-DC Converters
Power Quality Compensators
Renewable Energy
Smart Grid Technology

PROFESSIONAL SERVICES

- IEEE Region 10 Power and Energy Society North Representative (China, Macao, Hong Kong, Taiwan, Japan and South Korea)
- Chair, IEEE Macau Power & Energy and Power Electronics Joined Chapter, 2013~up to now.
- Chair, IEEE Macau Section, 2014~2015
- Vice Chair, IEEE Macau Section, 2010~2013
- General Chair of IEEE Region 10 Asia Pacific (TENCON) 2015 Conference
- Chair of Power Electronics Section and Organizing Committee Member in IEEE Asia-Pacific Conference on Circuits and Systems – APCCAS'2008
- Organizing Committee Member for IEEE/IEE
- Regional Inter-University Post-Graduate
- Electrical and Electronics Engineering Conference. – RIUPEEEC'2006
- Organizing Committee Member for Ninth International Symposium on Consumer Electronics (ISCE2005) at 2005

AWARDS

- Third-Class Award in Technology Invention Award given by FDCT (Macao Science and Technology Fund), "Design, Control and Application of Low-Loss Low-Cost Capacitive Coupling Current Quality Compensator (CCQC)", 2014.
- Third-Class Award in Technology Invention Award given by FDCT (Macao Science and Technology Fund), "Three-Dimensional Pulse Width Modulation Techniques and its Applications in Three-Phase Four-Wire Active Filters", 2012.
- Second Prize of Year 2003 Tsinghua University Excellent Ph. D. Thesis Award
- Young Scholar Award by University of Macau at Year 2001
- Macau Young Scientific Award by Macau International Research Institute at Year 2000

CURRENT GROUP MEMBERS

Ph.D.

Ya-Jie Wu, 2012
Wen-Liang Zeng, 2016

M.Sc.

Yi-Wei Tan, 2014
Wen-Ming Zheng, 2014
Xia Du, 2015
Jian-Yang Deng, 2015
Zi-Yang Lin, 2015

R.A.

Yuan Ren, 2017

POST - DOCTORAL FELLOW

U-Fat Chio, 2017
Lei Wang, 2017

SELECTED PUBLICATIONS

- M.-C. Wong, Y.-Z. Yang, C.-S. Lam, W.-H. Choi, N.-Y. Dai, Y.-j. Wu, C.-K. Wong, S.-W. Sin, U-F. Chio, S.-P. U, R.P. Martins, "Self-reconfiguration property of a mixed signal controller for improving power quality compensator during light loading," IEEE Transactions on Power Electronics, Oct. 2015.

- W.-L. Zeng, C.-S. Lam, W.-M. Zheng, S.-W. Sin, N.-Y. Dai, M.-C. Wong, S.-P. U, and R.P. Martins, "DCM operation analysis of KY converter," IET Electronics Letters, Nov. 2015.

- L. Wang, C.-S. Lam, M.-C. Wong, "Unbalanced control strategy for a thyristor controlled LC-coupling hybrid active power filter in three-phase three-wire systems", IEEE Transactions on Power Electronics, Feb. 2017.

- Y.-W. Tan, C.-S. Lam, S.-W. Sin, M.-C. Wong, S.-P. U, and R.P. Martins, "DCM operation analysis of 3-level boost converters," IET Electronics Letters, Feb. 2017.
  L. Wang, C.-S. Lam, M.-C. Wong, "Modeling and parameter design of thyristor controlled LC-coupled hybrid active power filter (TCLC-HAPF) for unbalanced compensation," IEEE Transactions on Industrial Electronics, Mar. 2017.

- L. Wang, C.-S. Lam, M.-C. Wong, "Selective compensation of distortion, unbalanced and reactive power of a thyristor controlled LC-coupling hybrid active power filter (TCLC-HAPF)," IEEE Transactions on Power Electronics, early access.

Man-Kay Law (Matthew)

Assistant Professor
IEEE Senior Member

Room 3006, 3/F, N21, University of Macau, Taipa, Macau, China
Tel.: +853-8822-8791 I Email: mklaw@umac.mo

RESEARCH INTERESTS

CMOS Image Sensor
CMOS Temperature Sensor
Analog Techniques/Sensor Interface Circuits
Voltage/Current References
Energy Harvesting Circuits and Systems
Switched-Capacitor DC-DC Converters

PROFESSIONAL SERVICES

- TPC Member, ISSCC 2018-Present
- OC/TPC Member, ASP-DAC 2016
- TC Member, IEEE CASS Sensory Systems Technical Committee, 2012-Present
- TC Member, IEEE CASS Biomedical Circuits and Systems Technical Committee, 2012-Present
- RC Member, IEEE Symposium on Circuits and Systems, 2012-Present
- RC Member, IEEE Biomedical Circuits and Systems Conference, 2012-Present

AWARDS

- ISSCC Silkroad Award, IEEE International Solid-State Circuits Conference, 2016 (as co-supervisor)
- ISSCC Student Travel Grant Award, IEEE Solid-State Society, 2015, 2016, 2017 (as supervisor/co-supervisor)
- Best Design Award, Asia and South Pacific Design Automation Conference, 2016 (as co-supervisor)
- A-SSCC Distinguished Design Award, IEEE Asian Solid-State Circuits Conference, 2015 (as co-supervisor)
- Student Paper Award, IEEE International Society for Quality Electronic Design, 2013 (as advisor)

CURRENT GROUP MEMBERS

Ph.D.

Tantan Zhang, 2010
Yang Jiang, 2012
Zhiyuan Chen, 2013
Mingzhong Li, 2015
Jiangchao Wu, 2016
Xin Lu, 2016

M.Sc.

Dapeng Sun, 2015
Ruping Xiao, 2015
Baoyi Cen, 2015
Yukun Xu, 2016

R.A.

Chenyan Cai, 2017

POST - DOCTORAL FELLOW

Kwan-Ting, 2015

SELECTED PUBLICATIONS

- Z. Chen, M.-K. Law, P.-I. Mak, W.-H. Ki and R. P. Martins, "A 1.7mm^2 Inductor-less Fully-Integrated Flipping-Capacitor Rectifier (FCR) for Piezoelectric Energy Harvesting with 483% Power Extraction Enhancement," in IEEE International Solid-State Circuit Conference (ISSCC), pp. 372-373, Feb. 2017.

- Z. Chen, M.-K. Law, P.-I. Mak and R. P. Martins, "A Single-Chip Solar Energy Harvesting IC using Integrated Photodiodes with a 67% Charge Pump Maximum Efficiency," IEEE Transactions on Biomedical Circuits and Systems, vol. 11, no. 1, pp. 44-53, Feb. 2017.

- B. Wang, M.-K. Law and A. Bermak, "A Precision CMOS Voltage Reference Exploiting Silicon Bandgap Narrowing Effect," IEEE Transactions on Electron Device, vol. 62, no. 7, pp. 2128-2135, Jul. 2015.

- D. G. Chen, F. Tang, M.-K. Law and A. Bermak, "A 12 pJ/pixel Analog-to-Information Converter based 816 x 640 Pixel CMOS Image Sensor," IEEE Journal of Solid-State Circuits, vol. 49, no. 5, pp. 1210-1222, May 2014.

- Z. Yan, P.-I. Mak, M.-K. Law and R. P. Martins, "A 0.016-mm^2 144-μW Three-Stage Amplifier Capable of Driving 1-to-15 nF Capacitive Load With > 0.95-MHz GBW," IEEE Journal of Solid-State Circuits, vol. 48, no. 2, pp. 527-540, Feb. 2013.

Sio Hang Pun
Assistant Professor

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Tel.: +853-8822 4467 | Email: lodgepun@umac.mo

RESEARCH INTERESTS

Biomedical Electronics
Neuroscience Applications
Capacitive Micro-machined Ultrasonic Transducers
Bio-electromagnetism
Intra-body Communication

PROFESSIONAL SERVICES

- Chair, IEEE Engineering on Biology and Medicine Engineering Society (EMBS) Hong Kong and Macau Joint Chapter, 2013
- Executive Committee Member, IEEE Engineering on Biology and Medicine Engineering Society (EMBS) Hong Kong and Macau Joint Chapter, 2012-2017
- Reviewer, IEEE Transaction on Biomedical Engineering
- Reviewer, IEEE Transactions on Ultrasonic, Ferroelectric, and Frequency Control
- Reviewer, IEEE Journal on Biomedical and Health Informatics
- Reviewer, IEEE Engineering on Biology and Medicine Engineering Conference (EMBC), 2009-2017

AWARDS

- 2016 IEEE International Conference on Consumer Electronics- China (ICCE-China 2016) (ICCE-China)
- Best Session Paper Award 2015 (as advisor)

CURRENT GROUP MEMBERS

Ph.D.

Changhao Chen, 2011
Yuanyu Yu, 2011
Jiujiang Wang, 2012
Panke Wang, 2015

M.Sc.

XuiTong Cui, 2015
Xin Lu, 2015

R.A.

U Kin Che, 2012

SELECTED PUBLICATIONS

- X. M. Chen, S. Barma, S. H. Pun, M. I. Vai and P. U. Mak, "Direct Measurement of Elbow Joint Angle Using Galvanic Couple System," IEEE Transactions on Instrumentation and Measurement, vol. 66, no. 4, pp. 757-766, April 2017.

- C. H. Chen, Elizabeth A. McCullagh, S. H. Pun, et al., "An Integrated Circuit for Simultaneous Extracellular Electrophysiology Recording and Optogenetic Neural Manipulation," IEEE Transactions on Biomedical Engineering, vol. 64, no. 3, pp. 557-568, March 2017.

- J. J. Wang, S. H. Pun, et al., "Improved Analytical Modeling of Membrane Large Deflection With Lateral Force for the Underwater CMUT Based on Von Kármán Equations," IEEE Sensors Journal, vol. 16, no. 17, pp. 6633-6640, Sept.1, 2016.

- Y.Y. Yu, S. H. Pun, et al., "Design of a Collapse-Mode CMUT With an Embossed Membrane for Improving Output Pressure," IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control, vol. 63, no. 6, pp. 854-863, June 2016.

- Gao, Yue-Ming; Wei, Jian-Chong; Mak, Peng-Un; Vai, Mang-I; Du, Min; Pun, Sio-Hang; "Development of a Calibration Strip for Immunochromatographic Assay Detection Systems", Sensors, vol. 16, No. 7, pp.1007-2016

Yan Zhu (Julia)
Assistant Professor

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RESEARCH INTERESTS

RF direct-sampled ADC
Pipeline SAR ADC
SAR ADC
SAR Type Reference Voltage
Multi-channels Interleaving Architectures
Stage Gain Calibration
Phase Domain ADC
Clock and PLL for ADC

PROFESSIONAL SERVICES

- Data Converter TPC Member, A-SSCC 2017
- Review of Journal Solid State Circuit
- Review of Transaction of Circuits and Systems I
- Review of Transaction Very Large Scale Integration

AWARDS

- Best Paper Award from IEEE European Solid-State Circuits Conference 2014
- Best Design Award in IEEE A-SSCC 2011 Student Design Contest
- Macau Scientific and Technological R&D Award in 2016
- Macau Scientific and Technological R&D Award in 2014
- Macau Scientific and Technological R&D for Postgraduates Award in 2012
- Chipidea Microelectronic Prize 2011

CURRENT GROUP MEMBERS

Ph.D.

Wang Wei, 2014
Thomas Li, 2015
Wenning Jiang, 2015
Dezhi Xi, 2012

M.Sc.

Wei Lai 2016
Linc Zheng 2016
Zara Zhang, 2016
Victoria Lei, 2016
Luke Wang, 2014
City Li, 2014
Wai-Hong Zhang 2015

POST - DOCTORAL FELLOW

Jankey Zhong, 2017

SELECTED PUBLICATIONS

- Yan Zhu, Chi-Hang Chan, Seng-Pan U, R.P. Martins, "An 11b 450 MS/s Three-Way Time-Interleaved Subranging Pipelined-SAR ADC in 65 nm CMOS," in IEEE Journal of Solid-State Circuits, vol. 51, no. 5, pp. 1223-1234, May 2016.

- Yan Zhu, Chi-Hang Chan, Sai-Weng Sin, Seng-Pan U, Rui Paulo Martins, Franco Maloberti, "A 35fJ 10b 160 MS/s Pipelined-SAR ADC with Self-Embedded Offset Cancellation" in IEEE Journal of Solid-State Circuits. Vol. 47, no. 11, pp. 2614 -2626, Nov. 2012.

- Yan Zhu, Chi-Hang Chan, U-Fat Chio, Sai-Weng Sin, Seng-Pan U, R.P. Martins and Franco Maloberti, "A 10-bit 100-MS/s Reference-Free SAR ADC in 90nm CMOS," in IEEE Journal of Solid-State Circuits, vol. 45, no. 6, pp. 1111 -1121, Jun 2010.

- Yan Zhu, Chi-Hang Chan, Seng-Pan U, and R.P. Martins, "An 11b 900 MS/s time-interleaved sub-ranging pipelined-SAR ADC," in IEEE European Solid State Circuits Conference (ESSCIRC), pp.211-214, Sept. 2014 (Best Paper Award).

- Yan Zhu, Chi-Hang Chan, Sai-Weng Sin, Seng-Pan U, R.P. Martins, "A 34fJ 10b 500MS/s Partial Interleaving Pipelined-SAR ADC," in IEEE Symposia on VLSI Technology and Circuit (VLSI), pp. 90-91, Jun. 2012.

Chi-Seng Lam (Terence)

Assistant Professor
IEEE Senior Member
IFMA FMP

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RESEARCH INTERESTS

Integrated Power Electronics Controllers
Integrated DC-DC Converters
Voltage Reference Circuits
Power Quality Compensators
Renewable Energy
Smart Grid Technology

PROFESSIONAL SERVICES

- Vice-Chair, IEEE Macau Section, 2016 – Present
- Chair, IEEE Macau Section Circuits and Systems (CAS) & Communications (COM) Joint Chapter, 2017 – Present
- Secretary, IEEE Macau Section Power & Energy (PES) & Power Electronics (PELS) Joint Chapter, 2013 – Present
- Local Arrangement Co-Chairs, Asia and South Pacific Design Automation Conference (ASP-DAC 2016)
- Local Arrangement Chair, 2015 IEEE Region 10 Conference (TENCON 2015)
- Invited Speaker, Symposium on Sustainable Development of the Power Industry in Mainland China, Taiwan, Hong Kong and Macau, 2014
- Reviewer, TIE, TPEL, TPWD, TIAS, PEL, EL, GTD, etc.

AWARDS

- Macao Science and Technology Invention Award (Third-Class) 2014
- Macao Science and Technology R&D Award for Postgraduates (Ph.D.) 2012
- 5th National University Students Social Practice and Science Contest on Energy Saving and Emission Reduction (Second Prize) 2012 (as advisor)
- The 3rd Regional Inter-University Postgraduate Electrical and Electronic Engineering Conference Merit Paper Award 2005

CURRENT GROUP MEMBERS

Ph.D.

Ya-Jie Wu, 2012
Wen-Liang Zeng, 2016

M.Sc.

Yi-Wei Tan, 2014
Wen-Ming Zheng, 2014
Xia Du, 2015
Jian-Yang Deng, 2015
Zi-Yang Lin, 2015

R.A.

Yuan Ren, 2017

POST - DOCTORAL FELLOW

U-Fat Chio, 2017
Lei Wang, 2017

SELECTED PUBLICATIONS

- C.-S. Lam, W.-H. Choi, M.-C. Wong, and Y.-D. Han, "Adaptive dc-link voltage controlled hybrid active power filters for reactive power compensation," IEEE Transactions on Power Electronics, Apr. 2012.

- C.-S. Lam, M.-C. Wong, W.-H. Choi, X.-X. Cui, H.-M. Mei, and J.-Z. Liu, "Design and performance of an adaptive low dc voltage controlled LC-hybrid active power filter with a neutral inductor in three-phase four-wire power systems," IEEE Transactions on Industrial Electronics, Jun. 2014 .

- W.-L. Zeng, C.-S. Lam, W.-M. Zheng, S.-W. Sin, N.-Y. Dai, M.-C. Wong, S.-P. U, and R.P. Martins, "DCM operation analysis of KY converter," IET Electronics Letters, Nov. 2015.

- C.-S. Lam, M.-C. Wong, N.-Y. Dai, W.-H. Choi, X.-X. Cui, C.-Y. Chung, "Switching loss reduction technique in active power filters without auxiliary circuits", IET Power Electronics, Mar. 2016.

- Y. -W. Tan, C.-S. Lam, S.-W. Sin, M.-C. Wong, S.-P. U, and R.P. Martins, "DCM operation analysis of 3-level boost converters," IET Electronics Letters, Feb. 2017.

- C.-S. Lam, L. Wang, S.-I. Ho, and M.-C. Wong, "Adaptive thyristor controlled LC - hybrid active power filter for reactive power and current harmonics compensation with switching loss reduction," IEEE Transactions on Power Electronics, early access.

Jun Yin
Assistant Professor

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RESEARCH INTERESTS

Low-Power CMOS Wireless Transceivers for IoT Application
mm-Wave CMOS Transceivers for Radar Application
Analog and Digital PLLs
Integrated Oscillators

PROFESSIONAL SERVICES

- Secretary, IEEE CAS Macau Chapter, 2017

CURRENT GROUP MEMBERS

Ph.D.

Xingqiang Peng, 2014
Haidong Yi, 2015
Shiheng Yang, 2015

M.Sc.

Tongquan Jiang, 2014
Iat Fai Sun, 2015
Jinan Luo, 2017

POST–DOCTORAL FELLOW

Yatao Peng, 2016

R.A.

Chee Cheow Lim, 2017

SELECTED PUBLICATIONS

- J.Yin, P. -I. Mak, F. Maloberti and R. P. Martins, "A 0.003mm^2 1.7-to-3.5GHz Dual-Mode Time-Interleaved Ring-VCO Achieving 90-to-150kHz 1/f^3 Phase-Noise Corner," in IEEE International Solid- State Circuit Conference (ISSCC), Feb, 2016.

- J.Yin, P. -I. Mak, F. Maloberti and R. P. Martins, " A Time-Interleaved Ring-VCO with Reduced 1/f^3 Phase Noise Corner, Extended Tuning Range and Inherent Divided Output," in IEEE Journal of Solid-State Circuits (JSSC), Dec. 2016.

- W. -H.Yu, H.Yi, P. -I. Mak, J.Yin and R. P. Martins, "A 0.18V 382μW Bluetooth Low-Energy (BLE) Receiver with 1.33nW Sleep Power for Energy-Harvesting Applications in 28nm CMOS," in IEEE International Solid- State Circuit Conference (ISSCC), Feb, 2017.

- X. Peng, J.Yin, P. -I. Mak, W. -H.Yu and R. P. Martins, "A 2.4-GHz ZigBee Transmitter Using a Function-Reuse Class-F DCO-PA and an ADPLL Achieving 22.6% (14.5%) System Efficiency at 6-dBm (0-dBm) Pout," in IEEE Journal of Solid-State Circuits (JSSC), 2017.

- H.Yi, J.Yin, P. -I. Mak, R. P. Martins, "A 0.032-mm^2 0.15-V 3-Stage Charge-Pump Scheme Using a Differential Bootstrapped Ring-VCO for Energy-Harvesting Applications," IEEE Transactions on Circuits and Systems II: Express Briefs (TCAS-II), 2017.

Yan Lu
Assistant Professor

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RESEARCH INTERESTS

Wireless Power Transfer Circuits and Systems
Analog and Digital Low-Dropout Regulators
Fully-Integrated DC-DC Converters
RF Energy Harvesting
Voltage and Current References

PROFESSIONAL SERVICES

- Review Committee Member, IEEE ISCAS 2016, 2017
- TPC Member, IEEE VLSI-DAT 2017
- Special Session Chair of IEEE APCCAS 2016
- UDC Committee Co-Chair of IEEE ASP-DAC 2016
- Technical Program Sub-Committee Co-Chair of IEEE International Wireless Symposium 2015 & 2016
- Reviewer of IEEE JSSC, TCAS-I, TCAS-II, TPEL, TBioCAS, TVLSI, EDL, etc.

AWARDS

- IEEE Solid-State Circuits Society Pre-Doctoral Achievement Award 2013-14
- IEEE TENCON Professional Award 2015 (as advisor)
- HKUST School of Engineering PhD Fellowship 2013
- HKUST School of Eng. Overseas Research Award 2012
- Outstanding Postgraduate Student of Guangdong (Canton) Province 2008

CURRENT GROUP MEMBERS

Ph.D.

Fangyu Mao, 2015
Xiaofei Li, 2016
Jie Lin, 2016

M.Sc.

Ziyang Luo, 2014
Yuanqing Huang, 2015
Yulun Wu, 2016

R.A.

Xiaofei Ma, 2016
Hesheng Lin, 2016

SELECTED PUBLICATIONS

- Y. Lu, X. Li, W.-H. Ki, C.-Y. Tsui, and C. P. Yue, "A 13.56MHz Fully Integrated 1X/2X Active Rectifier with Compensated Bias Current for Inductively Powered Devices," in IEEE International Solid-State Circuits Conference (ISSCC), Feb. 2013.

- Y. Lu, W.-H. Ki, and C. P. Yue, "A 0.65ns-Response-Time 3.01ps FOM Fully-Integrated Low-Dropout Regulator with Full-Spectrum Power-Supply-Rejection for Wideband Communication Systems," in IEEE International Solid-State Circuits Conference (ISSCC), Feb. 2014.

- Y. Lu, J. Jiang, W.-H. Ki, C. P. Yue, S.-W. Sin, S.-P. U, and R. Martins, "A 123-Phase DC-DC Converter-Ring with Fast-DVS for Microprocessors," in IEEE International Solid-State Circuits Conference (ISSCC), Feb. 2015.

- M. Huang, Y. Lu, S.-P. U, and R. P. Martins, "A Reconfigurable Bidirectional Wireless Power Transceiver with Maximum Current Charging Mode and 58.6% Battery-to-Battery Efficiency," in IEEE International Solid-State Circuits Conference (ISSCC), Feb. 2017.

- M. Huang, Y. Lu, S.-P. U, and R. P. Martins, "An Output-Capacitor-Free Analog-Assisted Digital Low-Dropout Regulator with Tri-loop Control," in IEEE International Solid-State Circuits Conference (ISSCC), Feb. 2017.

Yanwei Jia
Assistant Professor

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RESEARCH INTERESTS

Digital Microfluidics Development
Microfluidics for Disease Diagnostics
Digital Microfluidics for Point-of-Care Testing
Digital Microfluidics for Biological Applications

AWARDS

- Innovation Prize, International Organization for Biological Crystallization, 2008
- Outstanding Mentor Award, Ministry of Education of Singapore, 2004

CURRENT GROUP MEMBERS

R.A.

Wan Liang, 2016

Ph.D.

Cheng Dong, 2012 (co-supervisor)

M.Sc.

Haoran Li, 2016

POST - DOCTORAL FELLOW

Jie Gao, 2016
Tianlan Chen, 2017

SELECTED PUBLICATIONS

- Cheng Dong, Yanwei Jia, Jie Gao, Tianlan Chen, Pui In Mak, Mang I Vai, R. P. Martins, "A 3D microblade structure for precise and parallel droplet splitting on digital microfluidic chips", Lab on a Chip, Feb-2017.

- Tianlan Chen, Yanwei Jia, Cheng Dong, Jie Gao, Pui In Mak, R. P. Martins, "Sub-7-second genotyping of single-nucleotide polymorphism by high-resolution melting curve analysis on a thermal digital microfluidic device", Lab on a Chip, Jan-2016.

- Yanwei Jia, J. A. Sanchez, L. J. Wangh, "Kinetic Hairpin Oligonucleotide Blockers for Selective Amplification of Rare Mutations", Scientific Reports, Jan-2014.

- Yanwei Jia, Pui In Mak, C. Massey, R. P. Martins, L. J. Wangh, "Construction of a microfluidic chip, using dried-down reagents, for LATE-PCR amplification and detection of single-stranded DNA", Lab on a Chip, Jan-2013.

- Yanwei Jia, A. Osborne, J. E. Rice, L. J. Wangh, "Dilute-'N'-Go Dideoxy Sequencing of All DNA Strands Generated in Multiplexed LATE-PCR Assays", Nucleic Acids Research, Jan-2010.

Yong Chen
Assistant Professor

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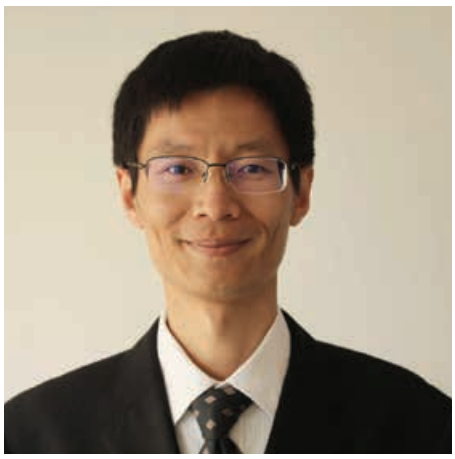

RESEARCH INTERESTS

Filter and Amplifier
VCO and Its Phase Noise Theory
RF/mm-wave System and Circuit
On-Chip and Chip-to-Chip Electrical/Optical Interconnects
Ultra-High-Speed Wireline
Data and Clock Jitter Analysis

PROFESSIONAL SERVICES

- Reviewer of the conferences and journals (ISCAS, APCCAS, IEEE TMTT, TCAS-I, TCAS-II, TVLSI, IET EL, etc.)

CURRENT GROUP MEMBERS

Ph.D.

Chao Fan, 2016

M.Sc.

Lei Zhao, 2016
Xi Meng, 2016
Xinyi Ge, 2016
Shaocan Fan, 2016

R.A.

Wei Zhu, 2017

SELECTED PUBLICATIONS

- Y. Chen, P.-I. Mak, L. Zhang, H. Qian, Y. Wang, "A Fifth-Order 20-MHz Transistorized-Ladder LPF With 58.2-dB SFDR, 68-μW/Pole/MHz Efficiency, and 0.13-mm2 Die Size in 90-nm CMOS", IEEE Transactions on Circuits and Systems – II, Jan-2013.

- Y. Chen, P.-I. Mak, L. Zhang, H. Qian, Y. Wang, "Pre-Emphasis Transmitter (0.007mm^2, 8Gbit/s, 0-14dB) with Improved Data Zero-Crossing Accuracy in 65nm CMOS", IET Electronics Letters, Jul-2013.
  Y. Chen, P.-I. Mak, S. D'Amico, L. Zhang, H. Qian, Y. Wang, "A Single-Branch Third-Order Pole–Zero Low-Pass Filter With 0.014-mm2 Die Size and 0.8-kHz (1.25-nW) to 0.94-GHz (3.99-mW) Bandwidth–Power Scalability", IEEE Transactions on Circuits and Systems – II, Nov-2013.

- Y. Chen, P.-I. Mak, L. Zhang, Y. Wang, "A 0.002-mm^2 6.4-mW 10-Gb/s Full-Rate Direct DFE Receiver with 59.6% Horizontal Eye Opening at 10-12 BER under 23.3-dB Channel Loss at Nyquist", IEEE Transactions on Microwave Theory and Techniques, Dec-2014.

- Y. Chen, P.-I. Mak, Y. Wang, "A Highly-Scalable Analog Equalizer Using a Tunable and Current-Reusable Active Inductor for 10-Gb/s I/O Links", IEEE Transactions on Very Large Scale Integration Systems, May-2015.

Chi-Hang Chan (Ivor)
Assistant Professor

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Tel.: +853-8822-4402 I Email: ivorchan@umac.mo

RESEARCH INTERESTS

Multibit SAR ADC
Flash ADC
Time domain-assisted ADC
SAR Reference Error Calibration
Comparator
Comparator Offset Calibration
Time-Interleaved ADC
CT/DT DSMs

PROFESSIONAL SERVICES

- Review of Journal Solid State Circuit
- Review of Transaction of Circuits and Systems I
- Review of Transaction of Circuits and Systems II
- Review of Transaction Very Large Scale Integration

AWARDS

- IEEE Solid-State-Circuit Society Pre-doctoral Achievement Award 2015
- Best Paper Award from IEEE European Solid-State Circuits Conference 2014 (2nd Author)
- Best Design Award in IEEE A-SSCC 2011 Student Design Contest (2nd Author)
- Macau Scientific and Technological R&D Award in 2016
- Macau Scientific and Technological R&D Award in 2014
- Macau Scientific and Technological R&D for Postgraduates Award in 2014

CURRENT GROUP MEMBERS

M.Sc.

Zara Zhang, 2016
Victoria Lei, 2016
Luke Wang, 2014
City Li, 2014
Wai-Hong Zhang 2015
Wei Lai 2016
Linc Zheng 2016

POST - DOCTORAL FELLOW

Wang Wei, 2014
Thomas Li, 2015
Wenning Jiang, 2015
JainWei Liu, 2012

SELECTED PUBLICATIONS

- Chi-Hang Chan, Yan Zhu, Iok-Meng Ho, Wai-Hong Zhang, Seng-Pan, U., Martins, R.P., "A 5mW 7b 2.4GS/s 1-then-2b/cycle SAR ADC with background offset calibration," in IEEE International Solid-State Circuits Conference (ISSCC), pp. 282-283, Feb 2017

- Chi-Hang Chan; Yan Zhu; Sai-Weng Sin; Seng-Pan, U.; Martins, R.P., "A 5.5mW 6b 5GS/S 4×-interleaved 3b/cycle SAR ADC in 65nm CMOS," in IEEE International Solid-State Circuits Conference - (ISSCC), pp.1-3, Feb 2015.

- Chi-Hang Chan, Yan Zhu, Sai-Weng Sin, Seng-Pan U and R.P. Martins, "A 5.5mW 6-b 5GS/s 4-Interleaved 3b/cycle SAR ADC in 65nm CMOS," in IEEE Journal of Solid-State Circuits, Vol. 51, no. 2, pp. 365-377, Feb. 2016.

- Chi-Hang Chan, Yan Zhu, Sai-Weng Sin, Seng-Pan U, R.P. Martins and Franco Maloberti, "A 5b 1.25GS/s 4X Capacitive Folding Flash ADC in 65nm CMOS," in IEEE Journal of Solid-State Circuits , Vol. 48, no. 9, pp. 2154 -2169, Sep. 2013.

- Chi-Hang Chan, Yan Zhu, Iok-Meng Ho, Wai-Hong Zhang, Chon-Lam Lio, Seng-Pan, U., Martins, R.P., "A 0.011mm^2 60dB SNDR 100MS/s reference error calibrated SAR ADC with 3pF decoupling capacitance for reference voltages," in IEEE Asian Solid-State Circuits Conference (A-SSCC), pp. 145-148, Nov. 2016. (Highlighted Paper).

Ka-Fai Un

UM Macao Fellow (Lecturer)
Visiting Researcher, UCD, Dublin, Ireland

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RESEARCH INTERESTS

Radio frequency integrated circuits
Wideband transmitters
Harmonic rejection mixers
Switched capacitor filters
Radio frequency digital-to-analog converters

PROFESSIONAL SERVICES

- Reviewer, IEEE Transactions on Circuits and Systems I: Regular Papers
- Reviewer, IEEE Transactions on Circuits and Systems II: Express Briefs
- Reviewer, IEEE International Symposium on Circuits and Systems – ISCAS

AWARDS

- Scientific and Technological R&D Award (PhD Student), Macau Science and Technology Award 2012
- Certificate of Merit, IEEE Asia-Pacific Conference on Circuits and Systems – APCCAS'2008, Macao, China.

CURRENT GROUP MEMBERS

Ph.D.

Wei-Han Yu, 2012
Chak-Fong Cheang, 2012
Gengzhen Qi, 2013

SELECTED PUBLICATIONS

- Ka-Fai Un, Wei-Han Yu, Chak Fong Cheang, Gengzhen Qi, Pui In Mak, R. P. Martins, "A Sub-GHz Wireless Transmitter Utilizing a Multi-Class-Linearized PA and Time-Domain Wideband-Auto I/Q-LOFT Calibration for IEEE 802.11af WLAN", IEEE Transactions on Microwave Theory and Techniques, Oct-2015.

- Chak Fong Cheang, Ka-Fai Un, Wei-Han Yu, Pui In Mak, R. P. Martins, "A Combinatorial Impairment-Compensation Digital Predistorter for a Sub-GHz IEEE 802.11af-WLAN CMOS Transmitter Covering a 10x-Wide RF Bandwidth", IEEE Transactions on Circuits and Systems – I, Apr-2015.

- Ka-Fai Un, Pui In Mak, R. P. Martins, "A 53-to-75 mW, 59.3-dB HRR, TV-Band White-Space Transmitter Using a Low-Frequency Reference LO in 65-nm CMOS", IEEE Journal of Solid-State Circuits, Aug-2013.

- Wei-Han Yu, Chak-Fong Cheang, Pui In Mak, Weng-Fai Cheng, Ka-Fai Un, U-Wai Lok, R. P. Martins, "A Nonrecursive Digital Calibration Technique for Joint Elimination of Transmitter and Receiver I/Q Imbalances With Minimized Add-On Hardware", IEEE Transactions on Circuits and Systems – II, Aug-2013.

Ka Meng Lei

UM Macao Fellow (Lecturer)

Visiting Researcher, Harvard U, Cambridge, MA, USA

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Tel.: +853-8822-4432 I Email: kamenglei@umac.mo

EDUCATION

PhD, ECE, University of Macau, 2016
BS, EEE, University of Macau, 2012

EXPERIENCES

- Visiting scholar, Harvard University, Cambridge, MA, Jun. 2017 (2 years)
- Lecturer (UM Macao Fellow), University of Macau, Macau, Dec. 2016 - now
- Research assistant, University of Macau, Macau, Sept. 2012 – Nov. 2016
- Trainee, Evatronix SA, Poland, Jun. 2012 – Jul. 2012

RESEARCH INTERESTS

Analog and RF circuit techniques for micro-NMR
Sensors and analog front-end interfaces
System planning and integration for biomedical devices
Low-power and low-voltage oscillator design

PROFESSIONAL SERVICES

- Reviewer of Analytical Methods
- Reviewer of International Journal of Circuit Theory and Applications
- Reviewer of International Symposium of Circuits and Systems

AWARDS

- IEEE Solid-State Circuits Society - Pre-Doctoral Achievement Award 2017
- FDCT Macao Science and Technology Award for Postgraduates 2016 (Ph.D. level)
- IEEE international Solid-State Circuits Conference - Silkroad Award 2016
- IEEE Asian Solid-State Circuits Conference - Distinguished Design Award 2015
- Chemical and Biological Microsystems Society - Student/Young Researcher Grant 2015
- Asia Symposium on Quality Electronic Design - Best Paper Award 2013

SELECTED PUBLICATIONS

- K.-M. Lei, H. Heidari, P.-I. Mak, M.-K. Law, F. Maloberti, and R. P. Martins, "A handheld high-sensitivity micro-NMR CMOS platform with B-field stabilization for multi-type biological/chemical assays," IEEE J. Solid-State Circuits, vol. 52, no. 1, pp. 284-297, Jan. 2017.

- K.-M. Lei, P.-I. Mak, M.-K. Law, and R. P. Martins, "A μNMR CMOS transceiver using a Butterfly-coil input for integration with a digital microfluidic device inside a portable magnet," IEEE J. Solid-State Circuits, vol. 51, no. 10, pp. 2274-2286, Oct. 2016.

- K.-M. Lei, P.-I. Mak, M.-K. Law, and R. P. Martins, "CMOS biosensors for in vitro diagnosis - transducing mechanisms and applications," Lab Chip, vol. 16, no. 19, pp. 3664-3681, Oct. 2016.

- K.-M. Lei, H. Heidari, P.-I. Mak, M.-K. Law, F. Maloberti, and R. P. Martins, "A handheld 50pM-sensitivity micro-NMR CMOS platform with B-field stabilization for multi-type biological/chemical assays," in IEEE Int. Solid-State Circuits Conf. Dig. Tech. Papers (ISSCC), 2016, pp. 474–475.

- K.-M. Lei, P.-I. Mak, M.-K. Law, and R. P. Martins, "A palm-size μNMR relaxometer using a digital microfluidic device and a semiconductor transceiver for chemical/biological diagnosis," Analyst, vol. 140, no.15, pp. 5129-5137, Aug. 2015.