



SME

School of Microelectronics, SUSTech

Academic Frontier Lecture
No. 020

Title: The Power-efficient SAR ADC Design for Biomedical Applications

TIME: 10:00-11:00 a.m June 20th

VENUE: Room502-3 Tai Zhou Hall(台州楼 502-3室)

SPEAKER: Dr. Wei Mao, HiSilicon Technologies Co., Ltd., Shenzhen China

HOST: Pro. Hao Yu



INTRODUCTION

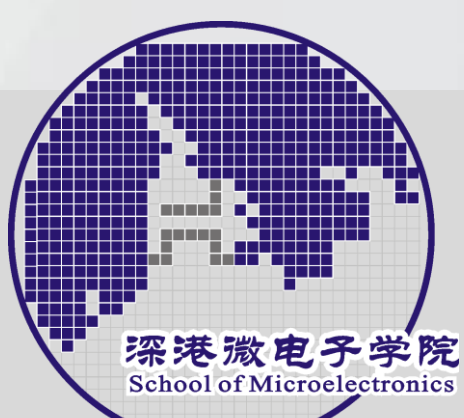
Dr. Wei Mao received the B.Eng. and Ph.D. degree in electrical engineering from Southeast University in 2011 and National University of Singapore (NUS) in 2017, respectively. From 2016 to 2017, he was a research engineer with NUS. Since 2017, he has been with HiSilicon Technologies Co., Ltd., as an Analog IC Designer.

His research interests include data converters and mixed signal circuits. During the Ph.D. period, He published more than 10 papers in top-notch journals and leading international conferences, such as TCAS-I, TVLSI, TBioCAS, EL and ISCAS. In the current job, he is working on chip design and volume production for 5G communication. In 2018 and 2019, he received the Star of HiSilicon Award twice.

ABSTRACT

In the electrical system, data converter has been widely employed as the interfaces between the analog signal and digital signal domains. Analog-to-digital converter (ADC) digitalizes the analog signal with high-speed, high-fidelity and low-noise characteristics. In the preventive-oriented healthcare applications, ADC also plays an important role to digitalize the continuous signals from monitoring critical vital signs.

In this talk, the history and development trend of ADC will be introduced at first. Then the design strategies of the dominant building blocks in SAR ADC will be compared and analyzed, including S&H switch, DAC array, comparator and SAR logic. Finally, a design example of SAR ADC for biomedical application will be explained in detail.



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