

Preface to the Special Issue on Advanced Analog and Mixed-Mode Integrated Circuits

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High performance analog and mixed signal circuits are strongly demanded in today's system on chip systems. They found pervasive applications in A/D or D/A conversion, power management, radio frequency (RF) signal sensing and processing, clock generation, etc.

In this special issue, we collected 7 comprehensive reviews and 2 research articles from leading research groups, which presented state-of-art design techniques and insight forecast of development trend in this hot area. W. Deng *et al.* reviewed design of signal generator for FMCW radar which is extremely useful in future ranging, communication and image applications. A review by Z. Zhang discussed in details on CMOS analog and mixed signal PLL principle, design issue and low jitter techniques. We have 2 reviews and 1 research article of cutting edge data converter. J. Liu *et al.* reviewed error suppression techniques for SAR ADCs which lead to superior energy efficiency. A survey by X. Li *et al.* presented state-of-art high speed design of DAC which is an important building block in 5G and optical data transfer systems. X. Pan *et al.* reported a very high efficiency SAR ADC with proposed NoC-assisted multiple adaptive by pass windows. We have another review by M. Huang *et al.* on digital LDO which is a good alternative to the analog LDO counterparts. L. Cheng *et al.* reported fast-transient DC-DC which achieved 1% setting time of only 125 ns. Furthermore, B. Tang *et al.* presented design of active quasi-circulator which is important in multi-band communication systems, and H. Chen *et al.* talked about another interesting topic on automated analog layout design which may change the design flow of analog circuits in the future. Finally, Prof. Pui-In Mak gave a glimpse of the lab-on-CMOS in-vitro diagnostic (IVD) tools for point-of-care applications.

We sincerely hope that the researchers working in this area could benefit a lot from the published papers in this special issue. And we also welcome the authors working in this area could contribute to *Journal of Semiconductors*.