Editorial of the special issue “SI: 2010 International Analog VLSI Work”

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This special issue of the SPRINGER Journal of Analog Integrated Circuits and Signal Processing comprises 11 papers selected from presentations made at the 2010 International Analog VLSI Workshop (2010 AVLSIWS). This, the 13th AVLSIWS, was held in Pavia, Italy, on September 8–10, 2010. The workshop was organized by the Research Committee on Electronic Circuits of the Institute of Electrical Engineers of Japan (IEEJ) in cooperation with the University of Pavia, the IEEE Solid-State Circuits Society Italy Section and IEEE-CAS Japan Chapter. The purpose of the workshop was to exchange information, ideas and recent research results on analog VLSI circuits and their applications. The work discussed in the workshop was not required to be complete, and results from a test chip were not mandatory. Presentations on small analog circuits were encouraged at the conference.

The first paper, by A. Nagari et al., presents a tutorial review of the class-D amplifier.

The next three papers concern $\Sigma\Delta$ modulators. M. De Blasi et al. propose a novel VCO-based quantizer, E. Bonizzoni et al. describe an actual design procedure for obtaining a high-resolution converter, and M. De Bock et al. propose a converter architecture combining quantization noise coupling and double sampling scheme.

The following four papers are associated with analog building blocks. N. Retdian et al. propose a low-distortion, wideband VI converter circuit, H. Sato et al. discuss the application of the cross-coupled transistor pair, P. Tongpoon et al. describe a new transconductor topology for mobility degradation cancellation, and F. Butti et al. propose an OTA optimization procedure with a trimming step.

The next two papers are related to applications. F. Butti et al. propose a low-noise chopper amplifier circuit with a lowpass filter operation, and H. Li et al. discuss the circuit topology of the buck-boost operation realized with two external FETs.

The final paper, by M. Aoki et al., discusses circuit performance with reference to a statistical transistor model.

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Takeshi Shima was born in Tokyo, Japan, in January 1951. He received B.E., M.E., and Dr Eng. degrees from Tohoku University, Sendai, Japan, in 1974, 1976, and 1986, respectively. In 1976, he joined Toshiba Research and Development Center, Kawasaki, Japan, where he developed PLL TV tuning ECL-III IC, three dimensional table look-up model for SPICE, and analog neural network chips. Since 1998, he has been a professor at Kanagawa University,

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