

Special Issue

Development of CMOS-MEMS/NEMS Devices

Message from the Guest Editors

Micro and nano-electro-mechanical system (M/NEMS) devices constitute key technological building blocks to enable increased additional functionalities within Integrated Circuits (ICs) in the More-Than-Moore era, as described in the International Technology Roadmap for Semiconductors. The CMOS ICs and M/NEMS dies can be combined in the same package (SiP), or integrated within a single chip (SoC). In the SoC approach the M/NEMS devices are monolithically integrated together with CMOS circuitry allowing the development of compact and low-cost CMOS-M/NEMS devices for multiple applications (physical sensors, chemical sensors, biosensors, actuators, energy actuators, filters, mechanical relays, and others). On-chip CMOS electronics integration can overcome limitations related to the extremely low-level signals in sub-micrometer and nanometer scale electromechanical transducers enabling novel breakthrough applications. This Special Issue aims to gather high quality research contributions dealing with MEMS and NEMS devices monolithically integrated with CMOS, independently of the final application and fabrication approach adopted (MEMS-first, interleaved MEMS, MEMS-last or others).

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