Technology Paper Highlights

224 submissions, highest since 2006, with acceptance rate **38%**

Top contributed papers in core technology and SOC: first **10 nm FinFET** platform with 0.053 μm^2 SRAM (Samsung) and **14 nm FDSOI** platform (ST); emerging device technology on Si substrates in **SiGe FinFET** (IBM), **III-V FinFET** (imec) and strained **SiGe nanowire** FET (CEA-LETI); emerging nonvolatile logic in **Cu atom switch** (LEAP) and memory in **all-printing paper memory** (NTU); **design/technology co-optimization** for 20 nm SOC (Qualcomm); functional diversification in first **curved image sensor** (Sony) and **Si photonics** for future interconnect (Micron)

3 Late News papers pushing device technology envelope: record performances in 25 nm L_g III-V MOSFET (UCSB); 2D channel MoS_2 FET (Purdue U.); stacked high-μ channel CMOS (AIST)

Invited talks in focus sessions (**Technology** and **Joint**) to provide critical insights:

- **Embedded Non-volatile Memory**: opportunities for NVM in advanced technology nodes -- One-Time-Program memory for HKMG and FinFET (eMemory); STT-MRAM for mobile systems with extremely power efficient operation (Qualcomm)
- **Interconnect**: scaling challenges -- scaling at the local interconnect and contact to impact on performance (PSU); process scaling in an increasingly interconnect dominated environment (Intel); interconnect scaling to the 5 nm node (Tohoku U.)
- **3D Systems and Packaging** (joint): redundancy implementation at the microbump level for yield and reliability (Xilinx); challenges in advanced TSV technology (SK Hynix)
- **Design co-optimization** (joint): Internet of Things -- IoT driven ultra low power devices and design practices (U. Michigan); Silicon-on-Thin-Buried-Oxide to enable low power devices for IoT (LEAP)

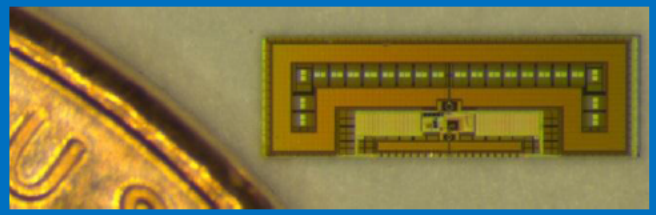
Circuits Papers

- **New record of Submissions**
- **Paper Highlights**
  - **SOC Circuits and Processors**
    Security (Intel 22nm, Kobe), LPLV-µP (MIT)
  - **Memory Innovation**
    1GHz SRAM (Renesas 28nm),
    LP STT-MRAM (Toshiba), SSD-Flash (U Chuo)
  - **Wireless Sensors & Medical Electronics**
    Pad-less 24/60 GHz Radio (Berkeley), Battery Supervision (U Mich), ECG-Shirt (U Wash.)
  - **Data Converter Circuits**
    200 MS/s SAR ADC (Renesas 28nm)
    11 GS/s DAC (U Twente 28nm FD-SOI)
  - **Frequency Generation & Clock Circuits**
    TDC (Samsung 28nm), Dig. PLL (TSMC 28nm)
  - **Wireline Receivers and Transmitters**
    e.g. 40 Gb/s Rambus 28nm, Broadcom 40nm

Fastest growing category

Biomedical, Sensor & Display Circuits

+70% vs. 2012



24/60 GHz passive radio system (UCB / SU)

Circuits in Advanced Nodes

• 14nm Intel	Clock generator
• 16nm TSMC	Temp. sensor
• 20nm ARM	eSRAM
• 20nm Fujitsu	Transceiver, RX
• 20nm MediaTek	DAC, ΔΣ modulator
• 22nm Intel	eDRAM, AES, VDD-Regulator