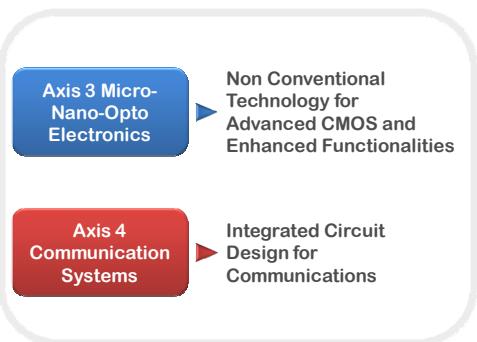


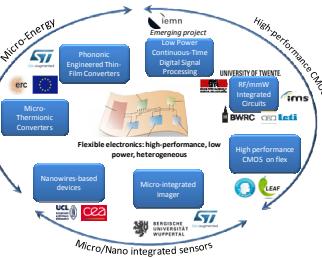
SILICON MICROELECTRONICS GROUP

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Strategy: past, present and future



Non-conventional technology

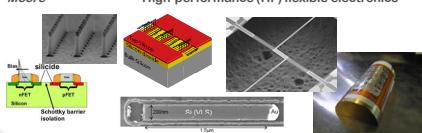
- Objective: To enhance CMOS core and develop advanced functions based on non-conventional technology

More-More

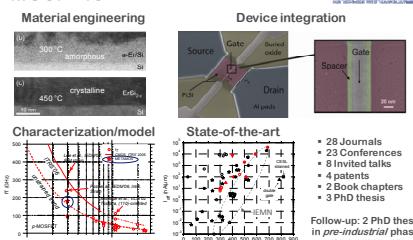
- Metallic (Schottky) source/drain MOSFET
- Nanowire-based MOSFETs
- VLS growth of Si blades for smart BEOL
- Nanowires for gas detection

Much-More-than-More

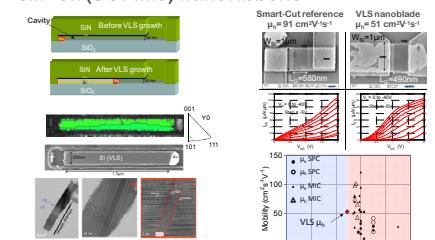
- Non conventional thermoelectrics
- High-performance (HF) flexible electronics



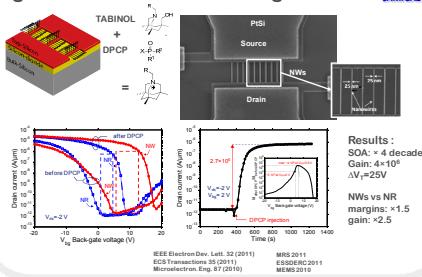
Metallic Schottky source/drain MOSFETs



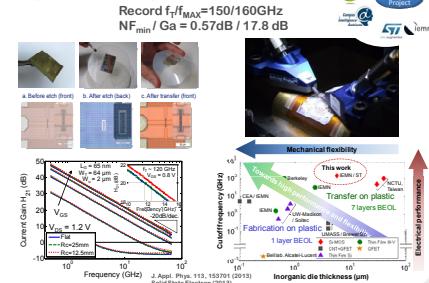
Confined and guided VLS growth of silicon (SOI-like) nanoribbons



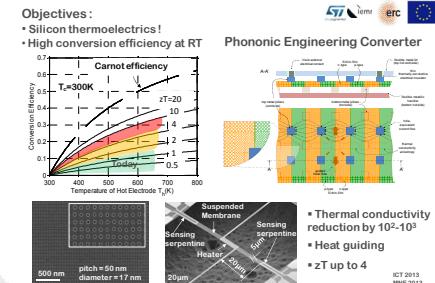
Silicon Nanowires MOSFETs for high gain detection of warfare agent



High-frequency CMOS on Flex



Unconventional Thermoelectrics



Integrated Circuit Design for Communications

Architectures for RF and mmW communication systems



- To leverage digital processing for RF front-ends
- Advanced CMOS technology nodes
 - 90nm down to 28nm nodes

Objectives

- Higher level of integration
- Reduced power consumption
- Higher configurability
- Higher throughput

Digital RF transmitters

- Digital RF transmitters based on delta-sigma modulation
- Wideband digital power amplifier using multi-rate processing

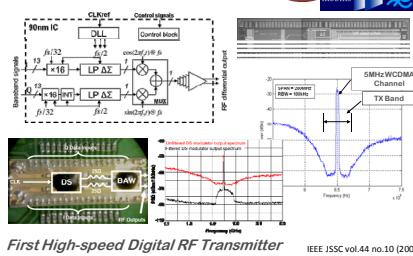
Low-power mmW communication systems

- 10 Gb/s digital oversampling filter for 60 GHz transmitters

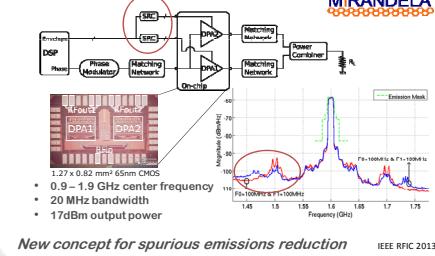
THz imagers

- Kpixel THz CMOS video camera

Digital RF Transmitters based on Delta-sigma Modulation

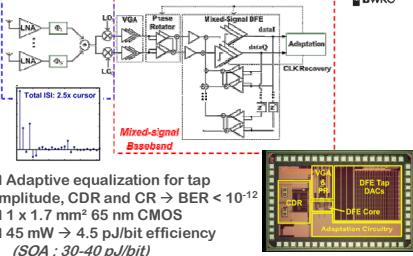


Wideband Digital Power Amplifier using Multi-rate Processing

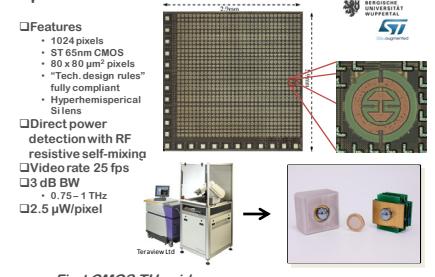


10Gbs/s Digital Oversampling Filter for 60GHz Transmitters

10Gb/s Adaptive 60GHz Baseband



Kpixel THz CMOS video camera



Highest speed digital baseband filter in 65nm CMOS IEEE JSSC vol.47 no.7 (2013)