

Imec presents 17 papers at IEDM 2011

Washington, DC and Leuven, Belgium - December 5, 2011 - With a record number of 17 papers at the IEEE International Electron Device Meeting (IEDM) in Washington (December 5th-7th 2011), imec confirms its leading global position as R&D center solving key challenges of the International Technology Roadmap for Semiconductors (ITRS) and as technology and process provider for heterogeneous system integration.

Imec's core CMOS R&D platform is rewarded 13 papers on ITRS-scaling topics. An imec research highlight at IEDM 2011 is the first demonstration of a functional scaled resistive-RAM cell (RRAM). RRAM is becoming of interest for future scaled memories because of their superior intrinsic scaling characteristics compared to the charge-based Flash devices, and potentially small cell size. At IEDM, imec presents excellent performance of a 10x10nm² Hf/HfO_x resistive stack element.

Imec also made significant progress in advanced FLASH engineering using alternative high-k materials and 3D architectures. And with 4 papers on reliability issues of power devices and CMOS devices, imec demonstrates elaborate expertise in this research domain. Moreover, imec presents 4 papers on 20-14nm next-generation CMOS, concerning finFETs using conformal doping techniques combined with state-of-the-art high-k/metal gate replacement. In addition, imec's R&D on advanced strain engineering to enhance channel transport (high-mobility pFET channel) resulted in record implant-free quantum well performance. And an invited paper on the co-integrating of group III-V and group IV materials for next-generation rewards imec's research expertise in CMOS logic pFET/SiGe.

"Imec is committed to continue to lead research as required by the ITRS, supporting the future growth of the global semiconductor ecosystem including IDMs, foundries, equipment and material suppliers;" said An Steegen, Senior Vice President Process Technology at imec. "We are excited that we achieved these important results together with our global partners. We are also committed to expand our value in More-than-Moore or heterogeneous integration technologies and processes which is proved today by 4 More-than-Moore related imec papers at the IEDM 2011 meeting."

Imec's More-than-Moore papers cover GaN power technology, Si high-voltage devices and MEMS technologies. One particular result is the realization of AlN-based piezoelectric MEMS vibration energy harvesting devices with high quality factors.

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