

Emerging Memory Technologies for Future embedded  
Non Volatile Memories:  
Challenges and Opportunities

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In this presentation, we will make a general overview of different new emerging memory technologies for co-integration with new advanced logic CMOS devices, for future  $\mu$ controllers applications.

We will firstly analyse the status of current eFlash technologies, based on different architectures (as 1T-NOR, Split-Gate, etc.). Furthermore, we will deal with the main limits, both technical and economical, of these standard approaches for future nodes (in particular 28nm and beyond).

Then, the introduction of disruptive memory technologies based on new storage mechanisms will be discussed.

Main principles, challenges and opportunities will be treated in details. In particular, an overview of our recent research work on phase change memory (PCM,) metal oxide resistive switching memory (OxRRAM) and conductive-bridge memory (CBRAM) will be given, both at the technology and design level. Performance toward material tuning will be discussed as well as new application features.