Proposition de recherche doctorale

Circuits for high density non-volatile memories

Mots clés :
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- Domaine scientifique principal: Divers

Résumé du projet de recherche (Langue 1)

Over the years, the desire to integrate both the memory and logic devices at the CMOS platform has lead to the study of emerging non-volatile memories like resistive random access memories (RRAMs) which have better compatibility at the back-end of line (BEOL). At present, in mainstream power-down applications, the data is stored in volatile elements such that they always have to be powered resulting in huge power consumption. One of the many techniques to reduce the power consumption at the standby mode is by using the concept of power gating – switching off the power supply to certain blocks which are not in use. But this technique becomes problematic as it is not possible to switch the power quite often and which may lead to loss of data and affect the chip performance. This is where the RRAMs come in aid to the storage of data during a power-shut down exploiting this inherent property of RRAMs of retaining data even when it is not powered and maintaining the data-integrity after a power-up. This thesis focus on the use of these RRAMs in the design of a system that is resilient to information loss and for low power management.