

# ASIC<sup>2</sup> Project: RRAM Basic Element Characterization and MAGIC implementation

**Background:** Resistive Random Access Memory (RRAM) is an emerging technology based on the Memristor. It has made significant progress in the past decade as a competitive candidate for the next generation of non-volatile memory (NVM). But not only. Beyond the NVM applications, RRAM may also be used in Memristive Memory Computing applications. In this case RAM cells should go through a characterization procedure.

## Project Description:

The project consist of learning Memristor technology and the process of characterization.

- Study Memristor Basic Theory and specific Device Under Test (DUT)
- Practice and control SMU & PS measurement techniques using LAN.
- Design and implementation of a Test for DUT characterization
- Learn MAGIC theory for in-memory computing
- Implement a MAGIC gate in DC and for low frequency.
- Design a test plan for MAGIC gate reliability test and evaluation of Mean Time Between Failures (MTBF).



B2901/02/11/12A Precision Source/Measure Unit (SMU)

Prerequisites: LAB1

Recommended: TBD

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