



University of Pavia
Ph.D. School in Microelectronics



SEMINAR

Non-Volatile memories: from Flash memories to disruptive concepts

Dr. Luca Perniola Ph. D.
CEA-Leti, Grenoble, France

Sept. 26th 2:00 PM
Aula Seminari (D Floor)

The seminar will be dedicated to the exploration of new technologies alternative to Flash memories and their applications. Indeed in the last years the memory hierarchy in computing systems has been strongly challenged toward a global simplification from a system point of view. At the same time, from a technology perspective, major advances have been made on so-called “backend memories” like phase-change memories, resistive memories and magnetic memories. Backend memories promise power reduction, extreme speed, good endurance and data retention. An overview of such performances will be provided. In the end the possibility of a “universal” memory technology will be explored with respect to the assumption of a basic energy metrics that rule all memory performances.

Short Bio: Dr. Luca Perniola was born in Florence (Italy). He received the Laurea in nuclear engineering from the Politecnico di Milano (2002) and the Ph. D. degree from the University of Pisa and the Institut National Polytechnique de Grenoble (2005). In 2005 he was enrolled in the permanent staff of CEA-Leti, Grenoble, France. Since then he focused mainly on the electrical characterization and modeling of advanced Non-Volatile Memories (NVM) as Charge-Trap also in complex 3D device architectures (i.e., SONOS finfet and trigate), alternative to GST materials for phase-change memories and resistive RAM. Dr. Perniola has published more than 100 papers on these topics. In the past he served as committee member of International Reliability Physics Symposium (IRPS) and currently as elected member in the Memory Technology subcommittee at International Electron Device Meeting (IEDM). Since 2013 he has been appointed head of the Advanced Memory Laboratory in Leti mastering major NVM backend technologies as RRAM, PCM, and MRAM.

Organizer

Dr. Alessandro Cabrini

Ph.D. Coordinator

Prof. Franco Maloberti

(IEEE CAS President)