UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

Mercoledì 19 Dicembre 2018, ore 09.10
c/o edificio MO 25, Aula P0.2 (Fa0b)

Dr. Ing. Nicolò Zagni, PhD Student (UNIMORE)
terrà un seminario dal titolo

"Negative Capacitor Transistors (NCFETs) – An Enabling Technology for Steep Slope Transistors"

sulle attività di ricerca svolte durante il periodo di mobilità presso Purdue University (USA) e nell'ambito del corso di Laurea Magistrale in Electronic Engineering e del Corso di Dottorato di Ricerca in ICT

Tutti gli interessati sono invitati a partecipare

Abstract: Negative Capacitance Transistors (NCFETs) are an emerging technology in the electron devices field for the reduction of leakage without loss in performance. One of the fundamental limits to the scaling of CMOS devices is the increase of off-state power dissipation as a consequence of the reduction in threshold voltage of MOSFETs. This limit is dictated by the Boltzmann emission process, which limits the minimum sub-threshold slope (SS) of MOSFETs to 60 mV/dec. NCFETs offer the promise to overcome this limit by inserting a ferroelectric layer in the gate stack of a conventional transistor hence leading to voltage amplification and thus reduction in SS. This seminar aims at introducing the concept of NCFETs, explain the theoretical framework of the mechanism at the basis of this novel technology and describe some of the current research trends on the topic. Simple examples will also be discussed in order to assess the benefits and disadvantages of the NCFETs by means of circuit simulations.

Nicolò Zagni received the M.Sc. degree in electronic engineering from Università di Modena e Reggio Emilia, in 2016. He is currently pursuing his Ph.D. degree in Information and Communication Technologies (ICT) from the same institution. He spent one semester in 2018 at Purdue University (USA) working on biosensor applications of NCFETs under the supervision of Prof. M. Alam. His research interests are focused on the modeling and simulation of advanced electron device technologies, such as III-V MOSFETs (digital applications), AlGaN/GaN HEMTs (power/RF applications) and FE-FETs (for digital and neuromorphic applications).