Memristors for energy-efficient new computing paradigms

Wednesday, December 11, 2019 ■ 12:30 ■ Meyer Bldg., Auditorium 1003

[Refreshments at 12:30, the lecture will start at 12:45]

Abstract: Since the 2000’s, research on memristors, either as non-volatile memory elements or as critical components for computing paradigms, has been extremely active. In this review, memristors are examined from the frameworks of both von Neumann and neuromorphic computing architectures. For the former, a new logic computational process based on the material implication is discussed. It consists of several memristors which play the roles of combined logic processor and memory, called stateful logic circuits. In addition, the memory in this circuit is basically non-volatile, so that the energy required for the data refresh is also saved. Neuromorphic, or cognitive, computing refers to a computing paradigm that mimics the human brain. Several fundamental ideas for utilizing memristors and recent progress in this setting will be reviewed. Finally, material and processing issues and the future of the field will be discussed.

Professor Hwang will also deliver an additional lecture

Modeling of negative capacitance in ferroelectric thin films

Tuesday, December 10, 2019 ■ 14:30 ■ Meyer Bldg., Room 861

[Refreshments at 14:15, the lecture will start at 14:30]

For further information see:
http://webee.technion.ac.il/Vincent-Meyer-Colloquium

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