Memristor: The Illusive Device

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ABSTRACT

The memristor (M) is considered to be the fourth two-terminal passive element in electronics, alongside the resistor (R), the capacitor (C), and the inductor (L). Its existence was postulated in 1971 but its first implementation was reported in 2008. Where was it hiding all that time and what can we do with it? Come and learn how the memristor completes the roster of electronic devices much like a missing particle that physicists seek to complete their tableaux.

Categories and Subject Descriptors

B.3 [Hardware]: Memory Structures

General Terms

Design, Experimentation, Measurement, Performance

Keywords

Passive Element, Electronic Devices

Bio

Dr. Salama received his bachelor's degree with honors from the Electronics and Communications Department at Cairo University in Egypt in 1997, and his master's and doctorate degrees from the Electrical Engineering Department at Stanford University in the United States, in 2000 and 2005 respectively. He was an assistant professor at RPI between 2005 and 2009. He joined KAUST in January 2009 and was the founding program chair until August 2011. His work on CMOS sensors for molecular detection has been funded by the National Institutes of Health (NIH) and the Defense Advanced Research Projects Agency (DARPA), awarded the Stanford-Berkeley Innovators Challenge Award in biological sciences and was acquired by Lumina Inc. He is the author of 90 papers and 8 patents on low-power mixed-signal circuits for intelligent fully integrated sensors and non linear electronics specially memristor devices. He is a senior member of IEEE.