



The honour of your company is requested at special Electrical and Electronic Engineering lecture:

"Memristors: past, present and future"

Professor Leon Chua, University of California, Berkeley

Date: Thursday 07 July 2011

Time: 17.30

Venue: Lecture Theatre 408, Electrical Engineering, Imperial College London, South Kensington Campus, London, SW7 2AZ (building no 16 on the [map](#)).

In the Chair: Professor Peter Cheung, Head of the Department of Electrical and Electronic Engineering, Imperial College London

Vote of Thanks: Professor Chris Toumazou, Winston Wong Chair in Biomedical Circuits, Imperial College London

RSVP: events@imperial.ac.uk

Abstract

Many researchers have identified the memristor, short for memory resistor, as the missing fourth fundamental circuit element. Its invention by Professor Leon Chua in 1971 explained hysteretic effects that had until then been considered random phenomena. Memristive devices were proposed as the right stuff for building low-power, laptop size, adaptive brain-like computers that could outperform existing supercomputers in many tasks, such as face recognition and dynamic associative memory. Recent advances in nanotechnology are capable of taking memristors to the next level where they can replicate the complexities of the brain.

The memristor behaves like a pipe whose diameter varies according to the amount and direction of charge passing through it. If the flow of charge is stopped, the pipe's diameter stays the same until it is switched on again, remembering the amount of current that has passed through it. In this special lecture, Professor Leon Chua introduces the memristor and explains the theory behind it as well as the future ahead of it.

Biography

Professor Leon Chua received his MS and PhD degrees from the Massachusetts Institute of Technology and the University of Illinois at Champaign - Urbana. Since 1970, he has been at the University of California, Berkeley, where he is currently a Professor of Electrical Engineering and Computer Sciences.

He was the first recipient of the IEEE Gustav Robert Kirchhoff Award in 2005 and was awarded the IEEE Neural Networks Pioneer Award in 2000. Elected an IEEE Fellow in 1974, he has received many international prizes, including the IEEE Browder J. Thompson Memorial Prize, the IEEE W. R. G. Baker Prize, the Frederick Emmons Award, the M. E. Van Valkenburg Award (twice), and the 2005 Francqui Award from Belgium. He has been awarded seven USA patents and 12 Honourary doctorates from universities in Europe and Japan.

He was elected a foreign member of the European Academy of Sciences and the Hungarian Academy of Sciences. In 2010, he was awarded a John Guggenheim Fellow and The Leverhulme Trust Visiting Professorship.

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