Πανεπιστήμιο Κύπρου
University of Cyprus

School of Engineering
Department of Electrical and Computer Engineering

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Department of Electrical and Computer Engineering

Title: ***« Digital chaotic electronic circuits »***

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Abstract:

Chaos is a universal phenomenon, exhibited by complex systems. Although it seems to be random, it is not stochastic, but deterministic. Since almost all processes in nature are nonlinear, complex (chaotic) phenomena are the norm. Thus, one can realize the significance of applied chaos theory in all fields of science, engineering, economy and social sciences. Since nonlinear circuit behavior has attracted the interest of the scientific and engineering community, during the last decades, numerous circuits have been presented. Next to that, experimental study and verification of chaotic phenomena, utilizing nonlinear circuits, have been portrayed. Moreover, applications of chaotic operating nonlinear circuits have appeared, mainly in the area of secure communications or ultra-wideband data transmission.

In this lecture, an introduction to chaos and its features will be provided, together with applied chaos theory examples utilizing nonlinear circuits. Emphasis will be given on digital chaotic circuits and chaotic synchronization since this kind of circuits seems to have a potential in applications on secure communications.

Biography:

Dr. Stavros Stavrinides received his Physics Diploma, his M.Sc. on Electronics and his Ph.D. on Nonlinear Circuits and Chaotic Electronics in 1996, 2003 and 2007, respectively; all from Aristotle University of Thessaloniki. He is currently affiliated with Computer Science Department, University of Thessaly, Greece. Dr. Stavrinides has taught numerous topics in physics and electronics, in academia (Aristotle University of Thessaloniki, Kavala Institute of Technology and the University of Cyprus) for more than 12 years. His research interests include, non-exhaustively, the design of analog and mixed-signal electronic circuits, chaotic electronics and their applications, experimental chaotic synchronization, chaotic UWB communications measurement, memristors and instrumentation systems, as well as other topics regarding nonlinear behavior of social systems and econophysics. Dr. Stavrinides has authored or co-authored more than 60 journal and conference papers, 2 book chapters and an edited book. He has participated, as a researcher, in several (Greek-) national and international (EU, NATO) funded projects. Dr. Stavrinides is an IEEE Senior Member.