

Department of Electrical and Computer Engineering**Title:** *"Chaotic electronics and applications"*

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Room KENTP. ΠΤΕΡ. – E113, Old Campus
University Campus

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 is provided, together with applied chaos theory examples utilizing nonlinear circuits' examples. Finally, chaotic synchronization and its application on secure communications and ultra-wideband (UWB) is discussed.

Biography: Dr. Stavros Stavrinides received his Physics Diploma, his M.Sc. in Electronics and his Ph.D. in Chaotic Electronics in 1996, 2003 and 2007, respectively; all from the Aristotle University of Thessaloniki. He currently serves as a Visiting Assistant Professor at the Department of Electrical and Computer Engineering, UCY in Cyprus. Dr Stavrinides has taught numerous topics in physics and electronics, in various institutions (such as the Aristotle University of Thessaloniki and Kavala Institute of Technology) for more than 14 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 as well as, measurement and instrumentation systems. Dr. Stavrinides has authored or co-authored more than 40 journal and conference papers. He has participated, as a researcher, in several (Greek-) national and international (EU, NATO) funded projects.