ΣΧΟΛΗ ΘΕΤΙΚΩΝ ΕΠΙΣΤΗΜΩΝ
ΤΜΗΜΑ ΦΥΣΙΚΗΣ
ΤΟΜΕΑΣ ΕΦΑΡΜΟΓΩΝ ΦΥΣΙΚΗΣ ΚΑΙ ΦΥΣΙΚΗΣ ΠΕΡΙΒΑΛΛΟΝΤΟΣ
ΕΡΓΑΣΤΗΡΙΟ ΜΗ-ΓΡΑΜΜΙΚΩΝ ΣΥΣΤΗΜΑΤΩΝ - ΚΥΚΛΩΜΑΤΩΝ
ΚΑΙ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ
LABORATORY OF NONLINEAR SYSTEMS - CIRCUITS & COMPLEXITY
(LaNSCom)

ΑΡΙΣΤΟΤΕΛΕΙΟ
ΠΑΝΕΠΙΣΤΗΜΙΟ
ΘΕΣΣΑΛΟΝΙΚΗΣ

Laboratory of Nonlinear Systems - Circuits & Complexity
LaNSCom
Department of Physics
Aristotle University of Thessaloniki
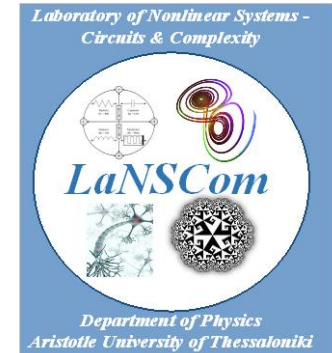
ΠΡΟΣΚΛΗΣΗ

Το Εργαστήριο Μη-Γραμμικών Κυκλωμάτων - Συστημάτων και Πολυπλοκότητας, του Τμήματος Φυσικής, του ΑΠΘ, σας προσκαλεί στην ομιλία του προσκεκλημένου καθηγητή **Esteban Tlelo Cuautle,** *που θα γίνει την* **Τρίτη 08 Μαΐου 2018 και ώρα 11:00** *στην αίθουσα συνεδριάσεων του Τμήματος Φυσικής (Δ26 – 4ος όροφος) με τίτλο:*

Design of Chaotic Systems with CMOS Integrated Circuits

Abstract: Chaos generators have been implemented with different kinds of commercially available analog and digital circuitry. From their mathematical model, they can be optimized by varying the coefficients and/or nonlinear function parameters by applying evolutionary algorithms. From their electronic implementations, complementary metal-oxide-semiconductor (CMOS) integrated circuit technology can be used to design the nonlinear functions and the whole system. This is a challenge because a small variation in the parameters of the integrated circuit may lead to lost chaotic behavior. That way, process, voltage and temperature (PVT) variations must be performed to guarantee chaotic regime. In addition, the integrated circuit blocks can also be optimized to accomplish the required values imposed by the ideal mathematical models. This talk details the design and fabrication of integrated chaotic oscillators by using floating gate MOS transistors and programmable operational transconductance amplifiers to tune the coefficient values of the mathematical models. Experimental results will be shown to generate from 2 to 7-scrolls and their synchronization in a master-slave topology suitable for chaotic secure communication systems.

Biography: *Esteban Tlelo Cuautle* received a Ph.D. degree from Instituto Nacional de Astrofísica, Óptica y Electrónica (INAOE), México in 2000, where he is Tenure Professor. He has been Visiting Researcher at University of California Riverside, USA (2009-2010); CINVESTAV, México (2016-2017); and Visiting Lecturer at University of Electronic Science and Technology of China (UESTC, Chengdu 2014-2017). He has authored 3 books, edited 11 books and around 300 works published in book chapters, international journals and conferences. He serves as Associate Editor in Metaheuristics (2018-Present), Integration - the VLSI Journal (2013-Present), IEEE Transactions on Circuits and Systems I: Regular Papers (2016-2019), and IEEE Transactions on Circuits and Systems II: Express Briefs (2014-2015). He has been a Technical Program Committee member of major conferences on circuits and systems (CAS) and regularly serves as a reviewer in about 40 high impact-factor journals and more than 20 conferences. His research interests include modeling, synthesis and design of integrated CAS, optimization by applying metaheuristics, design and applications of chaotic CAS, symbolic analysis and analog/RF and mixed-signal design automation tools.