University of Cyprus
School of Engineering

Department of Electrical and Computer Engineering

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«Cannabinoids and the Brain: A mathematical neuroscience approach»

Dr. Margarita Zachariou

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Room KENTP-E002, Old Campus

University of Cyprus

Abstract:

The brain is an immensely sophisticated computational system, the understanding of which presents us with one of the most challenging and rewarding problems humans have ever sought to solve. In the broad neuroscience field, advanced theoretical methods are routinely used alongside experiments in order to understand the complex structure and function of the brain and its computational principles. In the first part of this talk, a brief introduction will be given on basic neurophysiology and on the various theoretical tools and approaches in mathematical/computational neuroscience. The second part of the talk will cover the current development of the theoretical framework for unraveling some of the design principles underlying cannabinoids' signalling at both the cellular and the network level, and shed light on the neurobiological processes by which cannabinoids mediate certain brain functions like sensory gating, memory and learning.

Biography:

Margarita Zachariou initially obtained a BSc degree in Mathematics (Applied) from the University of Cyprus in 2003. She later moved to the UK where she received a Ph.D. in Mathematical Neuroscience from the University of Nottingham in 2008. Since then she has worked as a post-doctoral researcher at University of Nottingham and as a part-time lecturer at Nottingham Trent University. Currently she is a post-doctoral research fellow at the Department of Computer Science at the University of Cyprus (Didaktor fellowship funded by RPF, Cyprus). Her research interests lie predominately in the area of mathematical and computational neuroscience. In particular, she is interested in developing and analysing both spiking neural networks and dynamical system models and also in applying computational and mathematical techniques to facilitate the analysis, presentation and interpretation of neurophysiological data.