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Editorial

Mathematical Biology: Modeling, Analysis, and Simulations

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1. Description/Preface

Mathematical biology has been an area of wide interest during the recent decades, as the modeling of complicated biological processes has enabled the creation of analytical and computational approaches to many different bio-inspired problems originating from different branches such as population dynamics, molecular dynamics in cells, neuronal and heart diseases, the cardiovascular system, genetics, etc. Mathematical and computer science have come to work interactively to contribute to the better understanding of biological phenomena.

The present volume contains the 12 articles accepted and published in 2021 in the Special Issue, "Mathematical Biology: Modeling, Analysis, and Simulations" of the MDPI Mathematics journal, which covers a wide range of topics connected to the mathematical modeling of different biologically inspired and motivated problems. These topics include, among others, elements from processes in developmental biology [1]; equilibria and bifurcations in cardiac [2], tumoral [3] and regulatory cell [4] models; complexity in human pupillary light reflexes [5] and visual disorders [6]; a descriptive geometrical method as a model for motion [7]; statistical analysis applied to lactation model fitting [8]; DNA microarray experiments [9]; the transmission dynamics of HIV [10]; and mathematical models of the phosphorylation of glucose [11] and the transmission of tuberculosis [12].

It is hoped that this volume will be interesting and useful for those working in the area of mathematical modeling regarding biologically inspired problems and for those with the proper background who are willing to become familiar with the recent advances regarding the very different insights and views of live systems from mathematical and statistical alignments, which, nowadays, have entered into almost all sectors of human life and activity.

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Short Biography of Author

Ricardo López-Ruiz, MS, PhD, is an associate professor in the Department of Computer Science and Systems Engineering, Faculty of Science, University of Zaragoza, Spain. He is also an associate researcher in Complex Systems at the School of Mathematics, University of Zaragoza. Previously, he worked as a lecturer at the University of Navarra, the Public University of Navarra, and the UNED of Calatayud, all in Spain. He completed his postdoctoral studies with Prof. Yves Pomeau at the École Normale Supérieure of Paris, and with Prof. Gabriel Mindlin at the University of Buenos Aires. His areas of interest include statistical complexity and nonlinear models, chaotic maps and applications, multi-agent systems, econophysics, big data, and artificial intelligence techniques.