

## Preface

This book contains the selected works of the BIOMAT 2006 International Symposium on Mathematical and Computational Biology. This series of symposia started in 2001, in Rio de Janeiro, Brazil, being the oldest interdisciplinary series of conferences in Latin America in the area of biomathematics. A successful realization every year is due to the expertise of the members of the BIOMAT Consortium as well as to the members of the BIOMAT Editorial Board, its Referees, and Scientific Program Committees.

The BIOMAT 2006 Symposium was held in the city of Manaus in the Brazilian Equatorial Rain forest, from November the 25th to December the 1st. We had fifteen Keynote Speakers from Europe and Americas and an impressive number of contributed works presented by scientists and research students from Brazil and abroad. The BIOMAT tutorials, which are already traditional in the BIOMAT symposia, and are lectured on the first two days of these conferences, are a source of motivation for future researchers in these interdisciplinary topics.

The topics of the BIOMAT 2006 Symposium were a combination of state of the art research and review approaches. They range from cell dynamics and surface reaction models of protocells, to the study of collective steady states of cells, to the modelling of infectious diseases like HIV epidemiology, molecular genetic mechanisms of hepatitis B virus, and the dynamics of tuberculosis. Models of physiological disorders like tumor growth and 3D reconstruction of objects were also analyzed. Topics on the modelling of DNA and proteins by using de novo structure prediction, substitution matrices and Steiner trees were discussed. Other subjects covered in the BIOMAT 2006 Symposium were studies in population dynamics like insect sociality, multistability on predator-prey models, and techniques of impulsive differential equations in bio-economics.

We are indebted to the Board of Trustees of two Brazilian Federal sponsoring agencies: Coordination for the Improvement of Higher Education Personnel — CAPES, and National Council for Scientific and Technological Development — CNPq. We thank also PETROBRAS, the Brazilian Oil company and the world leader of oil research on deep sea waters, and the PETROBRAS-CENPES Research Centre. We have received financial support from SUFRAMA — Superintendency of the Manaus Free Trade zone, and from UNINORTE University Centre. The National Institute for Research of the Amazon (INPA) has provided an excursion to its "Science

Park". We thank specially the directors and representatives of these institutions: Prof. José Fernandes de Lima from CAPES, Dr. M<sup>a</sup>. de Lourdes Queirós from CNPq, Dr. Gina Vasquez from PETROBRAS-CENPES, Dr. Auxiliadora Tupinambá from SUFRAMA, and Dr. Wanderli Tadei from INPA.

Our warmest thanks are due to the representatives of two host institutions of the BIOMAT 2006 Symposium at Manaus: Prof. M<sup>a</sup>. Hercília Tribuzzy, Dr. Isa Leal and Dr. Tania Castelo Branco, from UNINORTE University Centre. Dr. Andrea Waichman, Dr. Marta Gusmão and Dr. José Pedro Cordeiro from UFAM — Federal University of Amazonas.

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Rubem P. Mondaini and Rui Dilão

Manaus, December 2006

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