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Preface

The primary aim of this special issue entitled *Advances in Applied Sciences* was to make some necessary preparative steps, by collecting state of the art research papers, towards beginning the project entitled “*Electronic Health Records for the Next Generation Medical Decision Support in Romanian and Bulgarian National Healthcare Systems*” abbreviated as *NextGenElectroMedSupport*, a Bilateral Cooperative Research Project between Romania and Bulgaria having as directors from Bulgaria Prof. dr. Roumen Kountchev, Technical University of Sofia and from Romania Senior Lecturer Dr. Barna Iantovics from Petru Maior University of Targu Mures.

This special issue covers themes related to the theories and applications of areas such as Complex Systems, Artificial Intelligence and the Medical and Pharmaceutical Sciences. The papers included in this Special Issue shed light upon some introductory and advanced problems in the following areas: research findings in nanomedicine; photodynamic therapy; dielectric analysis of porous silicon nanochannels; mathematical modeling as well as plausible and paradoxical reasoning based on Dezert-Smarandache theory. This includes aspects such as quantitative and qualitative reasoning - information fusion and web portal applications (web portal applications include Internet applications and ontology’s; collaborative virtual environments which allow virtual collaboration among geographically distributed people); e-learning; drug-delivery; applications in cerebral aneurysm; asymmetric model of the lung structure; photoelectrocatalytic materials; assessment of human bio-behavior during gait process; understanding service composition; business processes modelling; structural stability and chaos; formulation and study of some controlled release tablets and mathematical proprieties of complex networks.

Forthcoming in the *NextGenElectroMedSupport* project will be two editions of the *International Workshop on Next Generation Intelligent Medical Decision Support Systems*, held in the next couple of years. The 2011 edition will be held in Romania at Petru Maior University, followed by the 2012 edition that will be held at the Technical University of Sofia.

Editors of the Special Issue & Editor in Chief of the B.R.A.I.N. Journal