SERBIAN ACADEMY OF SCIENCES AND ARTS
BIOGRAPHY

Miljko Satarić

Born in 1948 in Mirosaljci near Arilje. Finished secondary school (grammar school) in Užice and Novi Sad. B.S. in Physics in 1972 from the Faculty of Natural Sciences in Novi Sad. M.S. in 1979 from the Faculty of Electrical Engineering in Belgrade on the subject of "Parametric Resonance in Antiferromagnets". PhD from the same faculty in 1984 with Dr Radoslav Žakula as a mentor (thesis: *Contribution to the Study of the Characteristics of Davydov Solitons in One-dimensional Molecular Structures*).

From 1973 Teaching Assistant in Physics at the Faculty of Mechanical Engineering in Novi Sad. When this Faculty grew into the Faculty of Technical Sciences, he was elected Assistant Professor in 1985, Associate Professor in 1990 and Full Professor in 1995.

He was Member of the National Council for Nanosciences and Nanotechnologies and is now Member of the Ministry of Science's National Committee for Physics. He has been Member of the Committee for Physics and Mechanics at the University of Novi Sad over a long period of time. He was Director of the Institute of Mathematics and Physics in Technical Sciences.

University courses: general courses in physics, the wave motion, thermodynamics, the basics of quantum mechanics, quantum electronics. He teaches two courses at PhD studies of microelectronics. Since 1978 he has been participating in various projects on fundamental research by the Ministry of Science of the Republic of Serbia. He is the project leader of "*Physical-mathematical Modeling in Nanotechnologies and Components*". He participated in FP-6 Project (no 043669) "*Reinforcement of the Center for Integrated Microsystems and Components*" and is likely to take part in the new FP-7 project.

For scientific achievements, Miljko Satarić was honored with the City of Novi Sad October and November Award.

Miljko Satarić spent more than two and a half years at several world famous universities participating in important projects. Most of this time he spent at the University of Alberta in Edmonton, Canada, where he first did his postdoctoral studies (1989/1990), and later returned on three occasions to work on the projects in biophysics which are relevant to pharmacy. His collaboration with renowned Canadian biophysicist Jack Tuszynski was very fruitful.

Professor Satarić successfully delivered courses in quantum mechanics and statistical physics at the University of Alberta.

He has also maintained fruitful cooperation with the University of Chalmers in Gothenburg (Professor L. Matsson) and with Charles University in Prague (Professor Jiri Pokorny). He was invited to lecture at the Universities in Düsseldorf, Dijon, Giessen, Vienna, Budapest, Salerno, Bologna, Lyon, Tucson and Bayreuth.

Together with J. Pokorny, he organized a series of conferences in Prague dedicated to the contributions of Herbert Froehlich to biophysics (its working title was: *Biophysical Aspects of Cancer*). These conferences have greatly contributed to multidisciplinary approach to biological phenomena.

Miljko Satarić's initial scientific work was focused on ferroelectrics, the theory of excitons and Mössbauer effect. Since 1995 his field of interest has been nano-biophysics in which he conceived and developed several models that successfully explain the transfer of particles and signals in the living cell. His research then mainly concerned microtubules, actin filaments and motor proteins. By using inherent non-linearity of soft biological substance, he successfully applied famous soliton models from physics in explaining a robust and stable transport, especially along very long polymers in nerve cells. He especially focused on the importance and role of intrinsic cellular electric fields on regulation of the ionic and protein transport along cytoskeletons. The invented ferroelectric model of microtubules has been cited about a hundred times so far and is referred to as Satarić-Tuszynski Model. It should be mentioned that the predictions of this model have been successfully confirmed in simulations by Blue Horizon super computer, as well as experimentally at "Cross Cancer Institute" in Edmonton.

Miljko Satarić made a significant contribution to the development of biophysical modeling of DNA together with Slobodan Zdravković who was the first in our country to obtain a PhD in that domain. He published more than 80 papers in international journals in physics and biophysics that have impact factor. These papers were cited more than 400 times. Miljko Satarić was elected Corresponding Member of the Serbian Academy of Sciences and Arts in November 2009.