



Celebrating the 70th birthday of Professor Dr. Gorazd Vesnaver

Professor Gorazd Vesnaver graduated in 1965 from the Department of Chemistry and Chemical Technology, Faculty of Natural Sciences and Technology, University of Ljubljana. After graduating he obtained the position of an Assistant Professor at the Chair of Physical Chemistry. Under the mentorship of the eminent academic Professor Dr. Davorin Dolar he completed his master's degree in 1970 and his doctoral studies of thermodynamic properties of polyelectrolyte solutions in 1973. His academic years of 1973/74 and 1979/80 were spent at Rutgers University, N. J., USA, under the mentorship of professor U. P. Strauss, who was then one of the leading scientists in the field of physical chemistry of polyelectrolyte solutions. As a consequence of these visits he published two papers about optical probes in polyelectrolytes in the *Journal of Physical Chemistry (JPC)*. These papers were cited more than 160 times altogether and remain among his most cited works

At his home university he was, along with his co-workers, engaged in the research of thermodynamic and transport properties of polyelectrolyte solutions, mainly the osmotic and activity coefficients, enthalpies of dilution, electric conductivity and transference numbers. Here two of his most important achievements will be mentioned. The first is the assessment of strong temperature dependence of the heat of dilution of alkali salts of polystyrenesulfonic acid. This could not be explained within the frame of the existing electrostatic cell model theory, indicating the role of

the noncoulombic interactions in polyelectrolyte solutions. Then, along with his co-workers, he began research into interactions between cationic surfactants and oppositely charged polyions. Experimentally and theoretically his group of researchers had been able to prove that in the polyion domain many small surfactant aggregates are formed, much below the cmc.

Professor Vesnaver spent the academic years of 1987/88 and 1994/95 in the Laboratory of Professor Dr. Kenneth J. Breslauer again at Rutgers University, N. J., USA. Professor Breslauer's research at that time was focused on defining and characterizing molecular forces that control communication between biological molecules, particularly the interactions that modulate and control gene expression, DNA damage repair and drug binding. This collaboration led to several highly cited papers published in distinguished international journals and defined Vesnaver's later research orientation. After returning to Ljubljana he succeeded Professor Lapanje in leading his research team and gradually expanded his research from proteins toward other biologically important substances. He began research into processes involving DNA conformational transitions and its recognition by different ligands. Professor Vesnaver was particularly successful in obtaining financial support in the form of international and domestic grants. Thus, the Physical Chemistry Laboratory was able to purchase modern scientific instruments needed for research of various thermodynamic properties, with empha-

sis on biologically important macromolecules. Thanks to his efforts, the biophysical laboratory at the Chair of Physical Chemistry at the University of Ljubljana is now one of the best-equipped laboratories in Europe for this type of research.

The research group led by Professor Vesnaver achieved internationally recognized scientific success. Reports of their works have found their way into the most renowned international journals. Using different biophysical experimental techniques such as UV absorption and circular dichroism spectroscopy, differential scanning calorimetry, isothermal titration calorimetry and gel electrophoresis, they were able to determine the mechanism and driving forces which govern particular physicochemical processes within biomolecular systems. As an example two publications are especially worth mentioning: "Model-Based Thermodynamic Analysis of Reversible Unfolding Processes", and "Energetic Basis of Human Telomeric DNA Folding into G- Quadruplex Structures" which were recently published in JPC and the Journal of American Chemical Society (JACS). It is evident from these publications that Professor Vesnaver and his co-workers have successfully used the strength of thermodynamics to predict the behaviour of DNA and protein molecules in the solution at various temperatures, concentrations of biomolecules and cosolutes. Professor Vesnaver has been able to perform rigorous thermodynamic characterization of complex biomolecular systems which is a capability rarely observed in biophysical science. Together with his co-workers he published more than 65 original scientific papers. The impact of those works reflects in more than 1000 citations.

Dr. Vesnaver advanced from Assistant Professor in 1977 to full professor of physical chemistry in 1988. He taught many different courses related to physical chemistry for students of chemistry, chemical engineering, pharmacy

and others. His lectures attracted great interest as is evidenced by several recognitions of the student body as the best lecturer at the Department of Chemistry. He was an experienced mentor and a great motivator to younger researchers. His motto was "We must help and allow younger colleagues to advance in their professional career." He often encouraged other professors at the Department to do the same. Under his leadership thirteen students graduated, two finished their master degrees and six of his students became PhDs. Many of them hold important positions today at the University, in research institutions and in industry.

Professor Vesnaver was head of the Chair of Physical Chemistry for two election periods and one election period head of the Department of Chemistry and Biochemistry. He had actively participated in the creation and organization of the new, independent study of biochemistry at the Faculty of Chemistry and Chemical Technology. He wrote the program for the subject Biophysical Chemistry, which is now taught at different courses of study. He was the representative of Slovenia in the European programs COST D7, D11, and D31. He is also still an active member of several professional associations and societies.

Professor Vesnaver received the Boris Kidrič Found Award together with colleagues D. Bratko and V. Vlady for the prominent research achievements in the field of physical chemistry of polyelectrolyte solutions. Along with his co-workers he was awarded the Boris Kidrič Prize for Technical Inventions and Improvements.

On the occasion of Gorazd's 70th anniversary his friends and colleagues wish him all the best, plenty of good health and a great deal of happiness in his private life. Last, but not least, we wish him a continuing active and successful scientific collaboration with his colleagues at home and abroad.

Ciril Pohar