

## Congratulations to Šebojka Komorsky-Lovrić and Milivoj Lovrić

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Šebojka Komorsky-Lovrić and Milivoj Lovrić October 6, 2013 at the 64th Annual Meeting of the International Society of Electrochemistry in Queretaro, Mexico

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This year, we are delighted to celebrate the 65th birthdays of Šebojka Komorsky-Lovrić and Milivoj Lovrić, two outstanding scholars from the Institute Ruđer Bošković in Zagreb, Croatia. Over the last decades, we have been enjoying scientific cooperation and friendship with them, witnessing their passionate relationship with science and with each other. Their life is a rare example of synergy between private and professional interests, between theory and experiments, resulting in remarkable contributions to the development of

electroanalytical chemistry and modern voltammetric techniques.

Both were born in Zagreb. Milivoj studied at the University of Zagreb, where he received in 1974 the degree “Engineer of Chemistry” and in 1977 “Master in Oceanography”. In 1983, he became “Doctor of Sciences” at the Institute Ruđer Bošković. Šebojka got all three degrees at the same university in Zagreb. She graduated in 1974 at the Faculty of Pharmacy and Biochemistry, where she also became Doctor of Science in the field of Chemistry in 1977, while her master degree was in Analytical Chemistry at the Graduate School of Analytical Chemistry.

While the Institute Ruđer Bošković was all the time their permanent working place, they enjoyed a very fruitful cooperation on an international scale. They frequently stayed at the Atomic Research Institute in Jülich, Germany, and cooperated with Janet Osteryoung and Royce W. Murray (USA), Alan Bond (Australia), Fritz Scholz (Germany), Richard G. Compton (Great Britain), etc. In their scientific work, they have inspired and supported each other, Milivoj concentrating on theoretical aspects of electroanalytical chemistry and Šebojka on experimental work related to trace metal analysis, electroanalysis of biochemical substances, pharmaceutical preparations, drugs, etc. Their overall scientific work is predominantly methodologically oriented, and only occasionally dealing with purely analytical tasks. They have contributed essentially to the development of hydrodynamic electrochemical systems, adsorptive stripping voltammetry, voltammetry of immobilized microparticles, and theory of pulse voltammetric techniques, electrochemical processes at liquid interfaces, electrode kinetics, microelectrodes, etc.

Beside early studies on the theory of pseudopolarography, normal pulse and differential pulse polarography and voltammetry, they made remarkable contribution to the theory of square-wave voltammetry, as one of the most advanced electroanalytical techniques, following the cooperation with Janet Osteryoung. Thanks to their work, we have understood the complex and frequently peculiar voltammetric features of electrode processes complicated by adsorption. They have discovered the general feature of adsorption coupled electrode processes under the conditions of pulse voltammetric techniques, known as “quasireversible maximum,” which served as a basis for development of elegant methods for measuring electrode kinetics. Besides analysis of adsorption coupled electrode processes, the theoretical considerations involved processes combined with homogeneous chemical reactions, electrocatalysis, cathodic stripping processes, multistep electron transfer mechanisms, etc. They made significant contribution to the development of voltammetry of immobilized microparticles, providing a theoretical basis for understanding the ion insertion mechanism and propagation of the redox reaction within solid electroactive particles immobilized on the electrode surface. Moreover, their seminal work, “A

New Access to Gibbs Free Energies of Transfer of Ions Across Liquid-Liquid Interfaces and a New Method to Study Electrochemical Processes at Well-defined Three-Phase Junctions” (*Electrochem. Commun.* 2 (2000) 112–118), which was awarded as the best cited paper for 2003 by Elsevier and the Electrochemistry Communications, paved the way for determining the Gibbs energies of ion transfer across liquid interfaces with an elegant, simple, three-electrode-based voltammetric approach. This approach considerably widened the range of ions for which these data can be determined by electrochemical measurements. Later on a series of publications emerged addressing coupled electron-ion transfer reactions at droplet modified three-phase electrodes, which, besides thermodynamics, enabled estimation of the ion transfer kinetics as well.

According to the scientific publication metrics, Šebojka and Milivoj belong to the leading scholars in Southeast Europe. Šebojka published 146 articles, Milivoj 176, receiving more than 2500 citations each of them. Additionally, Milivoj appears 11 times as an author of monographs, chapters of monographs. Both wrote many entries for the *Electrochemical Dictionary* (Springer 2008, 2nd edition 2012) and chapters of the textbook *Electroanalytical Methods* (Springer 2002 and 2005, 2nd edition 2010, Russian translation, BINOM 2006), they co-authored the Monograph *Square-wave voltammetry* (Springer 2007), and they are authors of a Croatian-language textbook on *Voltammetry* (ZIMO 2007). The list of books of Šebojka is long and includes several textbooks written for students from the period when she was occupying the position of Assistant Professor at the Military School for Technical Science in Zagreb (1988–1991). Considering the fact that their professional career comprised periods of severe political turbulences in Croatia and the wider Balkan region, never-ending political transformations and harsh working conditions, their achievements are even more impressive. The fact that they could never built up a typical research group with young PhD students (Milivoj mentored only two PhD students) clearly reveals that their scientific data are produced, elaborated, and published mainly by their own minds and hands.

Those who know them personally will agree that Šebojka and Milivoj are impressive intellectuals, highly gifted, bright persons, and full of spirits. They are a cheerful couple, keen on art and classical music, and always ready to enjoy in good food and wine. Those who have experienced a scientific discussion with Milivoj remain permanently impressed by his ability and speed to describe and solve mathematically a physicochemical problem. Milivoj claims that his impressive knowledge of history and geography (of course, besides remarkable competencies in mathematics, physics, and chemistry) stems from his elementary and secondary education only; however, it is obvious that he belongs

to the small number of contemporary scientists who are also philosophers of natural sciences. From a personal point of view, the generous sharing of his profound knowledge, eagerness, and the honest joy to help and support young collaborators are even more remarkable.

Šebojka and Milivoj, we wish you many happy returns of this day and hope that you will continue to support us and many young scientists of your institute, as you used to do for so many years. Your enthusiasm and joy for science was always a great inspiration for your collaborators.