On February 11, 2005, at a meeting at the Institute of Chemistry, Vilnius, the community of Lithuanian electrochemists marked the 80th birthday of Professor Ona Galdikienė who passed away almost 10 years ago. Professor Ona Galdikienė was one of the most outstanding representatives of electrochemistry in Lithuania and an Individual with passion for life and work, coupled with logical thought, self-belief and energy.

Ona (Repšytė) Galdikienė was born in Telšiai, Lithuania, on February 11, 1925. Her parents were physicians. Furthermore, her father was known to be good at mathematics. She was grown up in the family where not only medicine but also sciences were highly respected. Ona entered the medical course of a midwifery school at Kaunas, completing it in 1944. Her first job was in the TB Centre in Telšiai as a nurse. Shortly afterwards, in 1945, Ona moved to Vilnius where she began studying chemistry at Department of Chemistry of Vilnius University. A 1950 graduate of this University, she started a candidate (now Ph. D.) study in electrochemistry at the Institute of Chemistry and Chemical Technology (since 1992 the Institute of Chemistry) under the guidance of Professor Juozas Matulis, for whom she always had great respect. After having defended her candidate work on the overvoltage of hydrogen evolution at aluminum in 1953, Ona Galdikienė continued her own scientific work in the area of electrochemistry at the Institute of Chemistry where she spent her whole life as an electrochemist. She took up positions of senior research associate in Departments of Electrochemistry, of Physical Chemistry and of Functional Galvanotechnics (31 10 1953 till 31 12 1978), Head of Department of Investigation of Corrosion Processes (01 01 1979 till 31 01 1990) and then chief research associate (01 02 1990 until her death on May 25, 1995).

At the beginning of her independent scientific career Ona Galdikienė investigated the mechanism and kinetics of electrode reactions occurring at the discharge and ionization of nickel, copper and zinc as the main metals in galvanotechnics and the electrochemical behaviour of numerous inorganic and organic additives to the plating solutions. At this time, her research work was especially focused on electrode processes involving a sequence of reactions during the electrolysis of nickel(II) solutions and also on the specific adsorption of such additives as 2-butyne-1,4-diol, saccharin and thiourea at nickel electrode. In this connection, the experiments carried out by Ona Galdikienė left no room for doubt as for the discharge of hydrogen ions as a primary reaction with beginning the electrolysis of acidic nickel(II) solutions while the deposition of nickel coating is the second reaction occurring onto electrode covered by an adsorbed film consisting of oxygenated nickel(II) compounds. These findings were in contrast to the results obtained until then and were significant not only for the deposition of nickel layers with desired properties, but also helped to explain certain points relating the deposition of other metal coatings. Much of this work was connected with the effect of the additives mentioned above on the nickel deposition process. In particular, she showed that this effect was quite different with regard to the individual reactions taking place during electrolysis of acidic nickel(II) solutions - the hydrogen evolution was accelerated while the discharge of nickel ions was retarded in the presence of additive agents.

Ona Galdikienė made a substantial contribution to the understanding of the role of copper–oxygen compounds sol on the formation of copper deposits in weakly acidic or nearly neutral sulphate solutions containing some brighteners and in additive-free alkaline solutions of copper complexes with ammonia, as well as to the elucidation of the origins of
spontaneous cathodic potential oscillations in alkaline non-cyanide zinc solutions.

The experimental data on the electrochemistry of nickel, copper and zinc obtained by Ona Galdikienė herself and in collaboration with co-workers were described in her doctoral (now Habil. Dr.) thesis defended in 1973.

In the last two decades, Ona Galdikienė also worked on several other topics including tin electrodeposition, copper and tin co-deposition and the corrosion behaviour of zinc coatings pre-covered with conversion films and nickel deposits in various corrosive media. In particular, it was shown that the formation of intermediate tin(II)–oxygen compounds should be taken into account when studying tin deposition from alkaline tin(II) solutions, and that the discharge of tin(II) ions in acidic sulphate solution involves two successive one-electron steps, first charge transfer being the rate-limiting stage. The formation of at least four distinct copper–tin alloy phases was determined depending on the potential region and other experimental conditions. The appearance of anodic inverted waves in the region of cathodic potentials used for deposition of copper–tin alloys was observed in cyclic voltammetry and explained in terms of anodic dissolution of a separate β-phase of tin in a deposited bronze coating.

In closing, we would like to thank all those whose warm words in memory of Professor Ona Galdikienė were said at the Meeting and were used here. Her name and her work will be associated with the Lithuanian electrochemical community for generations to come.

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