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# The 80th anniversary of Professor Vaclava Zelionkaitė

On 11 May 2006 one of the most eminent Lithuanian chemists Vaclava Zelionkaitė celebrated her 80th birthday.

Born in 1926 to a farmer family (Girstupis village near Kaunas), she graduated from the 5th Kaunas gymnasium and studied chemistry at Kaunas University. Here she began working at Physical Chemistry Department and remained there after graduating from the University in 1950. She began working as an assistant, then as an associate professor. Her acquaintance with professor of physical chemistry J. Janickis who later became her research supervisor caused V. Zelionkaitė to get interested in the chemistry of sulfur and selenium compounds. In 1955 V. Zelionkaitė defended her Ph. D. work devoted to selenopolythionic compounds. She continued her doctoral studies and in 1964 maintained her thesis "Studies in the area of selenium oxygen compounds", which resulted in a doctor's scientific degree (now it would be a habilitation work). She was a first chemist woman having maintained a doctor's degree.

In 1968 she and some of her colleagues (Prof. J. Janickis, Prof. E. Pacauskas, Prof. B. Stulpinas and Doc. J. Valančiūnas) were awarded the Lithuanian State Prize for achievements in sulfur, selenium and manganese chemistry and electrochemistry, and in 1974 she was awarded the title of Merited Scientist of Lithuania.

Associate Professor Vaclava Zelionkaitė with students J. Zaleskytė and R. Gegeckaitė (both later continued research in doctoral studies which resulted in doctor's scientific degree) at the laboratory of Physical Chemistry in 1960

In 1969 Prof. V. Zelionkaitė was elected Head of the Department of Inorganic Chemistry at the Faculty of Chemical Technology. She stayed in this post until 1985, then working as a professor.

During her long teaching career Professor V. Zelionkaitė delivered various courses of lectures on chemistry, such as physical and colloid chemistry, physical-chemical analysis, technology sulfuric acid and of nitrogen compounds, general and inorganic chemistry. She (together with her colleagues at the Department of Inorganic Chemistry) published the manual "General and Inorganic Chemistry" in 1995. This manual is popular among students of chemical engineering, chemistry, medicine, pharmacology and other related specialities.

In 1959 the Department of Physical Chemistry began to specialize in training engineers of inorganic substances and fertilizers. Several generations of chemical engineers working throughout the country regard her as their teacher. Professor V. Zelionkaitė delivered courses of lectures on various subjects of chemistry, supervised their diploma papers. She is a true patriot of chemical industry in Lithuania, the Kėdainiai and Jonava plants in particular, and did a lot to man these plants with competent specialists.

Professor V. Zelionkaitė's main concern was scientific research. While in university (about 1948) she began active research work by investigating unstable sulfur and selenium compounds (polythionic and selenopolythionic acids). Theoretically, these compounds are interesting as large-molecule compounds, their molecules being based on atomic chains of sulfur or sulfur–selenium and are intermediate products of certain complex reactions. Actually, their chemistry is related to disintegration of sulfite cellulose solutions and to the problem of obtaining sulfur compounds from industrial gases by turning them into useful chemical substances, such as ammonia sulfate and elemental sulfur, as well as some to problems of selenium technology. Having bound unstable intermediate compounds and isolated them as little soluble salts, Professor V. Zelionkaitė and her colleagues succeeded in experimentally proving the mechanism of thiosulfate decomposition under the action of acids, i.e. the role of sulfanemonosulphonic acids as intermediate; they allowed to show that sulfur atom chains in the molecules of these acids are practically unlimited. These reactions enabled to find salts with over 50 sulfur atoms in their molecules (co-authors J. Janickis, J. Valančiūnas, V. Janickis and S. Grevys).

New reactions of selenopolythionic acid formation were discovered (jointly with J. Janickis, 1955). In these compounds sulfur is partially substituted for selenium. These discoveries triggered a new series of research. Synthesized potassium salt of diselenotetrathionic acid is the first compound of this class with two selenium atoms in its molecule replacing those of sulfur in the chain.

On working out the techniques for analysing complex mixtures of compounds of sulfur and selenium (1957 with J. Janickis and E. Pacauskas), it became possible to increase the scope of investigations in the field of selenopolythionates. Some new reactions of such compound formation were discovered and new selenopolythionates synthesized (co-authors: J. Janickis, D. Kudarauskienė and I. Jatautaitė). Simultaneously, the decomposition of such compounds was investigated (with J. Janickis and J. Šuliakienė) as well as their catalysis effect on the decomposition of hydrosulfites and their oxidation in air (jointly with J. Janickis, R. Likšienė, E. Pažarauskas, J. Zaleskytė). These problems are of great importance in the production of cellulose by hydrosulfite solution techniques. The authors of the method of obtaining ammonium sulfate from these solutions were granted authorship (co-authors: J. Janickis and J. Zaleskytė). The results of these findings were summed up in J. Janickis's article "Some Aspects of the Chemistry of Polythionates and Selenopolythionates" published in the USA (journal "Accounts of Chemical Research") in 1969. After V. Zelionkaitė had maintained her thesis for a doctor's degree and began working at the Department of Inorganic Chemistry, it was this department that continued sulfur-selenium research.

**Fig. 2.** Council of the Faculty of Chemical Technology, 1986. From the left, first row: Prof. B. Stulpinas, Prof. A. Paulauskas, Assoc. Prof. O. Petroševičiūtė, Prof. V. Zelionkaitė, Assoc. Prof. L. Ivaškevičienė, Assoc. Prof. E. Rinkevičienė, Prof. V. Janickis; the second row: Prof. S. Kutkevičius, Assoc. Prof. J. Vitkus, Prof. M. Martinaitis, Prof. J. Venskevičius, Prof. J. Janickis, Prof. J. Bernatonis, Prof. K. Sasnauskas, Prof. R. Baltrušis, Assoc. Prof. B. Milukas, Prof. J. Degutis

Among the systems studied by Prof. V. Zelionkaitė, arsenic compounds with selenium and telluropolythionates should be mentioned. A number of new selenoarsenites(III) and selenoarsenates(V) were isolated from strongly alkaline solutions (together with R. Čėsnienė, A. Žarnauskas, M. Krivenko, G. Jankauskas) as well as the first salts of tellurotrithionic acid (together with A. Pažarauskas, A. Juodzevičius, V. Janickis) and were studied for the first time.

Scientific achievements of Professor V. Zelionkaitė and her followers have never lacked local and international attention. Some of their findings have been incorporated into manuals and scientific monographs. Professor delivered reports at numerous local and international scientific conferences. She published over 150 scientific publications. Fourteen theses for doctor's degree were maintained under her supervision, one of them for a habilitated doctor's degree (V. Janickis). Prof. V. Zelionkaitė paid particular attention to the scientific activities of students and, encouraged by her, some of them became winners of republican as well as international competitions and later developed into well known scientists.

Professor V. Zelionkaitė's main concern was scientific progress and training of both creative scientific personnel and skilled engineers-technologists for our economy.

After retirement Prof. V. Zelionkaitė remains an active consultant of Ph.D. students and her former coworkers at the Department of Inorganic Chemistry of Kaunas University of Technology.

Congratulating Prof. V. Zelionkaitė on her 80th birthday, we wish her further success in all areas of her activities.

***Prof. Vitalijus Janickis***