



50 Years of Analytical Chemistry at University of Bucharest

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The Analytical Chemistry is an integrated part of the chemistry, which together with the other branches of chemistry (inorganic, organic, physical chemistry, catalysis, biochemistry, and technology) contribute to its importance in everyday life, in many other scientific domains, culture, and social sciences. However, the role played by analytics is proved by different teaching courses of analytical chemistry included in all student programs from universities in the world, and by the huge number of scientific journals in almost all publishing houses (Elsevier, Wiley, Springer, ACS, RSC, Taylor and Francis, and many others).

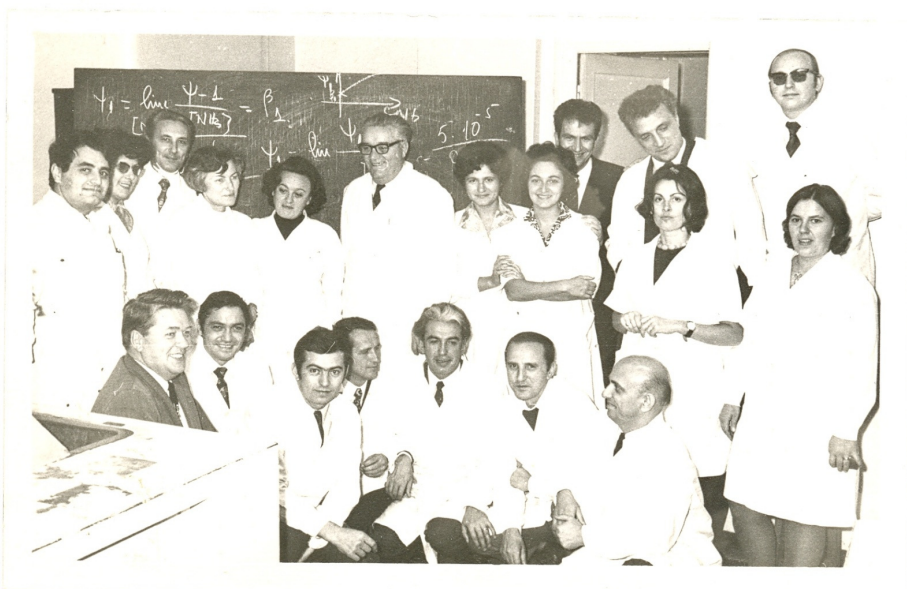
In this context, this year, 2011, the members of Department of Analytical Chemistry, celebrated 50 years since their chair has been founding at the Faculty of Chemistry. From historical point of view, this was the great merit of Professor Grigore Popa, who convinced the faculty leadership of that time of the importance of analytical chemistry in other scientific and professional branches. He was the Head of this chair for 16 years and contributed very much to the development of this domain in our Faculty of Chemistry from Bucharest, and together with his younger collaborators, he tried to equip laboratories with modern analytical instrumentation for those period. Thus, the three Analytical chairs from Bucharest, Cluj-Napoca and Iasi, contributed in a great extend with specialists and graduates for the development of industry in our country. This was not the only goal. Many of the Ph. D. students of this department occupied higher positions in other universities or research institutes from our country or abroad. An image of the team during those years is depicted below, with Professor Popa always among his younger collaborators. Some of them became professors in the same faculty, or made scientific carriers in USA, Canada, or Switzerland.

Previously, the first professor at Faculty of Sciences who developed research activity in analytical chemistry was G.G. Longinescu (during 1906-1938), with contributions to the separation and identification of elements in the H₂S group, separation, identification and determination of halogenated acids, or identification reactions of different ions, having many collaborators (Th. Pirtea, M. Badescu, or C.N. Theodosiu are only a few mentioned names here).

The first teaching courses in analytical chemistry were soon introduced with the following directions: General analytical chemistry; Trace analysis; Instrumental analysis; Methods for determining the analytical constants. Among the first research fields in which the academic staff and Ph.D. students have been involved were 1) Organic reagents in analytical

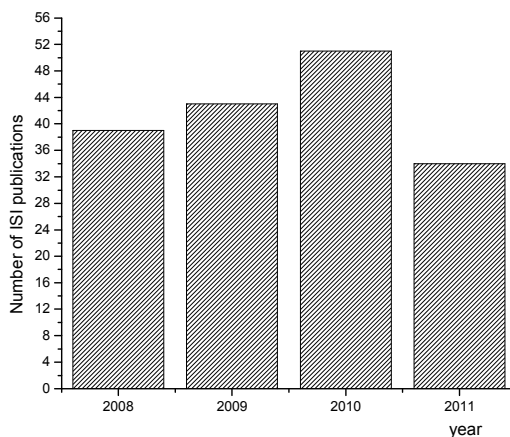
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chemistry, and 2) The measurement of analytical constants. Some of the first scientific papers published by Popa and coworkers in these domains are cited as refs [1-7]. It is worthwhile to mention that not only the academic staff from this chair was involved in research activity in analytical chemistry, but many of the former personalities of our faculty, such as for instance, Professor Spacu, or Professor Murgulescu, had in their research interest some issues in this domain. The gravimetric and potentiometric methods for the assay of Cu^{2+} , Ni^{2+} , Co^{2+} , Cd^{2+} ions with the aid of different organic bases, such as pyridine, aniline, benzidine, alkali rhodanides developed by Spacu and his collaborators, or the use of mercaptobenzthiazole as precipitation reagent for the determination of Cu^{2+} and other elements, are only a few examples of his original contributions in analytical chemistry.



Top row: *Constantin Nedeia; Elena Jercan; Constantin Luca; Vasilica Croitoru; Doina Viorel; Grigore Popa; Nina Dumitrescu; Luminița Vlădescu; Serban Moldoveanu; Elena Dimonie; George Emil Baiulescu; Constanța Cazacu; Vasile Magearu.* Bottom row: *Rudolf Lerch; Andrei Dăneț; Valerică Dumitrescu; Constantin Pătroescu; Corneliu Lazăr; Dumitru Cruceru; Ion Paralescu (from left to right).*

Nowadays, the academic staff, Ph. D. students, researchers and post-doc researchers from the Department of Analytical Chemistry have several research opportunities, such as in: separation methods; chromatographic analysis; automatization; analytical spectrometry and electrochemistry; sensors and biosensors in analytical biochemistry and immunoanalysis; standardization and quality assurance in laboratories; molecular recognition; food, environment, and pharmaceutical analysis. Many of the scientific results are published as articles in international journals, contributing to the prestige of our faculty, and our university as well. The short time trend of these achievements as the number of ISI publications is shown in the next graph.



The graph representing the distribution of published articles by the Department of Analytical Chemistry over the period 2008 – 2011 in journals indexed by ISI Thompson database.

During the years our department has been visited by many personalities in Analytical Chemistry, such as E. Pungor, W. Kemula, I.P. Alimarin, R.A. Buck, G. Christian, C. Liteanu, C.H. Lochmüller, P. Sandra, M. Mascini, G. Palleschi, R. Baldwin, L. Gorton, and many others.

Since 1990 the Analytical Department is the host of the Society of Analytical Chemistry from Romania (SCAR), which is affiliated to the Division of Analytical Chemistry in Europe, although its activity started unofficially many decades ago, with the occasions of first National Conferences in Analytical Chemistry, with international participation from 1969 and 1971. The President and the soul of this society was Professor G.E. Baiulescu until he passed away in 2009. As an example of how much appreciated were these conferences among the chemists, I want to mention that the works presented in the 3rd National Conferences of Analytical Chemistry (Brasov, 1971) were included in a special issue of the prestigious journal *Pure and Applied Chemistry*, [vol. 31 (4), 1972]. International activity of this society was continued after 1990 in a series of International Conferences in Analytical Chemistry, which took place in Iași (1991); Cluj-Napoca (1992); Constanța (1994); Craiova (1996); Piatra-Neamț (1998); Brașov (2000); Timișoara (2002); Brașov (2004). At these conferences many scientific personalities participated, from Europe, USA or Asia. The Editorial Board of *Analytical Letters* recognized the role played by Professor Baiulescu in developing the Analytical Chemistry in our country and dedicated two special issues for his memory (*Anal. Lett.*, 43, 7-8). Its legacy must be continued in spite of so many financial difficulties during these years. Young generation is obliged to continue the tradition and keep the quality standards which assure them a place in the hard competition with colleagues from other universities. From now on, this competition will be continued with all universities spread over the European Union. On the other hand, it is our duty to promote our past and present values and achievements in this competition, as some of former professors did before (for example, the unknown contribution belonging to *Teclu* to the development of atomic spectrometry has been emphasized later on, after several decades since his death, by Baiulescu *et al.* [8]).

As can be observed from this short presentation the Department of Analytical Chemistry had a good contribution to the high education and scientific achievements in our Faculty of Chemistry and its members hope to collaborate further with the other departments in different research projects in order to keep the first position among the other faculties of chemistry from our country.

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