Starting my historical presentation about Polish analytical chemistry I have to remind that 29 years ago the fifth Euroanalysis conference was also organized in Poland, namely in Cracow. At that meeting an introductory historical presentation about Polish chemistry was given by the late Ludwik Górski, professor of chemistry at the Technical University in Cracow, one of the organizers of the Euroanalysis V conference.
As a starting point I will only shortly mention the roots of analytical chemistry in Poland in the earlier days. A few words about the historical background seem to be necessary for better understanding the situation during the last period.

In XVIII and XIX century – when in other countries of Europe science was rapidly developed, on Polish territories there were only a few individuals who could be mentioned as pioneers of analytical chemistry.

Among them was Jędrzej Śniadecki professor at Vilnius University. He was a medical doctor, but also he analyzed meteorites and mineral samples. In 1806 he discovered, questioned by some chemists, a new element – vestium – later known as ruthenium.

In Warsaw in XIX century during the period of existence of Russian university there were no conditions for scientific research. One notable exception at the beginning of XX century was the discovery of chromatography by a Russian biologist, Michael Tswett.
At that time a number of Poles studied and worked abroad. They developed and used analytical procedures. The best example was Maria Skłodowska-Curie, the Nobel laureate in physics (1903) and chemistry (1911). She studied and made her discoveries in Paris, but she often stated that:

”I would never discover radium and polonium, when I couldn’t learn analytical chemistry in the “Museum of Industry and Agriculture” in Warsaw”.

The mentioned “Museum” was a private Polish enterprise for, among others, commercial analysis. The flow chart of separation and purification of crude barium and radium sulfates by Maria Skłodowska-Curie is based on reactions common in analytical chemistry.
Analysis as a technique was always used by chemists, but as a separate scientific discipline it was recognized in XIX century. The appearance of specialized new journals and in particular the publication if the famous book of Wilhelm Ostwald suggested that analytical chemistry may be treated as a separate discipline.

**Analytical Chemistry as an individual scientific discipline:**

- **1862** – Fresenius Zeitschrift für analytische Chemie
- **1878** – The Analyst
- **1893** – Wilhelm Ostwald
Nevertheless the most important achievements of that time were done by scientists who formally should be named as physical, inorganic or organic chemists. Similarly as in other countries at Polish Universities separate chairs or departments of analytical chemistry were formed not earlier than in the second half of the XX century.

Before the Second World War in Poland there existed five universities, namely 

**Jagiellonian University in Cracow** (erected 1364), Stefan Batory University in Vilnius (1578), John Casimir University in Lvov (1608), **Warsaw University** (1816) and **Poznań University** (1919) and two technical Universities, in Lvov (1977) and **Warsaw** (1915) (called usually Polytechnics) as well as **Academy of Mining and Metallurgy** in Cracow (1919). There chemistry was lectured and developed as a science. Within new post-war borders, since 1945, remained only three universities and two technical schools (shown below in bold type).

In technical schools analytical chemistry was usually lectured under the title of Technical Analysis. Besides in medical faculties it was a part of pharmacy curriculum. Development of new methods took place also in some research institutes, as the Institute of General Chemistry, the State Institute of Hygiene, the State Geological Institute, (all in Warsaw). After the Second World War the reconstruction of the old system was difficult principally for two reasons.

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**Polish Universities before 1939:**

- Jagiellonian University, Cracow 1364
- Stefan Batory University, Vilnius 1578
- John Casimir University, Lvov 1608
- **Warsaw University, Warsaw 1816**
- **Adam Mickiewicz University, Poznań 1919**

Technical University, Lvov 1877
- Technical University, Warsaw 1915
- Academy of Mining & Metallurgy, Cracow 1919
The first one was the lack of qualified personnel after the end of the war. The losses of well educated people including chemists during the war were very severe. The Polish Chemical Society published recently a list of personal losses of chemists, working before the war at universities and in main industrial laboratories. It is probably yet not complete but among them were 34 university professors and docents of chemistry. Besides, for political reasons after the war a number of educated people, among them chemists, remained abroad and rarely had a chance to work in chemistry. Further, it must be remembered that during the German occupation through more than six years, all higher educational institutions were closed and the six age-groups of young people could not replace their forerunners.

The second aspect was the lack of the laboratory facilities. The starting point was nearly at zero level. As it was mentioned within the new political borders of Poland remained only three pre-war university centers: Warsaw, Poznań and Cracow. However their laboratories were either destroyed during the war events or taken away by the occupants. The important pre-war German academic centers in Wrocław and in Gdansk, were not only devoid of scientific staff, but also of equipment. However, at least the site and partly the buildings remained.

A number of new universities were soon erected in various cities: Lublin, Łódź, Toruń and Gliwice, but also there the laboratory equipment was urgently needed. The new staff in these new schools was insufficient and not particularly specialized in analytical chemistry.

Therefore in these days so important was the invaluable help of Niels Bohr and other Danish academicians to invite 250 Polish students for a few summer months in 1946 to give them the possibility of practical laboratory work at Danish universities.

In spite of all difficulties in most old and new university centers the regular study of chemistry soon started.
Main achievements in analytical chemistry in Poland.

In 1952 a group of professors of chemistry in cooperation with industrial chemists organized a meeting for exchange views about the ways of education of recent new aspects of analytical chemistry. In 1955 the Commission (later the Committee) on Analytical Chemistry of the Polish Academy of Sciences has been organized. It brought together scientists interested in development of this field of chemical knowledge. This body, counting up to 50 scientists, represented most important analytical centers in Poland is still active and without doubt has significantly contributed to teaching, organization and development of analytical chemistry in Poland. The Committee, with changing names and competences, through more than half a century has stimulated and supported the activity of numerous university centers and their cooperation with industrial laboratories. During some periods the Committee influenced also the state financial support for analytical chemistry research programs. Its opinions concerning the changing of teaching programs of chemistry and on publication of textbooks devoted to various aspects of analytical chemistry were often presented.

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>1955</td>
<td>Analytical Commission (head Wiktor Kemula) within the Committee of Chemical Sciences of the Polish Academy of Sciences</td>
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<tr>
<td>1966</td>
<td>Commission of Analytical Chemistry of the Polish Academy of Sciences</td>
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<tr>
<td>1975</td>
<td>Committee of Analytical Chemistry of the Polish Academy of Sciences (21 specialized Commissions)</td>
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<td>2013</td>
<td>37 elected members of the Committee – in 10 Working Groups 168 analysts</td>
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An important activity of the Committee was organization of scientific meetings and conferences. Among them of special importance were those named “Polish Conference on Analytical Chemistry”. They usually covered all aspects of analytical chemistry, presenting new developments. Initially these conferences, from 1956 till 1968, they had the character of national events, only with limited international participation of individually invited scientists.

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<th>POLISH CONFERENCES ON ANALYTICAL CHEMISTRY</th>
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<td><strong>Council on Analytical Chemistry</strong></td>
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<td><strong>II Polish Conference on Analytical Chemistry</strong></td>
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<td><strong>VIII Polish Conference on Analytical Chemistry</strong></td>
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<td><strong>Euroanalysis V</strong></td>
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The important event for Polish analytical chemists was the conference “Euroanalysis V”. Organized under the auspices of the Working Party on Analytical Chemistry of the Federation of European Chemical Societies it was as early as in 1978, planned for Cracow. However, because of the martial state in Poland in the eighties, some analysts from the Western Europe proposed to move the site of the conference to some other place, e.g., to Spain. Happily due to the firm support of such prominent analysts, as Wilhelm Fresenius and Hanns Malissa, during the meeting of the Working Party in Munich in April 1983, the initial decision about the site of the conference was confirmed. The
political changes in Poland slowly made international contacts easier. Since that
time many Polish analysts have strengthen their contacts with worldwide
science. Also international serial conferences were organized in Poland, and the
participation of Polish analysts in international meetings abroad, became
simpler. As a consequence the character of the so called “Polish conferences”
changed. They became rather national meetings, obviously not excluding special
invited speakers from abroad. Such conferences now take place every 5 years,
the last one was in 2010 in Cracow. They give a general overview of the recent
achievements in analytical chemistry in Poland.

The role of the Committee is still important in discussion of educational
programs at universities and in evaluation each year the level of Ph.D. theses
and awarding the best ones.

Presenting the activity of the Committee on Analytical Chemistry it is
necessary to mention the foundation of the Polish journal devoted to analytical
chemistry in 1956. Soon after four years, in 1960 the papers published in this
journal were fully reported in international abstracting journals. Initially the
journal “Chemia Analityczna” was published mainly in Polish, but gradually
most papers appeared in the conference languages. Since 1992 all papers were
published in English and its title changed to “Chemia Analityczna – Chemical
Analysis”. Starting from 2010 according to the unfortunate decision of the
Polish Chemical Society the publication of the journal was terminated.
Further in my lecture I intend to present some results obtained by those outstanding scientists who passed away. Obviously the most interesting and most recent results will be at this conference presented by their authors.

There is no doubt that the most outstanding analytical chemist in Poland in XX century was **Wiktor Kemula**, He started his academic carrier as a physical chemist in the twentieths at the John-Casimir University in Lvov. At that time this was one of the strongest academic centers in Poland, both in science as in humanities. The early research papers of Kemula were devoted to basic electrochemistry in particular to processes occurring on the mercury dropping electrode. He early recognized the importance of polarography as an analytical tool. A major part of his research after the Second World War at the University of Warsaw was devoted to this technique. Those achievements have largely extended the possibilities of polarography in chemical analysis.

The first significant result was the invention of **chromatopolarography**. This was a method which joined the excellent electrochemical detectability of polarography with the separation abilities of chromatography. It should be remembered that in the middle of the XX century chromatography was still in an
early stage of development. The chromatopolarographic system, (shown schematically on Fig.), made possible analytical determinations of minute amounts of electroactive organic compounds, for example nitrocompounds, or mixtures of isomers. Coupling of two techniques: chromatography and polarography, can be now considered as a prototype of presently common hyphenated techniques.

It is interesting to mention that many new constructions were personally prepared by Wiktor Kemula who could work also as a glass blower or a precision mechanician. Sometimes he said joking, that he is not afraid of loosing the job at the University as he could also gain money as a craftsman. Happily this was not necessary when in March 1968 he has been dismissed from the University because he defended students repressed by the government. Such unfair and politically based action was after 14 years rewarded by offering him the title of doctor honoris causa of the University. After leaving the University Wiktor Kemula has continued his work in the Institute of Physical Chemistry of the Polish Academy of Sciences. There he developed further his ideas in new directions e.g., application of cyclodextrins in high pressure chromatography, electrokinetic detection in HPLC and supramolecular chemistry.

The second significant achievement was a construction of hanging mercury drop electrode. Until that time the main advantage of a mercury electrode in polarography was the continuous renewal of a highly reproducible surface of a mercury drop. The Kemula’s ingenious idea was to keep the drop hanging at the end of a specially constructed electrode, (shown at the Fig.). Such electrode, in the first step, was used for preconcentration of electroactive species and subsequently for their determination in a second polarizing step. His new concept, developed with his coworker Zenon Kublik, gave the analytical chemists a perfect tool, which shifted down the detectability of electrochemical determination by five orders of magnitude.
Further studies have shown that the process of preconcentration could be based not only on amalgam formation, but also on adsorption processes. The combination of the two steps, based on different physicochemical processes, gave the analysts a powerful tool for determination of extremely low concentrations of impurities, e.g., in environmental materials.

Speaking about the activities of Wiktor Kemula it seems necessary to mention that in different fields of physical and analytical chemistry, 25 of his doctorate students became professors. He was also active in IUPAC and Federation of European Chemical Societies representing Polish analytical chemists. For his achievements Wiktor Kemula was awarded with honorary membership of several learned societies.

However to complete the picture of this great individuality I want also to mention that Wiktor Kemula was a lover of classical music. As a student he earned money playing piano during the silent film performances, as a professor in the fifties and sixties of XX century he often invited friends at nearly every Thursday, to play in a quartet. He usually attended to concerts, until his last day.
He died unexpectedly during the evening Mozart Requiem concert in the Warsaw Saint Cross Church, at the age of 84.

A number of coworkers and followers of Wiktor Kemula successively developed analytical chemistry at the University. Among them I have to mention **Krystyna Brajter**. She specialized in separation of metal ions on anion exchangers with sulfonate groups in presence of various complexing agents. She investigated their properties and developed new analytical applications.

Another member of this school was my coworker, **Stanisław Głąb**. He developed microcoulometric procedures for investigation of protolytic equilibria of organic compounds, in water-organic solvents. Another field of his interest was the study of enzymatic electrodes, which resulted in the theoretical concept of their functioning in analytical measurements. This was based on detailed consideration of all equilibria (shown on the right side of Fig.) which take part in this process.
For several years he was a Dean of the Faculty, and later the Vice-Rector of the Warsaw University. He was also through several years active in the Division of Analytical Chemistry of the European Association of Chemical and Molecular Sciences. Unhappily, he passed away suddenly in 2008, during his full activity.

Important contributions to analytical chemistry in Poland were made in the forties and fifties of the XX century at the Institute of Industrial Chemistry in Warsaw. The head of the Technical Physics Department Janina Świętosławska with her coworkers invented many new spectrometric procedures for industrial applications. On the basis of numerous measurement data, obtained also from industrial laboratories, she has formulated general correlations between precision and accuracy, their statistical evaluation, methods of linear approximation, elimination of the blank in trace analysis, estimation of errors due to non-homogeneity of samples etc. etc. Concepts presented in her papers were well ahead of their common knowledge in chemometry, four and five decades later. Through many years Janina Świętosławska was very active in organization of courses and meetings devoted to theoretical and practical aspects.
of analytical spectroscopy. In her research team were prepared and published excellent monographs, devoted to fundamentals of applied spectroscopy, and to absorption spectroscopy. Her contribution to the introduction of modern analytical procedures to industrial analytical laboratories was significant. For her achievements she became in 1998 the first recipient of the Kemula Medal of the Polish Chemical Society (shown on the Fig.).

In the same Institute of Industrial Chemistry started his scientific career Jerzy Minczewski (1916-1995). A valuable contribution was the early monograph on potentiometric titrations containing a critical discussion of contemporary electrometric procedures. At the same time he was also involved in organization of the Chair of Analytical Chemistry at the Technical University in Warsaw, and initiated there research on organic spectrophotometric reagents for trace metal determination.
When in 1956 in Warsaw was founded the Institute of Nuclear Chemistry, Jerzy Minczewski became there the chief of the Analytical Chemistry Division. Under his guidance graduated several young chemists. He was also a coauthor of books on trace analysis, as well as on separation and preconcentration in inorganic analysis. In this Institute was very active a strong research group in emission spectrometry. It became, in the sixties and seventies of XX century, an important Polish center of applied analysis.

In this laboratory I will mention two scientists who significantly contributed to the development of spectroscopy. Jerzy Fijałkowski developed the emission spectroscopic methods based on copper spark excitation in particular for application in analysis of radioactive materials. Besides he was also very active in organization of numerous symposia and conferences on emission spectrometry in Poland, also with participation of many analysts from abroad. He was among those who have initiated the series of international conferences CANAS (Conference on Analytical Spectroscopy), some of them, in 1981 and 1988, were organized in Poland. The award named after Jerzy Fijałkowski, (shown on the Fig.) every two years is, since 2006, presented to
Polish and foreign scientists, who specially contributed to the development of analytical spectroscopy in Poland.

The second member of this team was **Leon Pszonicki**, who since 1968 became the leader of the laboratory. He developed several atomic emission spectroscopic methods of trace determination in mineral samples, including uranium ores. His research was particularly related to the application of spectroscopic carriers and the mechanisms of their action. Such studies were connected with the high-temperature physicochemical processes occurring in the excitation source. On this basis he studied theoretical correlations between concentration and analytical signal. This made possible computational elimination of interference effects in various analytical procedures. On the right side of the Fig., is shown a set of calibration curves in the presence of various types of interferents.
During his stay at the International Atomic Energy Agency in Vienna he invented and introduced in practice a new procedure for evaluation of results in interlaboratory comparison. This was based on the non-parametric distribution, as an alternative to that based on the normal one.

Through many years at the Technical University in Warsaw Zygmunt Marczenko, investigated new organic reagents for inorganic trace spectrophotometric analysis and developed a number of their application in trace determinations. As an example it should be mentioned formaldehyde, as well as a number of new azo-compounds.
International reputation received his excellent monographs on trace analysis as well as on separation and spectrophotometric determination of elements. (The cover page of that volume on Fig.). His books were translated into English, Russian and Chinese.

An early step of research in theoretical processes in chromatography can be attributed to a prominent physical chemistry professor Bogdan Kamieński, who acted at the Jagiellonian University in Cracow. Before the Second World War he studied electrical processes related to adsorption phenomena. An interesting contribution to analytical chemistry was the development in 1953 of an adsorption potentiometric sensor, which could be used as a novel analytical detector. It was used, for example, for determination of impurities in air and of pyridine bases and was called an “electric nose”. The scheme of it is shown at the slide, together with the diagram of the response for determination of nitrogen dioxide in air.

Among doctoral students of Bogdan Kamieński before the Second World War, was Andrzej Waksmundzki. He originated from a mountaineer family from the village Waksmund, close to the Tatra Mountains. As a young doctor he started his scientific carrier in Cracow, During the war he went through an ordeal, passing through several German concentration camps as Auschwitz and
Mauthausen, working also there as a stone breaker. After the war he returned to Poland and became employed in Lublin at the newly formed Maria Skłodowska-Curie University as a professor of physical chemistry at both Pharmacy and Natural Science Departments. Developing the field of interest of his former professor in Cracow he started to investigate the theory of chromatographic processes.

His initial papers were devoted to the adsorption properties of some quinoline bases. This was a good starting point for further studies in theory and practice of chromatography which at that time, in the forties and fifties of XX century, expanded rapidly. He worked also with success on developing industrial extraction processes and on optimization of parameters of chromatographic separations of organic species. He started the industrial production of chromatographic columns of various polarity, based on carbon and organic polymers, as well as construction of various apparatuses necessary in physicochemical studies.

Beside experimental chromatography the research interest of Andrzej Waksmundzki encompassed a wide range of theoretical aspects of phase boundary processes in adsorption and electrochemical phenomena. Among them it is worthwhile to mention the study of optimization of separation conditions...
for acidic and basic species in industrial systems, the theoretical basis of adsorption processes in multicomponent mixtures, and the investigation of conditions for separation of complex biological systems.

Through several decades, nearly 40 of Waksmundzki’s students became professors, Therefore in Lublin he got a nickname “Professor of Professors”. He was rewarded be the title of doctor honoris causa of several universities. The progress of chromatography in Lublin, both in theory and analytical applications was and still is well known, and the term: “Lublin School of Chromatography” is used also outside Poland.

In 2001 the Polish chromatographers decided to set up a Waksmundzki Medal, two sides of which are shown on Fig. It is presented each year to Polish and foreign scientists as a tribute for special achievements in chromatography.

The role of the Lublin school can be also traced in basic theoretical studies which resulted in such relationships, as the Soczewiński-Wachtmeister equation, which relates the chromatographic parameters with the molecular structure of the analyzed species. Similarly, the Snyder-Soczewiński equation gives the quantitative relationship between retention and eluent composition.

It is worth to mention that Andrzej Waksmundzki had also interest in many other areas, always presenting a very practical approach even in seemingly distant areas. For example he realized that preparation of capillary column may be a proper way to prepare fibre optic cables. This initiated their study and also production in Poland.

In spite of many creative scientific activities in Lublin Andrzej Waksmundzki always paid special attention to his birthplace, to his country-fellows and to everything connected with his mountainous homeland – Tatra mountains. He used to spend most of his free time there. He often served as an adviser in difficult problems of his friends. Those warm feelings were repaid and for his funeral ceremony in Lublin came and played an original mountaineers band.
Many students and coworkers of the research group of professor Waksmundzki significantly extended and broadened the studies on chromatography and related techniques in Lublin. Among them I want to remind Zdzisław Suprynowicz, professor in the Department of Chemical Physics and Physicochemical Separation Methods at the Chemistry Faculty of the University. Being interested in gas chromatography, he constructed the first gas chromatograph in Poland. On the slide there is shown a schematic of a HPLC detector of his construction. He also contributed to the knowledge of physical phenomena in capillary zone electrophoresis. On Fig. is shown a scheme of the electrochemical detector of his construction.

The chromatographic school in Lublin, without any doubt, influenced positively the level of that important field of chemical analysis in other centers in Poland.

In the heavily industrialized part of Poland in the Upper Silesia, the need for methods readily adaptable in industry influenced the type of research in universities and institutes. Through more than 40 years at the Silesian Technical University in Gliwice in the Chair of Analytical and General Chemistry analytical chemistry was developed and promoted by Zbigniew Gregorowicz.
He studied there chemistry and later worked as professor of analytical chemistry.

Procedures, to which he paid special attention, were developed for analysis of different industrial row materials and products. For this purpose he investigated and modified many optical and electrochemical measuring techniques (shown schematically on the Fig.). He also developed a number of procedures for control of environment pollution. Beside he studied also new spectrophotometric reagents and investigated new redox indicators. Polarographic methods were used for determination of main and trace metallic elements in Polish mineral resources, in ashes, and in industrial residues. The broad spectrum of methods developed and modified covered both inorganic and organic analytes in technical products of mineral as well as organic industry.

To obtain a more complete characteristic of Zbigniew Gregorowicz it is necessary to say a few words about his life-history. During the Second World War, as a young man he was fighting actively in the underground Polish Army, where he lost his right arm. He was rewarded with high military orders, among them Virtuti Military, the highest distinction in Polish Army. Certainly this has influenced also his long-standing post-war activity in the Scout and Veteran Organizations. 
In the Institute of General Chemistry of the Technical University in Poznań, Zbigniew Kurzawa, developed analytical methods based on inorganic and organic sulfur compounds. In particular he investigated physicochemical characteristics of catalytic reactions in sodium azide – iodine system, as shown on the slide. He found that such reactions offer numerous possibilities of development of analytical procedures for direct determination of trace amounts of divalent sulfur compounds. By proper selection of reaction conditions it became possible to determine individual species in mixtures of compounds of biological importance. It has been also applied to indirect determination of analytes, which react with various sulfur derivatives. On this topic he published several tens of research papers. Therefore some analysts have named this reaction a Kurzawa reaction.

It is interesting to mention that in the fifties and sixties of XX century, such not very commonly known reactions also attracted attention of a group of chemists also at the University of Łódź. The azide-iodine reaction was studied at the University of Łódź by Włodzimierz Jędrzejewski. Being interested in electrochemistry he developed several electrochemical procedures, for example, coulometric, in which the azide-iodine reaction could be used in procedures for determination of sulfur compounds.
In Northern Poland at the Technical University in Gdańsk **Edmund Kozłowski** having long experience in microanalytical procedures, in the last decades of XX century, investigated automatic methods of microelemental analysis of organic compounds. For example, he developed and applied coulometric techniques for determination of fluorine group elements and sulfur. Of special interest were his fundamental studies on the general equation describing the flow rate of the liquid phases in continuous flow thin layer head space analysis. A schematic presentation of such instrument is shown. Such fundamental investigations were an important step in development and application of theoretical considerations in environmental studies.
The selection of less than twenty names of Polish outstanding analytical chemists, which has been presented, was to some extent, arbitrarily. As a rule I have described individually only those which today are not among us. In most cases those scientists created research schools, worked in teams of students and coworkers. They have continued the work of their forerunners, extending the research fields and introducing new ideas. Due to the rapid progress in science and also new instrumental possibilities, new research fields in analytical chemistry were intensively developed in many Polish Universities and research institutes. At present here are now in Poland 22 cities where functions at least one university or technical university, in which chemistry studies are regularly presented. As the history extends till yesterday, at the end of my presentation I will give a very short outline of some more important centers where some analytical techniques are developed and specially directed to given problems. This is not an exhaustive presentation and is based rather on my personal experience and interest.

Modern **spectroscopic methods** were and are investigated at the Wrocław Technical University, as well as at Poznań, Białystok and Warsaw Universities.

The fundamental aspects of **chromatographic processes and applications** were and are studied at the Nicolaus Copernicus University in Toruń, in the Gdańsk Medical University, at the Technical University in Gliwice and at the Silesian University in Katowice, and of course continuously in the very competent, in that field, academic schools in Lublin.

The most interesting fields of contemporary analytical chemistry, namely **sensors, biosensors and flow-through techniques** are since the long time actively developed in the Warsaw Technical University, Warsaw University and Jagiellonian University in Cracow.

In Warsaw University, Łódź University and in Academy of Mining and Metallurgy in Cracow were since many years and still are investigated and developed theoretical and practical aspects of **electroanalytical methods**.
The variety of analytical techniques for special purposes and applications are thoroughly studied and developed in other centers, as e.g., for **environmental protection** as at the Technical University in Gdańsk and at the Adam Mickiewicz University in Poznań.

There are also active teams, in some centers which develop analytical methods for investigation and preservation of **art and archeological objects**. Beside Warsaw, Cracow, Toruń Universities and Technical Universities active teams exist in other places.

In should be also remembered that in several smaller, newly created academic research centers, e.g., in Białystok, Olsztyn, Opole, different novel aspects of analytical methods are currently investigated with success.

This short presentation of contemporary centers active in analytical chemistry does not exhaust the list. The papers presented on this Conference will certainly give a more complete picture.