SCIENTIST OF AMAZING UPRIGHTNESS AND VALUABLE SCIENTIFIC RESULTS
(dedicated to acad. Constantin Turta 70's anniversary)

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The scientific community marked in December 2010, a special event for local science - 70 years from the date of birth of the great chemist scientist, academician of ASM, doctor habilitate, Professor Constantin Turta, who is considered one of the greatest scholars in inorganic chemistry due to his erudition and fruitful scientific activity.

Acad. Constantin Turta, impassioned by chemistry since middle school, is known and appreciated not only by employees of the Institute of Chemistry of the Academy of Sciences, by several generations of graduates of the State University of Moldova and the Technical University, where he taught and continues to teach inorganic chemistry, but also by specialists from abroad (Romania, Russia, Tajikistan etc.), where he was invited to give lectures. This chemist, so erudite, with an excellent scientific and methodical training, is considered one of the most brilliant chemists by our great chemist, academician Pavel Vlad.

Being a very modest man, he never evoked his own personality. Few people know his biography. Therefore, I considered necessary to say a few words about his life. Constantin Turta was born on December 20, 1940 in the village Buciusca, Rezina, Moldova, in a peasants' family. To fight boredom, as he often remained alone at home, he decided to attend school with his older sister Alexandra. The following year, at the age of 5, he is accepted at the village elementary school, which he graduated in 1949. Since there wasn't any school for further education in the village, he got secondary education in the town Rezina, at School no. 1, which he graduated in 1956.

He was a diligent student, quiet, well noted and eminent almost at all disciplines. He was among those who were to graduate the 10-years school with excellence. But in the tenth grade an unfortunate event happened. Together with a classmate, they decided to visit the classmate's village to celebrate the village festival, being sure that the next morning they would return to school until the beginning of lessons. In the morning, his classmate's parents saw how tight the children were sleeping and decided not to wake them up, thus the boys were late for two hours. Some school teachers have not remained indifferent to that, saying that breach of discipline was committed by some of the best students and insisted for that event to be discussed at the meeting of the teachers' council, as a lesson for the entire school. After all, the biggest injustice to Constantin happened, because conditions have been created to hindrance his graduation with excellence of the secondary school.

Tests with stressful character, naturally, have continued during the entrance examinations at the Faculty of Chemistry, State University of Chisinau. In 1956, when Constantin presented his documents at the State University of Chisinau, there were 12 persons aspiring for each place. Constantin, though he didn't speak Russian very well, passed the test with honor (in those days studies at the Faculty of chemistry and biology and other faculties of exact and life sciences were in Russian) and became a student. Due to the fact that his knowledge of chemistry was quite significant, things at the University in general started to go as he pleased.

A person full of energy, he had several ambitions: to become a dancer in the ensemble "Joc", to form himself as a scientific researcher etc. With great pleasure, in 1957, together with his colleagues at the university, he participated in celery harvesting in Kazakhstan. In a word, just like other students, he was involved in many activities concurrently. But the fact that during that period at the Faculty of chemistry worked so prominent scientists like the future academics of ASM A. Ablov, Gh. Lazurievschi, U. Lealicov, T. Malinovschi, university professors P. Migali, M. Chişineovschi, naturally burst his desire to devote his life to science development. This was also due to the fact that he possessed all the necessary skills of a scientist, from his parents: pedantry, sense of discipline, punctuality, responsibility, diligence, etc. These qualities were what distinguished him among the best students.

After graduating the State University in 1961 he is assigned to work, as junior scientific researcher at a military institute of the Ministry of Defense in the Saratov region, where he dealt with the problems of sorption and filtration of substances. After three years, in 1964, he returned to Moldova, and was hired as an assistant at the Department of General and inorganic chemistry of the Polytechnic Institute of Chisinau. He was actively involved not only in organizing the teaching process of the department, but also in its social life, and therefore he was elected secretary of the Komsomol of the Technological Faculty, Chairman of the Professional Committee of students, assistant secretary of the Komsomol Organization of the Polytechnic Institute. While working at the Polytechnic Institute, he created a family by marrying Hlusova Larisa, also a chemist, and his daughter Ludmila was born in 1964.

In 1964 together with other colleagues working in the Military Institute, he obtained the first patent for invention.

In 1966 he entered the PhD courses at the Institute of Chemistry of the ASM and was delegated to work on

his doctoral thesis at the Institute of Chemical Physics AS USSR (Moscow), where he worked until April 1970. In that institute, whose director was the renowned scientist and Nobel Prize Laureate, Acad. N. N. Simionov, Constantin Turta obtained a deep theoretical and practical training, and became the only specialist in Moldova in the field of application of Mossbauer spectroscopy in chemistry.

The high professional level of the PhD student (future academician) Constantin Turta and the importance of the scientific results obtained in that institute are proved by the publication of his first seven scientific articles between 1970 and 1971 in the most prestigious journals "Reports of AS of USSR", "Theoretical and experimental chemistry", "Journal of inorganic chemistry" and their presentation in two specialty union conferences.

Returning to Chisinau, he was treated just like the other natives – he wasn't appreciated and supported at his fair value, but was employed as senior lab assistant, position held until July 1971. He successfully proved his PhD thesis in 1971, with the title "Study of iron coordination compounds with organic ligands using the Mössbauer method".

After proving the PhD thesis, although he published 10 articles, together with such scientists as A. Ablov, V. Goldanschi etc., in the most prestigious journals and for the first time implemented in our country the magnetochemical method at low temperatures (~ 110 K), gamma resonance spectroscopy, or the so-called Mössbauer spectroscopy, and his family was not very prosperous, the Institute of Chemistry continues to keep him in the position of junior researcher for another four years. And only on 16 December 1975 he was elected and reinforced by the Bureau of the Department of Biology and Chemistry as senior scientific researcher.

In November 1976 he was elected senior scientific researcher in the group of spectral and elemental analysis, which was coordinated by him until 1988, when he was elected through contest in the position of head of the " Bioinorganic Chemistry" Laboratory.

Acad. C. Turta's name is known in the scientific world due to his fundamental pioneering work in the field of application of Mössbauer spectroscopy in chemistry, inorganic and coordinative chemistry. For the first time, he implemented in our country the Mössbauer method with its application in chemistry, which made the majority of his scientific work truly pioneering.

He developed the chemistry of homo- and heteropolynuclear carboxoclusters of iron (III), which allowed him developing new methods of synthesis and obtaining new physiologically active substances. Highly appreciated is the work he devoted to the synthesis and characterization of mixed valence iron compounds, and to the description of dynamic phenomena: phase transition, electronic density delocalization of dynamic time-space type, the phenomenon of spin transition $^6A_1 << {}^2T_2$ for iron ions (III) in thiosemicarbazonates and dioximates of iron (III), to elucidate factors influencing the transition temperature and spin transition type and the velocity of electron transfer in such systems. Based on Mössbauer spectroscopy, a class of substances has been proposed in order to study the intermolecular electron transfer process.

For the first time, he proved that the mixed-valence iron carboxylates possess significant catalytic properties for the reaction of unsaturated hydrocarbons hydrogenation. For the first time he synthesized and studied carboxylates of tetranuclear iron (III) and heterotetranuclear, containing rare earth ions. Also, he developed a unique method of assignment of partial Mössbauer spectra of iron ions with different close surroundings in a polynuclear molecule, which is based on determining the temperature dependence of the projection of amplitude oscillations of iron ions $<x^2>$ from the rest position.

The work of acad. C. Turta got highly appreciated in the scientific world for its originality and the multilateral approach to the studied problems, use of modern methods and deep analysis of scientific results. This may be proved by the cycle of works devoted to iron α-dioximates, whose molecular, crystalline and electronic structures were determined by using Mössbauer spectroscopy, magnetochemistry and quantum-chemical methods. This approach allowed showing that in the class of α-dioximates of iron (II) with octahedral tetragonal distorted structure, introduction in the composition of ligands of groups with different donor-acceptor properties slightly changes the π- and σ-type metal-ligand bonds, leaving unchanged the spin state of the complex generator.

He is among the first researchers who used the data obtained by gamma resonance spectroscopy method to elucidate the topochemical intramolecular redox reaction involving the couple Fe - ligand in iron α-dioximates, described the kinetics of this reaction and studied the electronic state of the dopant Fe in the superconductor of high temperature of type Bi-Pb-Sr-Ca-Cu-O.

Special attention was given to studying the state of iron ions in the phase of ions changes and, also, to transformations of oxidation number and spin state of iron as a result of influence of different reagents and temperature.

The scientific interests of acad. C. Turta extended on the electronic structure of the active center of hemoglobin in different conditions - under the influence of traumatic shock, nitrates and some pesticides.

Based on fundamental scientific results, he synthesized novel coordination compounds - gajazot, galmet, trifeden, difecoden etc., which are used in agriculture and microbiology.

Towards the late 80s of the last century, C. Turta became recognized as the most authoritative scientist in the application of Mössbauer spectroscopy in coordination chemistry and physics, as was widely noted at the ASU Institute

of Chemical Physics (Kiev) while proving his Dr. habilitate thesis "Dynamic effects in complex combinations of mono- and polynuclear iron with polydentate ligands (syntheses, structure, Mossbauer spectra and magnetic properties)".

In 1995 important events took place in the life of C. Turta – he was awarded the title of university professor and elected as corresponding member of the ASM.

Due to his consistency and depth in performing scientific research and its intelligent behavior, scientific achievements and its uprightness, acad. C. Turta's authority in society had become an axiom; therefore his election in 2000 in the position of the general scientific secretary of the ASM was perceived by all as a natural, but also necessary act.

Prof Turta is the author of 517 scientific publications, including nearly 200 articles, published in the most prestigious international journals, 32 patents and a university handbook "Introduction into gamma resonance spectroscopy (Mössbauer spectroscopy)."

He gave lectures not only in local universities in the country (Technical University, State University, Academic University), but in foreign universities, as well (Technical University "Gh. Asachi", Romania, University of Tajikistan, Dushanbe, West University, Timisoara etc.).

C. Turta successfully collaborates with recognized scientific centers in the world - Institute of Chemical Physics "N. N. Semionov" (Moscow), National Institute for Materials Physics (Bucharest), Institute of Physical Chemistry (Bucharest), Institute of Physical Chemistry (Kiev), Institute of Macromolecular Chemistry "P. Poni" (Iasi) etc.

He is the founder of the scientific school in physical chemistry, inorganic and coordinative chemistry. Under the leadership of Prof. Turta were proved 7 PhD theses and 2 Dr. habilitate theses.

Scientific and managerial contributions of acad. C. Turta in the development of science have been recognized at home and abroad, being awarded the Order of "Labour Glory", with the medal "Honor.Glory.Labor" of gr. IV (Ukraine), the Medal "L.S. Ciugaev", awarded the National Prize in Science and Technology etc.

C. Turta stands out among other personalities due to his style of work, his delicate behavior, honesty, pedantry, intelligence. He is appreciated by others as a scientist endowed with great intellectual and moral qualities. Not once I was impressed, as a witness, by his resistance to some temptations, maintaining honesty, good reputation and non-profitable character.

Devoting his life to the study mainly of electronic structure, properties and significance of iron and its coordination compounds, academician, Professor C. Turta has created a lifestyle and uprightness alike the metal he has always studied.

Given such personalities, who willingly sacrifice their lives to science, such people of good faith and great scientists, as is acad. C. Turta, you can be sure about the future of science.

Live healthy for many, many years, dear acad. Constantin Turta, with new achievements in science!