In Memoriam Yu.M. Ostanevich

László CSER
Wigner Research Centre for Physics Hungarian Academy of Sciences
cser.laszlo@wigner.mta.hu

Abstract. Ten years ago, Joint Institute Nuclear Research released a book containing commemoration written by co-workers, colleagues and several guest scientists who had had close and fruitful companionship with Yuri M. Ostanevich. In their papers, the authors presented many of his scientific ideas and achievements proposed and even accomplished by his hands. When I was asked to give this short memorial speech, I got confused. It is without any reason to repeat what can be already found in the book. Thus, I had to make the decision to tell you some rather personal and somehow minor impression of mine, and due to this approach, it is tackled from a subjective point of view.

1. Introduction
In 1963, I was delegated for a three years period to JINR – more precisely to Neutron Physics Laboratory – aiming to learn the application of Mössbauer effect to solid-state physics.

Entering the lab where I was directed by the administrators, I saw a tall blond young man being busy with soldering some rather complicated electronic scheme. He was whistling a beautiful tune giving a proof of perfect ear for music. This whistling accompanied his deep meditation on a given problem. He kept this habit for a long time afterwards. Several years later he had started to smoke a pipe.

After mutual introduction, he immediately got me acquainted with the aim of his actual activity: working on building a new system for actuation the Co57 source. The idea of the so-called resonant stabilization proposed by him. The explanation I got was compact and clear without any unnecessary details.

I felt immediately that I had arrived at the right place and a right person with balanced temper. Indeed, Yura had a very good character. He was calm, never shouted, and my Russian dictionary was compiled by a collection of dirty words from many other sources but him.

2. Einstein and Fermi
To work with him was easy and even informative. Yura immediately understood what I was going to tell and quickly found both the mistakes and accuracy in my words.

We soon became friends. Funny, we both deeply respected Einstein’s theory of relativity, yet after reading the book about Fermi’s biography, the style of Fermi’s group in Rome stood closer to our hearts. We started to call each other by the title “dottore” both at the lab and later on in letters.

Our colleagues at the neutron physics lab were surprised by our habit not being on first name terms with each other. We expressed our respect for each other by this uncommon way.
3. The theory of relativity
Despite of our attraction to Fermi’s way of conducting physical research, the interpretation and experimental proving of the theory of relativity was one of our permanent topics almost every evening when I was asked to accompany him to his place.

For example, the theory of relativity of space and time was a basic statement. Space was considered empty and no material was endowed with any material properties like ether. On the other hand, the structure of this emptiness is influenced by gravitation. In fact, the geometry of this emptiness can be modified by presence of gravitation. From this statement it follows that space should possess material properties.

You can see that trying to solve the above-described contradiction was a good theme for long discussions. Amongst other issues, diminishing our ignorance was also a way of our thinking.

4. Another intriguing problem
Another intriguing, unsolved for us problem, was the following. A charged body emits electromagnetic radiation if it is accelerated. On the other hand, a weak gravitation field is equal to accelerated motion at the first approximation. (See the “gedanken experiment” with the free falling elevator). If it is so, then an electron placed on the table has to emit radiation. Yet another problem to be discussed.

Once, Academic Ginzburg visited the Neutron Physics Laboratory and obviously presented a talk at the seminar of the Laboratory. Yura grabbed the opportunity and brought up our problem to Ginzburg. He stared at the ceiling for a while and promised to consider the problem. Half a year later appeared in journal Uspekhi of Physical Science a paper submitted by Ginzburg dealing with some problems of the theory of general relativity, and a solution to our problem was described in it. However, at this time, the Mössbauer epoch has ended and our interest in science has changed.

5. Interest to neutron scattering
At the end of 1960’s I left JINR and the Yura’s interest turned to neutron scattering.

When I went to JIRN again for a longer period, Yura has had finished a series of studies of the water behavior at critical point using neutron scattering. About that time, Ilya Mihaylovich Frank - the director of Neutron Physics Laboratory got motivated with the implementation of investigations of biological samples using neutron scattering.

The neutron source available at that time was the so-called IBR-30. It produced regular pulses of neutrons but the average flux was rather low for many types of neutron scattering experiments. Trying to satisfy Frank’s desire Yura came to employ the small angle scattering method, because the time of flight method allowed us to use a very large wavelength range, which made the pulsed source competitive with the method using single wavelength techniques. I was involved in the preparation of the construction of small angle scattering instrument. Our first task was to build the shielding around the neutron guide, which was an evacuated tube of 80 cm diameter, and to do this at the detector as well. It was a boring and hard physical work because we had to build a wall out of several tons of concrete and lead blocks around a track in order to move the detector.

During the breaks, Yura was busy with calculating the resolution power of the small angle device, planning and elaborating on a method to evaluate the optimal relative position between the sample and detector. By doing that, his mathematical erudition was revealed. Back then, computer techniques have been in rudimentary state.

6. Computer calculations and program languages
At the Laboratory of Neutron Physics, a computer “M-20” was installed. The necessary software for such kind of a computer was uneasy to find, program languages were far below the present level.

Yura was the first physicist learning the rules of communication with the computer at so high level that he was able to teach colleagues. He conducted a series of seminars on the topics of the way of writing programs for data evaluation by using the computer “M-20”. His explanations were logical,
clear, and the way, which made his explanations even very exciting. He picked up the then-most recently released program languages like Algol, Fortran, and Assambler quickly on a user level.

7. Teaching of students
His mathematical talent was employed for teaching students at the filial of university placed in Dubna. His lectures dealt with Statistical physics, which is a branch of physics that uses methods of probability theory and statistics, and particularly the mathematical tools for dealing with the behavior of large populations and finding new approximations for solving physical problems. It can describe a wide variety of fields with an inherently stochastic nature. Its applications include many problems in the field of physics, biology, chemistry, neurology and others. Its main purpose is to clarify the properties of matter generally, in terms of physical laws that govern atomic motion.

After we lost him, a thick dossier was found on his table. In that dossier, there was a manuscript. At first sight, they seemed to be the lecture notes. However, in fact, it was full of numerous complex formulae; therefore, it is very probable that he tried to write a book on this topic.

8. Style of his job
A few words about the Yura’s style of doing his job.

Firstly, he arrived at the lab exactly at nine o’clock morning using a bicycle as the mean of transport during both the summer and winter.

He worked twelve hours a day. Typically, at seven or eight o’clock evening he sat down and accurately wrote a short résumé about achievements and problems that need to be solved next day. At nine o’clock he took his velo and went home. At home, before going to bed, he worked on improving his knowledge of English language while reading often books dealing with children topics such as Winnie the Pooh and so on. He did that in order to get his own children involved in learning English.

Nota bene, Yura was proud of the young Ostaneviches. All three of them became nice, clever and promising people.

9. Conclusion
He usually spent his holidays either hiking in the mountains, or more often rowing on rivers, where the riverside was almost uninhabited. He liked the NATURE very much and it was a bitter response from nature that he was grasped at the place where he expressed his feeling of love.

We lost a talented scientist, a teacher, and a good friend as well, a strictly moral person who was a torch in our laboratory.