

Word of follower about the Teacher

It is the 75th birthday of Vladimir Evseevich Zuev. Certainly, jubilee is the time to sum up the results, no matter what wishes of new deals and successes were said at the celebration. Academician, founder of the Institute of Atmospheric Optics, one of the active founders of the academic science in Tomsk, and so on – only a few points of this list would be sufficient to be a well-known scientist. General phrases are hardly appropriate in any story about Vladimir Evseevich Zuev, since his deeds are very specific but, at the same time, large-scale. Let me illustrate this indisputable thesis.

In early 60's the situation with physics as a science in Tomsk was far from brilliant. Fast growing academic centers of Novosibirsk and Krasnoyarsk were very attractive (more than 1200 research workers left Tomsk for them then). Indifferent to science municipal and regional leaders and university professors dreaming about the past (for a long time Tomsk was one of only few scientific centers in Siberia and Far East) could not provide prerequisites for dynamic progress. Inevitably, this circumstance made the basis for the atmosphere of depression. I remember one of traditional annual reports presented by Vladimir Evseevich Zuev, who then was a deputy director of the Siberian Physical-Technical Institute (SPhTI). He was asked the following question: "Are any significant results planned to be obtained at the Institute?" It was not the question itself that is noteworthy in this case, but the ironic reaction of the audience. This reaction looked as if everybody said "certainly not." There was nothing strange in it, since stagnation was obvious. At the spectroscopic conference taking place in Siberia there were only three (!) participants from Tomsk and all without any report. The promising group headed by G. Mesyats was planned to be moved to Novosibirsk, defense of a doctoral thesis became a unique event, and so on.

And at that time a person appeared who said "I am going to defend my doctoral thesis" (and in the problem that he has started to tackle from nothing only several years ago). "I am going to publish my book in Moscow" (and the book had been published in the prestigious publishing house "Sovetskoe Radio"). "I am going to organize an All-Union conference on atmospheric optics (and all well-known scientists in this field came to Tomsk). "I am going to organize an institute" (it looked fantastic, but became reality very soon). This all could not be unnoticed and, certainly, has contributed in the current Tomsk physical science, whose high level is now commonly recognized.

Let turn to science again. Many years ago one of our American colleagues said "I know a man who knows the American scientific literature best of all. He is Professor Zuev from Russia." This is a salient feature that determines, to a great degree, the scientific style of Vladimir Evseevich Zuev. His numerous books are complete and very clear reviews, which represent the author's opinion and show the future promises. In 1960 the monograph "Searchlight beam in the Atmosphere" written at the Institute of Atmospheric Physics was published. It described the problems of searchlight sounding. Very soon the laser epoch has come in optics. Upon analysis of the corresponding results, Vladimir Evseevich Zuev declared that his theme will be "laser beam in the atmosphere." For a long time this theme governed the research field of the Institute of Atmospheric Optics and not only it.

Now let us tell about a very particular science. In due course, Vladimir Evseevich Zuev discussed thoroughly the problem on the atmospheric transmission windows – spectral regions at the periphery of absorption bands of atmospheric gases. The part of atmospheric windows in atmospheric radiative processes is significant and well known. However, there was a rather serious problem: the dispersion profile of a spectral line, which was successfully used in many spectroscopic applications, here led to a very wide discrepancy between the experiment and calculation. Analysis performed by Vladimir Evseevich Zuev has shown that the physical pattern of the line wings differs widely from that at the line center. Besides, he succeeded to clearly describe the peculiarities of the new theory. It should be noted that this was declared at the time when the dispersion profile was commonly accepted as universal, and therefore other explanations (dimers, fine-disperse aerosol, clusters) of atmospheric windows were sought for.

By the way, just here Zuev's ability to almost intuitively find a solution manifested itself; this is one of the most attractive characteristics of a real physicist. In former times I directly worked with Vladimir Evseevich Zuev, and sometimes I had only to give the corresponding mathematical expression for such intuitive findings. I would like also to mention one of the first Zuev's works on atmospheric spectroscopy: extrapolation of experimental data on the absorption function of atmospheric gases to atmospheric conditions. He had to solve the problems of the source function (in modern terms), reduction of the inhomogeneous beam path to the homogeneous one, and others. And again the intuitive ideas were first, followed by mathematics using the general properties of absorption band models. The work on search for causes of systematic and very large discrepancies between the experimental data on transparency of artificial fogs and the corresponding calculations occupies a marked place in formation of atmospheric optics in Tomsk. As has been found, the matter was in traps that determine particle microstructure and concentration. Actually, Vladimir Evseevich Zuev found it as early as at the stage of preliminary analysis, and the following complex work (experiment, calculation, methods for determining fog microstructure and water content) was organized to give most reliable facts in support of this idea.

The list of such examples can be very long, but we have considered the above-mentioned, seemingly particular cases to emphasize that the characteristic of Vladimir Evseevich Zuev as only an organizer of science is clearly one-sided. Of course, Vladimir Evseevich Zuev is an outstanding organizer of science and even simple description of his business biography indicates this fact. Nevertheless, this viewpoint is incomplete. Vladimir Evseevich Zuev is a famous person in science. It was he who initiated and organized all the research fields of the Institute of Atmospheric Optics, formulated their programs, and planned the aims of research. The 12-volume library "Problems of Atmospheric Optics" is an illustration of this.

Everybody who appealed directly to Vladimir Evseevich Zuev on scientific problems remembers talks with him on particular and specific problems, when leaving his office we knew what to do, saw the future of our problem in a new way, and took away a wonderful store of energy.

I met Vladimir Evseevich Zuev when I was a student at the Physical Department of Tomsk State University. Assistant professor V.E. Zuev delivered us lectures on general physics. Physics was very popular at that time. Vladimir Evseevich Zuev showed us the romantic spirit of physics, which is not subjected to any conjuncture and any fashion. Only true knights of science are capable of doing this.

Now Vladimir Evseevich Zuev is 75. Of course, it is a serious age. However, we believe in his star, his energy, experience, and intuition. We believe that he will make much for we not only survive in these tough times, as it is often said now.

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