

Dear Colleagues, Dear Friends,

I am delighted and honored to have been invited to give a speech on this important event in honor of the centenary of the birth of the universally famous scientist Olga Alexandrovna Ladyzhenskaya. First of all I would like to express my heartfelt thanks to the organizers, Darya Apushkinskaya and Alexander Nazarov, for their welcome and invitation.

For well known reasons, it is not possible to speak in presence. But due to my old and strong relationship of deep friendship with Olga Alexandrovna I want, at least, to mark my presence and honor Olga's memory with a simple "I was there too", a fleeting presence in time but intense in the motivations. In this sense I also thank the welcome message that Darya kindly wrote to me, to know "you are one of the few people who knew Ladyzhenskaya personally! So your participation is very valuable and important!". In addition, I did not want my absence to be attributed to unscientific reasons, linked to international situations that everyone knows, and that have nothing to do with normal scientific and cultural events, or with each of the individual participants of any creed, opinion or nationality they are

Unfortunately, I feel uncomfortable giving lectures in streaming. So I ask my very valuable, high level, collaborator prof. Jiaqi Yang, of Northwestern Polytechnical University, Xi'an, to kindly present some results that we have recently obtained in cooperation. He kindly accepted this task. Furthermore, in the last days some familiar problems led to my presence within the familiar circle. Hence, I will limit myself to sending the following considerations concerning the figure of Olga Alexandrovna Ladyzhenskaya.

I would have a lot to say about both the scientific and human figure of Olga Ladyzhenskaya. I would like to recall that Olga's father, a school mathematics teacher, was arrested in 1937, and then executed without trial. Due to this tragic situation, the young Olga was banned from enrolling at the University of Leningrad. Despite this situation, she has managed to make the career we are all celebrating now. Others will speak about the scientific career and the brilliant results obtained by Olga Ladyzhenskaya. However, I would like to recall her fundamental contribution, from the 1950s onwards, to the study of the motion of fluids, in particular to the Navier-Stokes equations. Her famous treatise dedicated to these

equations, the title of which it would be superfluous to mention, has become a bible on the subject, a source of curiosity and knowledge for generations of scholars. Important topics of her activity were elliptic and parabolic equations, with two very famous, fundamental, volumes, in collaboration with Nina Uralt'seva, the second of which with the contribution of Vsevolod Solonnikov, my friend Seva. Many other very important contributions were made in other fields, for example on non-Newtonian fluids and on the theory of attractors. Her decisive contribution to Hilbert's nineteenth problem was fundamental. Everyone has lots of memories concerning Olga's human figure. Concerning my long and deep friendship with Olga, I refer to my contribution to the project "Remembering Olga Ladyzhenskaya", with collections of memoirs about her, and a couple of nice photos. In those notes I essentially illustrated the sensitivity of Olga's affectionate approach to human relationships, in contrast to her character, very determined and decisive, when it came to ethics, work and science. Olga was an enchanting person, sometimes rigorous and authoritarian, very sweet in other circumstances. Work and friendships were separate topics, even when they were treated at the same time. Below I will appeal to some memories described in the above contribution.

Our personal acquaintance began when I was professor in Trento, 1976-1987. Many years later, in 1991, I organized a conference in Trento, even if at that time my full professor position was a triennial chair at the Academia Nazionale dei Lincei, no more in Trento. Olga was our main invited speaker. See the nice photo of this event that will appear in my contribution to the aforementioned project. But a very important moment in our personal relationships was in September 1992, my first visit to St. Petersburg. My wife and I had the pleasure and honor of being hosted by Olga at her home for about ten days. We were thus able to verify in her intimacy her simplicity and enormous humanity. An impressive, exceptional, personality. In general, we dined together at home, with one of her nieces who helped her with the housework. Olga's sweetness, the care for us, the delicacy and extreme availability in practical matters, were above all description -- a perfect hostess. Her sweetness appeared to me in contrast to the "authoritarian" attitude held during my first seminar at Steklov. I finished the seminar after the classic "one hour", but Olga said (ordered) something like "Hugo, proofs, the proofs". There was no possible questioning, just to obey. In this regard, I remember an amusing fact that happened a few years later. We invited Olga to go to a theatrical spectacle with us at the Mariinsky. At the intermission I would like to have

had a pastry. At that time prices in Russia were very low for us. But Olga found that the prices were too high, and she said something like "Hugo, niet pastry here", in a peremptory and definitive "way -- no way". However, Olga was not truly authoritarian. She was simply a great character, authoritative, and engaging. This aspect of her character reminds me of completely opposite situations, and there are many. Let me recall one of these situations. Many years later, having invited Olga to Pisa, we took her to visit Siena. Entering the Palazzo del Campo Olga remained petrified in front of a thirteenth-century Madonna. Both she and Madonna had angelic faces. We did not have the courage to distract her from that contemplation.

I was also deeply impressed by her capacity of showing her emotions without needing words, such was the expressiveness of her face in such moments, together with a particular movement of raising her head. For example, I look back at her reaction to the absurd display of our "consumer society" shop windows, or to certain, apparently not very recommendable characters, in the streets of St. Petersburg. During our first visit to St. Petersburg, one of our strongest memories was the visit to the Summer Palace, taken by car by Nina Uraltseva. Olga and Nina made us feel at home. This trip reminds me of an outing that happened many years later; it seems to me that it was on the occasion of Olga's 80th birthday. We went with a group of friends and family members of Olga to an outdoor picnic in the dacha that Olga owned as a member of the Academia. Olga was happy and simple, as an elderly peasant woman might be in her role as landlady. It was an unforgettable party; such was the great scientist Olga Alexandrovna Ladyzhenskaya I could not conclude this small talk without expressing my enormous admiration for the centuries-old mathematics school in St. Petersburg, and for its impressive scientific work. I admire in particular his tradition of concreteness characterized by the commitment to deal with real original problems, without subterfuges and shortcuts. And with great mastery in the search for concrete examples. Olga Alexandrovna Ladyzhenskaya was a pillar of this school, one of the most prominent elements.

I conclude by thanking the organizers again and wishing all the participants, present and absent, my best wishes for a future oriented in the direction of peace, to be shared with the rest of humanity.

Hugo Beirão da Veiga