ПОДІЇ ТА ПЕРСОНАЛІЇ
EVENTS AND PERSONALITIES

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IN MEMORY OF Yu. G. ZDESENKO 20 YEARS LATER

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On September 1, 2004, Prof. Yuri Georgiiovych Zdesenko, full professor rank at the Institute for Nuclear Research in Kyiv and corresponding member of the National Academy of Sciences of Ukraine, passed away suddenly. This short contribution aims to a personal renewal of his memory twenty years later, when his intense interest and enthusiasm in the science of underground Physics are still giving suggestions and paving the way in this field.

He was among the pioneers realizing in the 1980s in his country an underground experimental site, the Solotvina Laboratory, where his effective group of the Lepton Physics Department (he headed for years) made appreciable efforts in strategies to investigate double β-decay modes and other rare processes. In fact, he was extremely active in Nuclear and Astroparticle Physics. He with his group also contributed to searches for several hypothetical decays beyond the Standard Model such as nucleon decays into invisible channels, charge-non-conserving electron decays, and charge-non-conserving β-decays.

He was open to anything new and at the same time, he had a profound knowledge of traditions. It is relevant to note that – throughout his long career – not only he was instrumental in setting facilities, groups, and experiments in his country on emerging relevant topics, but also in setting international collaborations and experiments in several underground Laboratories in foreign countries, in the west and in the east of the world, contributing with new ideas and strategies, and often leading to the establishment of bonds of deep friendship and of collaborations even longly surviving him.

The first time I met him in the 1990s his dedicated deep interest in investigating rare processes in underground laboratories and in developing low background techniques and detectors, to continuously improve experimental sensitivities, was immediately evident. All this together with his wise attitude on general life made him not only a very valuable physicist but also an estimable man. He loved his Ukraine country, its culture, the humanity of the Ukrainian people, and the richness of the language; in every personal contact, he brought a bit of Ukrainian culture, of which he was proud. He dedicated his entire life to physics and institutions.

In particular, when I met him in the 1990s, I immediately had the possibility to appreciate the solidity of his scientific knowledge, his correctness, and his gentle rigor combined with a constant enthusiasm for the study of physics, offering always great inspiration.

Thus, we set the DAMA-Kiev collaboration (me, as spokesperson of the DAMA collaboration at LNGS, and he, as head of Lepton Physics Department) at the Gran Sasso National Laboratory in Italy. This effective collaboration is still active at present with his group continuing and improving the common scientific lines. Thus, about thirty years of collaboration have allowed me to deeply appreciate the scientific and human quality of all these colleagues, and in particular of Yuri. Many experimental measurements using novel detectors improving the reached sensitivity in many rare processes have been carried out. In particular, many double β-decay processes in various nuclides, such as Cd, Zn, W, Ca, Ce, Ba, Mo, Eu, Ru, Dy, Yb, Sm, Er, Os, and Nd, have been jointly studied using various approaches. For this purposes, characterizations of solid scintillating crystal detectors, $CdWO_4$, $ZnWO_4$, CaF_2, BaF_2, $LaCl_3$(Ce), $CeCl_3$, SrI_2(Eu) were carried out. Profiting from these low background set-ups, other rare processes were investigated within the DAMA-Kiev collaboration: searches for charge non-conserving processes, axion searches, rare alpha and highly forbidden beta decays, superheavy nuclei searches, dark matter studies, etc. The collaboration is still ongoing, being all of us effectively continuing in several cases the scientific strategies he pursued.

He also initiated and followed numerous young people, who have then well established themselves in national and international universities and laboratories proving his strong teaching abilities. It was a pleasure to discuss with him and then leave him being enriched with a new concept. When difficult choices had to be made, at the end of discussions with few words he was able to convince everyone with simple logical arguments.

In conclusion, he was a dedicated physicist and a wise man whose memory remains in the decades as an example and inspiration both in his group and in the several underground Laboratories in the world where he worked and where his colleagues still effectively contribute. Thus, Prof. Yuri Georgiiovych Zdesenko has to be considered among the pioneers in underground physics development, and his contribution deserves memory also throughout the future time.