

Obituary

In Memoriam: Yuriy Malyukin

Yuriy Zorenko 

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On 7 June 2020, Professor Yuriy Malyukin, who was the Guest Editor of a Special Issue of *Crystals*, titled “Crystals, Films and Nanocomposite Scintillators”, passed away at the age of 63. During his life, he was full of energy and had many ideas and creative plans.



Professor Yuriy Malyukin (19 April 1957–7 June 2020)



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Prof. Yuriy Malyukin was a well-known scientist in Ukraine and abroad, particularly in the field of physics, in nanoscale objects, and the field of materials science, in nano-dispersed and nanostructured materials. Almost the entire scientific life of Prof. Malyukin was associated with the SSI “Institute of Single Crystals”, the National Academy of Sciences of Ukraine. In 1987, at the Institute of Single Crystals, he initiated the creation of the modern laboratory of picosecond laser spectroscopy to study fast processes in the excited state of molecules, condensed media, and nanoclusters. Prof. Malyukin’s extensive knowledge and erudition allowed him to conduct unique experiments that were unparalleled in Ukraine and abroad. He performed pioneering works on the physics of impurity centers in a promising class of materials—oxyorthosilicate crystals. Deep knowledge of the physics of impurity centers made it possible to propose many technological ways to modify the scintillation characteristics in crystals of oxyorthosilicates doped with cerium ions. With the direct participation of Yu. Malyukin, work on the study of the dynamics of excitonic excitations in organic nanoclusters (J-aggregates), which are a promising class of materials as fluorescent probes and antenna complexes in artificial photosynthetic systems, was made possible. The obtained results are of general physical interest and make a significant contribution to the creation of a basis of fundamental knowledge about the mechanisms and conditions of the formation of nanoclusters of different structures and chemical compositions, studying the patterns of the optical properties, particularly the luminescent properties, of organic and inorganic nanoclusters.

Last years of his life, Prof. Malyukin devoted to the development of new class of luminescent redox-active nanomaterials for biological and medical applications. His firm

belief that these nanoparticles are very promising for application in medicine and pharmacy established fruitful cooperation among the leading scientific institutions of Ukraine and the rest of the world in the field of biomedicine, as well as with pharmaceutical companies. Joint testing of redox-active nanomaterials revealed their unique radioprotective properties, antitumor action, wound-healing properties, and positive effects on the aging organism.

Professor Yu. Malyukin was the author and co-author of more than 400 scientific papers, 15 patents, and 3 monographs. Under his supervision, 18 Ph.D. and 5 Dr. Sci. dissertations were prepared. Among Malyukin's students, there are eight Laureates of the President of Ukraine Prize for Young Scientists, four Laureates of the Verkhovna Rada of Ukraine Prize for the most talented young scientists in the field of basic and applied research and scientific and technical developments, and one Laureate of the State Prize of Ukraine in Science and Technology.

The loving memory of Prof. Yuriy Malyukin will forever remain in the hearts of those who knew him and worked with him over the years. For his students and colleagues, he will always be an example of true devotion to science and creative thinking.