In memory of Professor Yuri Kagan

We inform with deep regret that on June 4, 2019 in Moscow, before one month reached its 91st birthday (on July 6), Yuri Moiseevich Kagan passed away. The cause of death was cancer, from which he has been intensively treated lately.

Yu. Kagan was an outstanding theoretical physicist, one of the oldest scientists of the Research Center of the Kurchatov Institute, academician of the Russian Academy of Sciences.

His scientific works made an invaluable contribution to the development of molecular physics, the theory of solids, quantum and classical kinetics, the theory of the interaction of nuclear radiation and charged particles.

Yu. Kagan made a fundamental contribution to the theory of coherent interaction of radiation with matter, which stimulated extensive experimental studies using gamma-resonance spectroscopy and X-ray diffraction. Since the mid-60s of the last century, Yu. Kagan together with A. Afanasyev laid the theoretical foundations of a new direction related to the specificity of nuclear reactions in crystals.

In particular, they predicted the effect of suppressing the inelastic channels of nuclear reactions and introduced the concept of a collective excited nuclear state. And in 1976, Yu. Kagan together with a experimental team of scientists from the Kurchatov Institute were awarded the State Prize. Currently, all the major synchrotron centers of the world have set up special Mössbauer stations for the study and use of coherent nuclear effects, which based on these works.

For a long time Yu. Kagan was engaged for the theory of the Mössbauer spectra of a wide class of materials, which allowed explaining and predicting a number of new physical effects. This activity began with the prediction of the effect of stabilization of the hyperfine structure of the spectra of paramagnetic crystals by weak external magnetic fields. In particular, he showed that the small external field of about only 100 Oe can stabilize the hyperfine magnetic field of about a million Oe.

Over the years, the outstanding physicist has managed not only to obtain brilliant scientific results, which have found wide international recognition, but also to educate a whole galaxy of followers of his noble cause.

We, as well as all Russian Mossbauer community, express our deep condolences to the family, friends and colleagues of Yu. Kagan. The bright memory of him will forever remain in our hearts.

Igor Lyubutin

Mikhail Chuev